IPA

Independent Project Analysis Newsletter

Independent Project Analysis, Inc. is the preeminent organization for quantitative analysis of capital project effectiveness worldwide. At IPA, we provide practices you can use to ensure your success.

Volume 2, Issue 4 **December 2010**

Research Spotlight:
Pharmaceutical Projects: Early Schedule Development Linked to Faster Qualification Phase

Jordan Martens

Shortening qualification time translates into an earlier ramp-up of production, which results in better public health and company earnings. When IPA studied installation qualification (IQ) and operational qualification (OQ) cost and duration in 2003, we found that pharmaceutical and biotech (pharma) companies spent almost 10 percent of the total installed cost on qualification and qualification schedules nearly doubled from plan. In fact, several pharma manufacturing facilities sat idle for months while waiting to be qualified by company resources. Any capital effectiveness gained during the design and installation of these facilities was lost during this time.

Since 2003, pharma companies that have been regularly benchmarking with IPA have improved qualification schedules and lowered the cost. IPA has performed an in-depth study on the practices companies use in their systems to achieve this qualification performance improvement. Specifically, IPA used its database of 600+ pharma projects from more than 20 companies to answer the following questions:

- Which practices are the most important?
- Which drivers should companies concentrate on if their resources are limited?
- What strategies should companies be implementing on each project, even if initially they have to pay more and slow down?

One of the key practices for shortening qualification is developing a qualification schedule during Front-End Loading (FEL)[1]. The effect of when the qualification schedule is developed is shown in ***Figure 1.*** Developing a strong schedule early in the project life cycle improves schedule efficiency (e.g., by better coordinat-

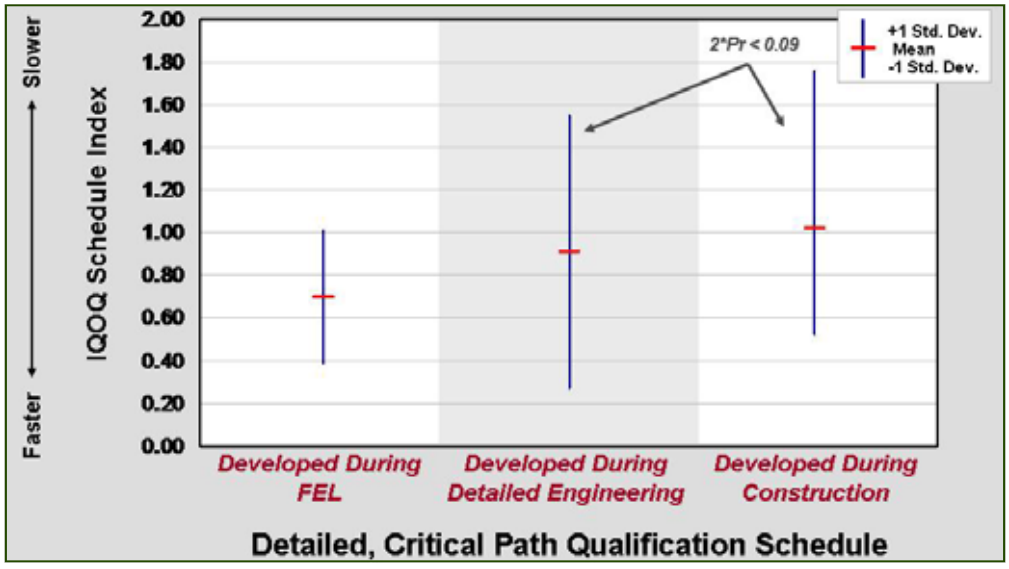

Figure 1. **Qualification Schedules Developed During FEL Drive Consistently Fast Qualification**

[1] FEL is the process by which a company develops a detailed definition of the scope of a capital project that is required to meet business objectives. The product of the FEL process is a design-basis package of customized information to support detailed or production engineering of design documents. Completion of an FEL design-basis package typically coincides with project authorization.

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ing construction and qualification activities) and reduces project risk, which results in faster qualification. The benefit of developing a detailed schedule during FEL is twofold: not only are qualification schedules over 20 percent faster for these projects than for those that wait until detailed engineering, but the variance is also significantly smaller. Therefore, project teams that take the time to build schedules early save significant time in the back-end and have a considerable advantage in predictability.

As shown in ***Figure 2***, more recent projects are less likely to leave qualification schedule planning until the construction phase. Almost 60 percent of projects develop such schedules during FEL and detailed design. This development is a significant shift from projects executed prior to 2003 that rarely completed qualification planning before construction. In addition to earlier qualification schedule planning, pharma companies that have exhibited improvement have spent significant effort to improve FEL and team integration. Furthermore, they have reinforced their in-house work processes and increased their capabilities in project controls. IPA research has shown that these practices correlate with better cost and schedule performance for projects across industries. Although pharma teams are using Best Practices more frequently, only 20 percent of recent projects are developing qualification schedules during FEL. Clearly, there are still opportunities for improvement.

Detailed Qualification Schedule Development	Pre-2003 Projects	Post-2003 Projects
During FEL	*11%*	*21%*
During Detailed Engineering	11%	38%
During Construction	78%	41%

Figure 2. **Timing of Detailed Qualification Schedule Development Comparison for Pre- and Post-2003 Projects**

So how do these results translate into a company's business case? If we were to use the average qualification period in the IPA database of 8 months, the teams that developed qualification schedules during FEL would have the opportunity to get to market about 2.5 months faster than those that wait until construction to build the schedule. Further, a company that decides to develop its qualification schedule early would significantly increase its chance of achieving its projects' schedule targets.

The information presented above is just one example of the value-adding IQ/OQ practices that IPA research has identified, along with the resulting effect. IPA will present the full research study at the next annual Industry Benchmarking Consortium meeting, which is scheduled for March 2011.

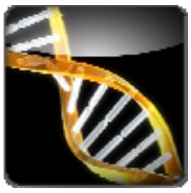
Professional Profile: *Jordan Martens, Associate Project Analyst*

Jordan joined IPA in 2007 and since that time she has evaluated both large and small projects for companies in the pharmaceutical, refining, and chemical industries. She has participated in a number of site and system benchmarkings and has been the lead analyst on various high-profile pharmaceutical capital projects. In addition, Jordan is IPA's client coordinator for two major global pharmaceutical companies and is involved with the update of pharmaceutical models and workbook documentation. Before coming to IPA, Jordan worked as a risk analyst for a large credit card processing company.

Professional Profile: *Kate Rohrbaugh, Research Team Leader*

Kate is a Research Team Leader in the Product Development Group (PDG) at IPA. She is the PDG liaison for research on capital projects in the Nutrition and Life Sciences business area and has developed models and tools for the analysis of these types of projects. In addition, Kate works extensively with IPA's research on team and organizational effectiveness and is the research and special studies work process champion at IPA. Kate has a Masters of Policy Sciences in Evaluation from the University of Maryland, Baltimore County (UMBC) and has worked at IPA for 3 years.

IPA's Work With Pharmaceutical and Biotech Companies



IPA has been working with pharmaceutical companies since 1992 and has evaluated more than 600 pharmaceutical and biotech projects. IPA helps pharmaceutical companies develop the flexibility in project systems and project implementation processes required to plan and execute all capital projects effectively. We understand, through analysis and quantitative measurement, the project procedures that are most effective for any combination of business demands.

Our detailed and carefully normalized Pharmaceutical Projects Database (***Figure 1***) covers all types of capital projects from the industry, from utilities and infrastructure projects to laboratories and manufacturing facilities. The database contains standalone facilities as well as add-on, expansion, and revamp projects from pharmaceutical companies worldwide. The database includes variables for each project that cover the entire project life cycle, from early planning and R&D through commissioning, qualification, and early operation. We have used these data to develop powerful statistical tools that enable us to compare pharmaceutical project performance in numerous areas.

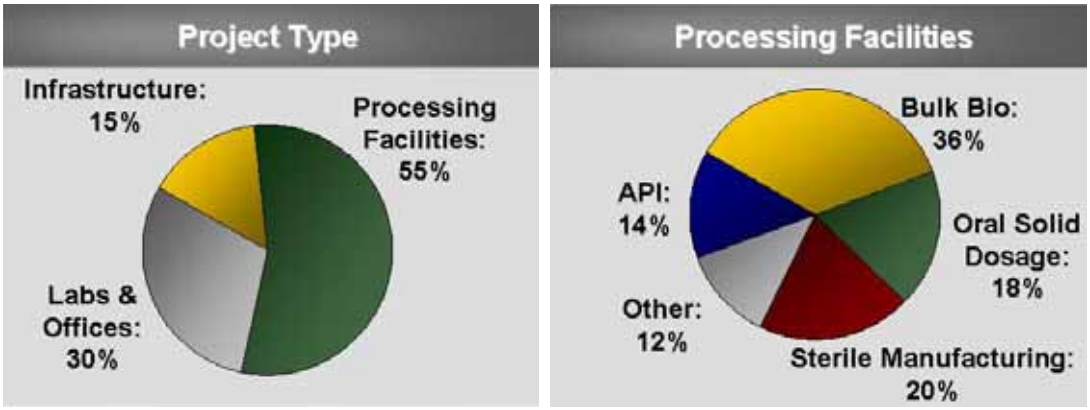


Figure 1. **IPA's Pharmaceutical Projects Database**

IPA analysts use these data and tools to evaluate project drivers and outcomes, and to benchmark project systems. In addition, IPA performs research to examine the key issues for pharmaceutical and biotech projects. In addition to the Installation Qualification and Operational Qualification (IQOQ) Best Practices, IPA has conducted research on project system responsiveness, practices for cycle time acceleration, organizational and team effectiveness, FEL 0 or the pre-planning phase, modular construction, and drivers of cost performance for laboratories and manufacturing facilities for pharmaceutical and biotech projects, among others.

For more information on IPA's Pharmaceutical Products and Services, contact **Natalia Zwart**, Business Area Manager (U.S.A.), at ***nzwart@ipaglobal.com*** or **Valerie Roma**, Business Area Manager (Europe), at ***vroma@ipaglobal.com***.

Project Management Best Practices for Pharmaceutical Projects Seminar

This program presents Best Practices for pharmaceutical project planning and execution. Findings are presented from research studies using IPA's pharmaceutical database on scope definition, project definition, time management, cost management, project resourcing, and risk management. Pharmaceutical-specific topics include a discussion of FEL 0, definition deliverables specific to pharmaceutical and laboratory projects, and practices for better qualification and commissioning performance. This program is currently offered as a private in-house course that can be customized to meet your organization's needs. For more information about this course or any of the IPA Institute's public and private programs, please contact **Sonia Kaestner**, Director of the IPA Institute, at ***skaestner@ipaglobal.com***.

THE IPA INSTITUTE
ADVANCING PROJECT KNOWLEDGE

REGIONAL SPOTLIGHT: *IPA Latin America*

Reinvigoration of Investment in Latin America

Carlos Flesch and Félix Parodi

Within the next 2 years, Latin America is expected to experience one of the highest growth rates in megaproject investment in the world. These investments will continue in the following years at a much faster pace than the world's average.[1] Despite a relatively low absolute investment compared with the Middle East and Asia, this level of investment should have a significant influence on the social and economic development of the Latin American region.

The projected growth rate in megaproject spending in Latin America will place a strain on engineering firms, suppliers, and construction resources. The region is expected to experience issues related to skilled labor availability, scarcity of skilled project management personnel, lack of contractors, and delays in the procurement of large specialized equipment.

Brazil, in particular, has been the investment leader in Latin America in recent years, and is currently regarded as a "hot market" for project activity. Global demand, especially in the emerging regions (China, India, Middle East, Latin America, etc.), and the rebound in commodity prices (such as oil and metals) are boosting the economic feasibility of these capital investments that are currently expanding beyond Brazil to several other countries.

Within the next 2 years, Latin America is expected to experience one of the highest growth rates in megaprojects in the world, with several investments in the oil and mineral industries and infrastructure.

Various investments are targeted at developing some of the largest oil reserves in the world (Brazil, Venezuela, Mexico) and some very large mine reserves (Brazil, Chile, Perú). These projects are being executed by private companies as well as national companies. Large projects in the petrochemical industry are also underway, and various companies are integrating these high-added-value products to their portfolios. Furthermore, the region has a considerable amount of small projects in all industries, including revamps, which are a very important part of company portfolios and represent considerable investment.

In addition to these industrial projects, there are various infrastructure and facilities projects that are tied to the development of the countries in the region. These projects are led by the government, with support from various organizations and joint ventures. For example, these projects are building ports, roads, and power plants to sustain the major growth now being seen in Latin America. Moreover, we cannot forget about the very large investment currently underway in Brazil to accommodate the Soccer World Cup in 2014 and the Olympic Games in 2016.

IPA's Experience in Latin America

IPA's database includes projects representing all types and in all process industries, as well as civil projects. The database represents 1,200 projects executed in 13 countries in Latin America, which includes more than 500 projects that we evaluated over the last 5 years.

As presented in ***Figure 1***, our Latin America database is very diverse in terms of project size, ranging from small projects (less than US$10 million) to very large complex megaprojects (usually over US$1 billion); and also in terms of industries, where we have good representation in exploration and production (E&P); refining; mining, minerals, and metals; commodity and specialty chemicals; and others, such as pulp and paper, pharmaceuticals, natural gas, and consumer products.

The companies represented in the database include Petrobras, PDVSA, Ecopetrol, Pemex, Vale, Codelco, Anglo American, BHP Billiton, Votorantim, Braskem, Dow Chemical, DuPont, and various joint ventures and private companies. Many of these companies plan to implement very large portfolios in the next few years.

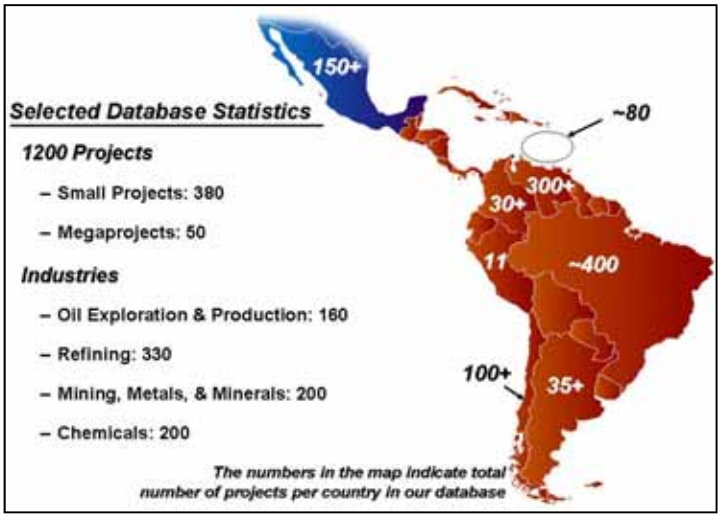


Figure 1. **IPA Projects in Latin America**

[1] The projected investment worldwide is higher than during the global investment boom of 2005 to 2008. For more details about IPA's work in EPC market forecasting, contact **Dean Findley** at **dfindley@ipaglobal.com**.

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Key Findings for Latin America Projects

IPA's Latin America database indicates that projects in Latin America tend to be larger compared to projects in more developed regions. Projects executed in Latin America often require significant infrastructure work and involve managing complex interfaces between the project team, the local government, environmental agencies, and local groups affected by the projects. They require even better planning than in other regions to effectively handle the challenges and mitigate the formidable risks that are inherent in such undertakings.

The recent experience of very large projects executed in Latin America indicates that they cannot be divorced from socio-economic progress, particularly in megaprojects, which are typically executed in impoverished regions. In most cases, the environmental permitting process and access to water and other infrastructure require consultation with communities. Most communities expect that major projects will be a key driving force in their development. Therefore, the integration of sustainable development practices is becoming an essential part of project planning and execution in Latin America.

We have also conducted global studies that have findings applicable to common issues experienced in Latin America:

Teams and Organizational Effectiveness:

The region needs to develop stronger in-house project management and engineering capability by having structured hiring, training, and retention mechanisms.

Contracting Strategy:

Latin America projects tend to use lump-sum strategies rather than reimbursable contracts. Studies have shown that project costs are higher for lump-sum contracts, because they transfer risk to the contractor very early. There are ways that companies can reduce these risks, such as taking full ownership of various planning tasks (scheduling, permitting, cost validation, and others). Companies are also increasing the use of mixed contracting strategies (i.e., reimbursable contract for engineering and lump-sum contract for construction) as they increase staffing for large projects.

E&P Projects:

Our research has revealed the importance of upstream asset integration, including the effective collaboration of the reservoir, wells, and facilities functions. We are now deriving lessons learned from successful cutting-edge offshore developments underway in Brazil.

Small Projects and Revamp Projects:

These investments are usually part of the modernization of existing plants, and often include turnarounds (shutdowns) of their plants, typical of most large plants in Latin America. Our studies show that team development and project definition are very important factors for smaller projects. Small projects also provide valuable learning venues for young professionals, who take lessons from small projects on to greater responsibilities in larger and more complex projects.

Executing Projects In Labor-Short Environments:

Labor shortages magnify missteps and the adverse effects of late changes. Key practices that mitigate these risks are the use of integrated teams during project definition, continuity of key team members during execution, and detailed planning of manpower needs.

In addition, IPA has dedicated a study on project execution in various regions and specific key countries in the world, such as Brazil, as it is the largest country and economy in the region and has a growing global market presence. Most of these lessons are applicable to other countries as capital investment expands at a vigorous pace in the coming years.

Lessons Learned From Brazil

Research on Brazilian capital projects executed during the period of expansion of 2004 to 2007 indicated that their overall cost competitiveness declined. These projects experienced an increase in office costs (engineering and project management costs) due to a scarcity of experienced project professionals, but overall field construction costs remained fairly stable. In this study, we identified several serious challenges that companies face in developing and implementing these projects, such as a complex tax structure; complex environmental permitting process; requirements for minimum local content for oil projects; insufficient skilled capital project professionals and insufficient qualified engineering and construction contractors; and others. All these factors can adversely affect projects in the years to come. However, the study confirmed that, in Brazil, the key practices of team integration and better project definition help reduce the risks related to those challenges.

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An additional IPA study on executing capital projects in Brazil identified local factors that impact project outcomes and practices that drive superior performance. One of the findings, shown in ***Figure 2***, was that project execution planning[2] is a key driver of success—in particular, detailed scheduling and knowledge of local labor and materials availability, particularly for remote projects. The study also found that, although labor costs have been lower in Brazil than in other regions, they are now becoming more expensive, and that the productivity factor in Brazil is much lower than in other regions.

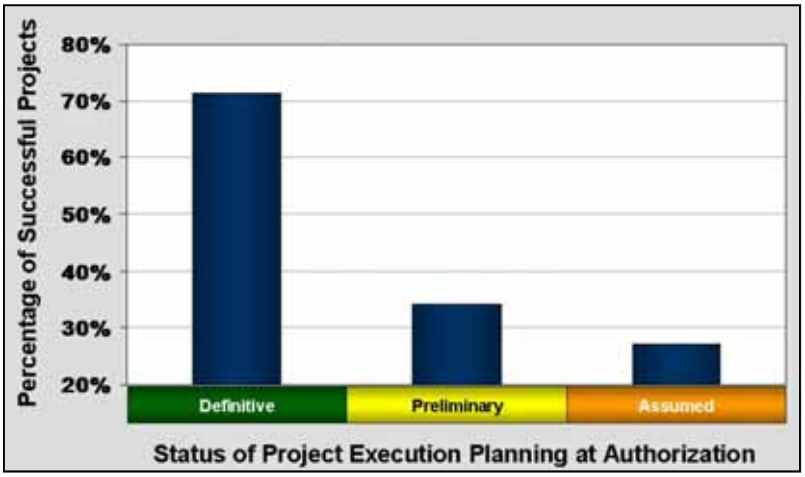


Figure 2. **Brazil Project Success Is Strongly Related to Level of Planning at Authorization**

Implementing projects in Brazil usually takes longer than in other regions of the world, in part because of long procurement durations. The projects that reduced the effect of procurement on schedule developed a procurement strategy with proactive owner involvement, conducted detailed vendor reviews during the selection process, and created lists of items that need to be procured domestically versus those that must be imported.

Unlike other regions of the world, which have demonstrated improvements in safety performance over the last decade, we have not seen an overall noticeable improvement in safety in Brazil and in Latin America as a whole. Safety will be an important challenge—and necessity—in the coming years.

IPA has plans to complete similar studies in most Latin American countries and industry sectors to keep pace with the increase in project activity. Our knowledge about cultural and country-specific aspects derives from more than a decade of operations in the region. For more information please contact our IPA Latin America office in Curitiba, Brazil, at **+55 (41) 3028-9028**.

Professional Profile: *Carlos Eduardo Flesch B. Jorge, Associate Project Analyst*

Carlos is an Analyst for IPA in Latin America. He has led benchmarkings and individual project evaluations in various industry sectors (mining, refining, chemicals) for projects ranging in size from small projects to megaprojects. Carlos has led workshops and courses in many countries for various clients in the Latin American region. In addition, he has facilitated the development of capital project systems for some key clients in Latin America.

Prior to joining IPA, Carlos worked as a Project Coordinator and Maintenance Supervisor in Brazil, Canada, and the United States. He has a degree in Industrial Engineering, with a postgraduate degree in Industrial Management and is certified as a Project Management Professional (PMP) from the Project Management Institute (PMI).

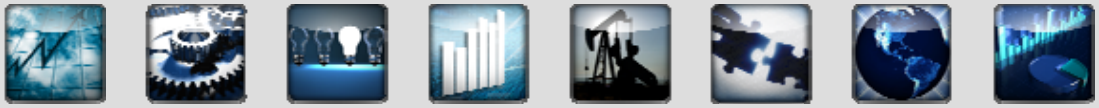
Professional Profile: *Félix Parodi, Review Board Member*

Félix joined IPA in 1998. Since becoming a Review Board member in 2009, Félix reviews IPA deliverables and approves them for release. Prior to this role, Félix provided services to leading companies that included system benchmarkings, and analyses of megaprojects and new technology projects. In addition, Félix developed a major corporate training program, facilitated workshops and courses for over 2,000 project professionals, and advised senior management on improving capability and performance. His work with a global company resulted in their achievement of Best-in-Class performance. He was a major contributor to the development of IPA's Latin America Project Center.

Prior to joining IPA, Félix held several international technology and product development positions with Procter & Gamble. He has a Ph.D. degree in Chemistry from Louisiana State University, and was appointed a Fulbright Fellow upon his graduation at Catholic University of Perú.

[2] Project execution planning is one of the three main components of Front-End Loading, and includes the execution strategy, schedule definition, and other elements.

Upcoming Exploration & Production Research Studies



Evaluating Unconventional Gas Projects and Resource Plays

IPA will be conducting an in-depth study of unconventional gas projects. The focus is on onshore developments that seek to produce the substantial amounts of gas that have accumulated in geologic environments that differ from conventional hydrocarbon traps (i.e., occurring in "tight," or relatively impermeable sandstones, in joints and fractures, or absorbed into the matrix of shales). Given the large investment in these gas plays combined with emerging drilling and completion technologies, there are significant learning opportunities in this fast developing area of business. IPA will use its proven methodology to identify project Best Practices and to create a means to measure effectiveness of various strategies through cost and schedule benchmarks.

If you are interested in learning more about this study please contact **Rolando Gächter**, Business Area Manager (Exploration and Production), at ***rgachter@ipaglobal.com***.

Development of Appraisal and Reservoir Engineering Metrics

Exploration and Production companies are engaged in the business of executing asset developments to develop reserves and deliver reliable and stable hydrocarbon production. Asset developments involve building facilities and executing development well programs. ***The success of facilities and well programs, in fact, the entire venture rests on how well the reservoir is understood.*** For the last 10 years, IPA has quantitatively shown how important an effective appraisal program is to ensuring robust asset outcomes. Such quantitative information linking appraisal decisions to key economic outcomes, however, is not always available in an easy to use format in the early phases of a project (Appraise Phase) when the business is more likely to push back on additional appraisal work. Several companies have, therefore, requested IPA to undertake a study to develop key reservoir appraisal and engineering metrics that can be used very early in the project life-cycle to support key decision making.

Goal of This Study

The overall goal is to use the IPA database to support subsurface and facilities teams ***very early in project development*** by providing a tool to assist in scoping costs. The purpose of this study is to pool subsurface data from several operators' from all over the world and develop metrics that will allow the participating companies to understand how these metrics are related to their project characteristics. The purpose of this is to provide industry data in a very easy to use graphical format to answer questions such as:

- Do we have enough appraisal wells or Do we drill another appraisal well?
- What would my production and reserves outcomes be if I stop appraisal now?
- How does the amount of cores we have compare to other operators doing similar sized projects.
- How does my P10-P90 range for reserves or production compare to other operators with similar level of appraisal?
- How does my planned recovery per well compare with actual results of other projects with similar reservoir settings and complexity?

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Companies that expressed interest view the need for metrics from a variety of perspectives. Some owner companies have limited resources to build their own detailed subsurface characteristics, appraisal strategy or appraisal cost databases. Some firms are trying to build up their capabilities and need a good baseline of metrics to start developing their databases. Some firms do collect and analyze their own data, but have no consistent means of validating their own data against industry experience, or their data represent only a limited range of project type and locations. Some firms have good data in one region but are now expanding to other regions and would like to know how much and what kind of appraisal work other firms typically do in different regions of the world.

Approach

The cornerstone of this research is that project performance can be correlated to causal factors, such as, project definition, technology issues, and human factors by understanding the historical relationships between these elements. Because our analysis is based on the industry's actual experience with asset developments, it provides an empirically grounded, industry-wide benchmark for assessing and comparing project outcomes and the quality of the project systems that produce those results. Further, the basis of this study is a database of 533 different fields from around the world between 60 operators.

How To Participate

We will form a committee consisting of subsurface functions from IPA clients who have a common interest in developing, maintaining and updating these metrics and have committed to project data collections and evaluations. Access to these metrics and participation on the committee will be limited to companies who were members of Upstream Industry Benchmarking Consortium (UIBC) in 2010 and that have made a firm commitment to join UIBC in 2011. No other companies will have direct access to these metrics.

No additional data collections will take place for companies that participate in this study. Each participating client must provide input on the their priority for relationships they would like IPA to investigate. This study will begin in December 2010, but additional clients may still join this multi-company research study after this time.

For more information, please contact **Neeraj Nandurdikar**, Business Area Manager (Exploration and Production), at ***nnandurdikar@ipaglobal.com***.

Upstream Industry Benchmarking Consortium (UIBC)

The UIBC 2010 annual meeting was held from November 8 to 10, 2010 in Tysons Corner, Virginia. The agenda for this year's meeting focused on the long-term UIBC vision of sharing performance results and practices in all aspects of E&P asset capital effectiveness and was prepared with the guidance of the UIBC Steering Committee.

Ratings from the attendees were among the best ever received and **membership grew to a record of 18 companies**. The research studies presented this year included the following: *Upstream Megaprojects Revisited - What Is the Problem?; Production Attainment - An Estimating and Assurance Problem; Benchmarking Onshore E&P Developments;* and *Understanding Drivers of Depletion Intensity.*

The UIBC 2010 Road Show will be hosted by Chevron this year in Houston, Texas, on June 14, 2011. This road show is open to all UIBC companies, and extends the UIBC metrics and research to company participants that were unable to attend the main UIBC 2010. For more information on the UIBC annual meetings or the UIBC 2010 Road Show, please contact **Rolando Gächter** at **rgachter@ipaglobal.com**.

The Industry Benchmarking Consortium (IBC) is a premier training opportunity in capital stewardship for both business and project professionals. As in previous years, IPA will present metrics of the participating companies as well as findings of research studies performed by IPA.

DETAILS:

The 21st annual meeting of the IBC 2011 is scheduled to take place from ***March 28 to March 31, 2011***, at the Hilton Washington Dulles Airport in Herndon, Virginia.

The IBC provides ample ***networking opportunities*** during breakfast, lunch, and breaks, in addition to evening receptions on Monday and Tuesday at the Hilton Washington Dulles Airport.

AGENDA:

Monday

- The IBC begins on Monday with a Metrics and Statistics Primer session to provide an increased understanding of how to interpret benchmark results. Following the metrics primer, highlighted research from previous IBCs will be presented.

Tuesday & Wednesday

- The centerpiece of each IBC is the sharing of outcomes and practices of the participating project systems. Two metrics sessions will be held on Tuesday, March 29, as part of this focus. The first will be a plenary session that will highlight overall industry trends and overall company metrics; the second will be broken into smaller groups by industry sector to discuss trends and practices for each sector.
- Major research studies to be presented may include the following:
  - **Effective Target Setting**
  - **Effects of Team Member Turnover** – *Development of Team Stability Index*
  - **Conceptual Estimates for OSBL**
  - **Safety Study on DART Incidents** – *A Careful Look at Accidents and Injuries*
  - **Business Drivers Affect Project Trade-offs**
- IPA research will be complemented by presentations from member companies on relevant topics.

Thursday

- The objective of this portion of the conference is to share performance results and practices that are specifically applicable to small projects (those costing less than US$10 million).
- Site-based systems metrics will be presented in addition to the following research studies:
  - **Fit-for-Purpose Work Process for Small Projects**
  - **Changes on Small Projects**

The IPA Institute will present "Cost & Schedule Integration" and "Contracting Strategy Selection Process" modules selected from the Institute's project management courses.

Many participating companies have expressed interest in increasing the size of the delegation, as well as facilitating attendance for participants located outside the United States. To provide that opportunity, IPA will conduct an IBC EMEA (Europe, Middle East, and Africa) roadshow scheduled from May 11 to May 13, 2011, which will present the top research studies of IBC 2011. IBC EMEA 2011 will be held at the Dorint Hotel Amsterdam-Airport in The Netherlands.

For more information about the research topics and conference content, contact **Phyllis Kulkarni** by e-mail at ***pkulkarni@ipaglobal.com*** or by phone at **+1 (703) 726-5472**. For logistical information, contact **Ellie Reynolds** by e-mail at ***ereynolds@ipaglobal.com*** or by phone at **+1 (703) 726-5471**.

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2011 IPA Institute Program Schedule

To view full course descriptions, pricing, up-to-date registration details, and special discounts, please visit our website at www.IPAInstitute.com

Project Management Best Practices (22 Professional Development Units)

February 15 -17: Las Vegas, Nevada
May 10 - 12: Los Angeles, California
June 14 - 16: Santiago, Chile
September 6 - 8: Singapore, Singapore
November 8 - 10: Buenos Aires, Argentina
April 12 - 14: São Paulo, Brazil
June 7 - 9: Moscow, Russia
August 16 - 18: Santa Cruz, Bolivia
September 27 - 29: Houston, Texas

Best Practices for Small and Plant Projects (22 Professional Development Units)

February 22 - 24: New Orleans, Louisiana
August 23 - 25: Houston, Texas
March 16 –18: Perth, Australia
October 11 - 13: Las Vegas, Nevada

Contracting in the Changing World of Projects (12 Professional Development Units)

March 8 - 9: Houston, Texas
October 25 - 26: Houston, Texas
October 18 - 19: Rio de Janeiro, Brazil

Best Practices for Mining Projects (16 Professional Development Units)

March 22 - 23: Lima, Peru
September 20 - 21: Belo Horizonte, Brazil
April 13 - 14: Brisbane, Australia

Executing Successful Complex/Megaprojects (18 Professional Development Units)

April 12 - 14: Calgary, Alberta, Canada
June 6 - 8: Perth, Australia
October 4 - 6: Lima, Peru
May 30 - June 1: Kuala Lumpur, Malaysia
October 4 - 6: Houston, Texas

Establishing Effective Capital Cost and Schedule Processes (16 Professional Development Units)

April 13 - 14: New Orleans, Louisiana
June 28 - 29: San Francisco, California
October 4 - 5: Kuala Lumpur, Malaysia
May 10 - 11: São Paulo, Brazil
September 6 - 7: Santiago, Chile

Exploration and Production Project Best Practices (22 Professional Development Units)

May 10 - 12: Stavanger, Norway
July 26 - 28: Rio de Janeiro, Brazil
July 12 - 14: Perth, Australia
December 6 - 8: Calgary, Alberta, Canada

Practices for Shorter, More Cost Effective Turnarounds (14 Professional Development Units)

May 25 - 26: Rio de Janeiro, Brazil
July 26 - 27: Houston, Texas

Best Practices for Government Project Management (16 Professional Development Units)

November 1 - 2: Arlington, Virginia

Upcoming IPA Events for 2011

March 28 - 31

Industry Benchmarking Consortium (IBC) 2011 in Dulles, Virginia, USA

The IBC provides an independent forum for each participating company to view its performance against other companies' performance. The consortium highlights Best Practices used and reinforces their use to improve capital effectiveness. During the consortium meetings, attendees learn ways to improve specific elements of capital project execution through presentations and face-to-face discussions. For more information regarding the content of the IBC, please contact Phyllis Kulkarni at ***pkulkarni@ipaglobal.com***.

May 11 - 13

IBC EMEA 2011 in The Netherlands

IBC is intended to share Best Practices through its participating companies. To help meet this goal, IPA will host a local version of the IBC, IBC EMEA, for the IBC companies with a presence in Europe, the Middle East, Africa, or Russia. This local session will allow IBC companies to increase the number of people within their companies who can participate in the IBC.

IBC EMEA will present research from IBC that is most relevant to project practitioners along with IBC company metrics. Because of IBC EMEA's location, we will highlight the practices and performances of projects defined and executed in Europe, the Middle East, Africa, and Russia. Both large and small project Best Practices and metrics will be covered, and there will be many opportunities for discussion and networking. IBC EMEA 2011 will be held at the Dorint Hotel Amsterdam-Airport in The Netherlands. For more information regarding IBC EMEA 2011, please contact **Vania Loma de Bagga** at ***vlomadebagga@ipaglobal.com***.

June 14

Best of UIBC 2010 Road Show in Houston, Texas

The Upstream Industry Benchmarking Consortium (UIBC) 2010 Road Show will be hosted by Chevron. The UIBC Road Show is open to all UIBC companies, and provides an opportunity to extend the UIBC metrics and research to company participants that were unable to attend the main UIBC 2010. For more information, please contact Rolando Gächter at **rgachter@ipaglobal.com**.

June 15

Upstream Cost Engineering Committee (UCEC) 2011 in Houston, Texas

The UCEC annual meeting, formally organized in 1999, is an approved subcommittee of the UIBC. The purpose of the UCEC is to improve upstream project and business results by providing metrics for better cost engineering. The UCEC metrics provide asset evaluation and concept development functions with a better understanding of costs and schedules. For more information, please contact Carlton Karlik at **ckarlik@ipaglobal.com**.

September 14 - 16

Cost Engineering Committee (CEC) 2011 in Herndon, Virginia

The CEC, formally organized in 1997, is an approved subcommittee of the IBC. The purpose of the CEC is to extend the IBC forum to cost engineering practices with a focus on cost and schedule metrics. By using these cost and schedule metrics and research findings, companies can improve their project and business results. For more information, please contact Robert Brown at **rbrown@ipaglobal.com**.

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IPA improves the competitiveness of our customers through enabling more effective use of capital in their businesses. It is our mission and unique competence to conduct research into the functioning of capital projects and project systems and to apply the results of that research to help our customers create and use capital assets more efficiently.

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The IPA Institute's mission is aligned with the overall IPA mission to improve the capital productivity of its clients. The programs offered provide a forum for in-depth understanding of key elements of the capital project process and how to apply these learnings to effect positive changes and improvements, resulting in the more effective use of capital.

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