

Prospect Information Management – Software led design provides new way to build an information management system for US independent

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Abstract

The majority of information used to move a prospect through a decision process is subjective. Each company uses a proprietary method for classifying and scoring the potential of a prospect. Profiles change over time (cost, potential, risk, status etc.), and requires collaborative input from a multidisciplinary team (GG&E, Land, Legal). Information must be presented back to the managers using their language, taxonomies and methods to enable rapid, real-time comparison and ranking, and needs to be implemented in a timely manner, be easy to use and easy to update as business requirements change.

This talk shows how an independent E&P company implemented a Prospect Inventory Database system. New software tools provided a methodology for deconstructing the complex business of Prospect management into simple building blocks that combined together enabled the team to “design” a system that manages Prospects, from concept to completion.

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Introduction

There is a constant dialogue in the industry about standards, best practices, common taxonomies etc. We recognize the importance of these discussions and initiatives. There are many organizations, providers and users of information technology making huge strides in understanding and practices in these areas. In particular the focus is on drilling, well and seismic data management, reserves and land systems.

The challenge discussed here focuses on the business processes that sit above these deeply technical systems and the information/data flows, in particular for the prospect¹ lifecycle.

The Business of Finding and Developing Prospects

Every operator needs a pipeline of prospects. At any point in time there should be an inventory of prospects being drilled, early leads or ideas being worked, and prospects getting ready for AFE approval to drill. Each part of the business – Exploration and Development have a different way to define a prospect with different work processes required depending on the risk, potential size of the prospect, area it is in and operated or not.

The decision to move a prospect forward in a business process requires the consolidation of many different disciplines, or domain's data and ideas, into one integrated view of the prospect at a point in time: cost, economics, anticipated production, legal, regulatory etc as well as the traditional Geological/Geophysical sub surface interpretation or model. This information is often captured in an unstructured file, such as a presentation to management, even though each individual contributor may have supporting information in other systems, databases, application or files.

Implementing solutions for Prospect Information Management where the primary user is the executive or senior management presents a unique problem for Petroleum Data Management systems. At least 50% of the information that drives the decision to move a prospect forward in the decision making process is subjective and it is the comparison of the subjective package along with the data for a group of prospects that helps drive the process..

While the finding and development of prospects is a common process it seems that each company, or even different parts of a company, has a different way of defining the prospect and the information required to make decisions through to successful drilling and production.

There are common challenges involved in the process of prospect discovery and evaluation for management and teams – how to quickly make better decisions; how to be efficient in analyzing which prospects are worked; how to learn from mistakes and to operate more productively. One challenge that is often repeated is “Didn't we look at this before?”, “Do you remember that prospect John looked at before he left?”

However, each company also takes pride in their inventory and in decisions made on which to drill, and perhaps more importantly, which to not drill. Companies view their process as proprietary to them and the information about the prospects is almost sacred within an organization.

A common mantra is “We do things different here”; “We do things our way”. Taken one step further, operators can often be heard saying “Our way is better”, “Our process and method is critical to our competitive advantage”.

At W&T we are no different – we do things our way and we are measured both in the market and internally by our success rate on drillable prospects, discoveries and our finding ability. The following discussion outlines challenges in managing our prospect inventory and our approach to solving these challenges.

Where is the Information

One of the biggest challenges affecting our ability to manage our Prospect Inventory was all of the information collected was stored in an ad hoc manner: Spreadsheets, displays and scanned files in a variety of locations

Across the business each manager had their own spreadsheet of “their” prospects. Much of the information required was “subjective” and often collected in a way that made it impossible to compare and contrast prospects e.g. risk, size of the prize, etc. Key information was put into a presentation and then emailed and/or presented for decisions.

In addition, management needed to know, “real time” where we were on a project, who was working on it, what were the results, when would it be done, what happened to that prospect, haven’t we looked at this before, where was that map?

One of the more difficult areas to balance is the personalization of a prospect by the individual who found it and worked it up versus the need for the business (management) to have line of sight into the prospects in relation to the portfolio/inventory.

The Solution

Looking at the industry we researched what kind of technology could help us solve this kind of information management conundrum.

Our requirements were simple – find a system that could handle our process and information, be able to have it work “our way”, be flexible and robust, provide standardization yet allow for exceptions, could be used by technical staff and management, managed in house and fit with our infrastructure and have a low impact on our IT resources. In addition we needed it sooner than later and it had fit to within our budget.

The initial answers were surprising – “You’ll have to build it”; “It will take about 1- 2 years”, “Call your IT guy”. We looked a little further and discovered a technology that had been

developed after several years of analysis and investigative work looking at the way companies needed to manage this kind of information for these kinds of processes. The technology was developed through collaboration and input from several large independent oil companies who had a similar wish list.

The technology provides an “out of the box” tool kit that deconstructs the basic components of the information elements of a business process and allowed us to create our “own world” of “OUR” prospect management. The premise of the technology is you tell it how your business works, how you want to manage it, what information you want to collect (structured and unstructured), what your business rules are. The technology solution consumes these constraints and provides the system user interface ready for use.

Method

Our traditional software evaluation methods suddenly became redundant – how do you evaluate a solution that you designed and have told what to do?

The design process started with “herding”. For the software to truly support how the managers viewed the business, it was critical that together they get into a room and articulate how each of them saw the business and reach consensus on how this could be translated, using the tools, into the building blocks of the system.

What do you want to track?

The first question the software asks is “what are the type(s) of business objects you want to track, and how are they related to one another?” This seems a simple question, but after waiting years for a piece of software to ask that question our challenge was how to answer it.

It turns out when you put a cross functional management team in a room with a whiteboard and the software is sitting waiting for you to tell it the answer, it is not quite so simple. What did we want to track? Add into the equation – Managers, Geologists, Engineers and Techs, it turns out everyone’s view of what they are working on is seen differently. Prospects for some, fields and wells for another. To some we are tracking projects that are each of a different type with different information to collect for each – how then could we standardize across all “opportunities” to create a true picture of the business.

Our original idea was to create a prospect Inventory database driven by the needs of the development organization. Simple – we need to track prospects that get drilled – in other words the prospect becomes a well at some point. Enter Exploration in to the picture – a

prospect to them is an initial submittal that comes from multiple sources and may or may not mature into drillable (multiple well) projects.

We also found that spreadsheets, presentations, files, shared drives, AFE meetings, peer reviews, prospect management meetings – are very personal and often ad hoc. The challenge was to take a step back from the “day to day” and really define how we managed the business and what we need to collect to improve upon it. We narrowed our thought process and returned to our initial idea and decided to focus the systems use on tracking Development prospects which defined the “use case” for the system. Each prospect was a “project” in the system with its own life and data.

What is the Process?

The second question the software asks is, “What is the business process or lifecycle of a prospect?” In order to standardize all prospects, it was required they go through the same process (high level) in order to compare and contrast our inventory in terms of a prospects status at any point in time. Our initial interpretation of our process was simple – a prospect starts, is screened, is wrapped up for pre-drill, is drilled, and then results were evaluated (post drill). The next challenge was deciding what happens to a prospect that doesn’t make it – where does it go? Do we ever bring them back to life? Is there a difference between killing a prospect versus putting it on hold? Do we need to justify why it was killed? What could bring it back to life if it was killed? What about farm outs²? How do you track what needs to be farmed out versus what was actually farmed out? What if you want to cancel the farm out and bring the project back in house? Of course the answer was yes to all of these so our process was linear for the most part with the ability to send prospects to the graveyard, bring them back to life, flag them as proposed for farm out, and farmed out with the ability to kill them and bring them back.

How are prospects organized?

The third question, “How do you want to organize prospects so they can be easily found?” Should they be organized by the areas we work in? By offshore or onshore location? By accounting hierarchy? Reserves classification? Team? The consensus was by “area worked on” with the ability to break out prospects that had come in from outside our exploration department or were generated during a lease sale.

What information is required to make a decision?

What information did we need to collect along the way, what information is relevant throughout the life of a prospect, and what is specific to certain stages in the process? What

about the supporting files? Do we want one big folder for files per prospect, broken out by type, e.g. Maps, Presentations, or Well data? Did the type of documents change through the process? From this Q&A session we designed entry forms for all the information we wanted to collect on prospects. The supporting files and how they changes through the process.

The final touches were using the system to connect prospects, processes, and organizational structure to the forms and then decide on the types of inventory views and reports we needed.

Amazingly, the initial version of the system was up and running in one day! Over the following week the design was “tweaked” and iterated in order to meet each of our specific requirements.

Lessons Learned

We learned there are huge advantages to working with technology that is capable of doing what you tell it. The software becomes “ours”; it speaks our language, using our words and terms becoming very natural and easy to use. The disadvantage? It will only do what you tell it to.

In some instances we were limited by our ability to reach consensus on a particular area. Our culture is one of evolutionary change so a recurring theme in the design process was “well we don’t always do it that way, but it could be better that way”.

We observed that there is a tendency in humans gathered around a whiteboard to create processes and systems to manage every possible “what if” scenario, over design, find the most detailed and complex answer. Initially we tended to provide options that covered every possible scenario. For example, with drop down lists we added an “other” option and an area for individuals to describe the “other”. Testing the user input, we observed that the natural behavior was for someone to use the “other” selection when they were not sure, it was too early to tell, or they wanted to leave their options open. By restricting the drop down list to not include the “other” option, but allowing the users to make general comments, we achieved the same thing but ensured our “apples to apples” comparisons across the inventory would be easier.

Our first version of the system – it did what we told it to – became so complex and cumbersome that the “beta users” became lost and found it was difficult to use. The management team was being challenged with software usability. How were they to make their business process information requirements so simple that techs, geologists and executives could access the data intuitively and easily add data? We needed to balance management use

of the system for reporting and the ability for end users to be able to provide the information required.

Summary

One of our initial requirements for the solution was “we needed it now”. During our initial white boarding sessions the system was being configured (in front of us) as we matured our ideas. This was our first experience at real time system design. By the end of the first week we had a system in our hands that we could start to use and test. We spent a few summer months iterating and testing the system and went live late last year with over 150 prospects being tracked in the system.

The system was first used for management reporting and to support the end of year budget decision making process, and for executive management review.

Another need was that the technology would support our evolutionary culture. As the system went live, we learned what information was not important and what information was missing. Since “go live” we have continued to “tweak” the design (real time) so it evolves with our needs and our ideas.

Finally, as the use of the system becomes part of everyday work at our company other business teams are looking to expand the use of the system, such as capturing the initial submittal log through the Land and Exploration screening process, providing packages of information for our A&D department. We are now looking at using a similar approach to tracking the operations and facilities work projects – Evolution!

Definitions

1. Prospect - A prospect is a potential sub-surface trap which geologists believe may contain hydrocarbons.
2. Farm-out – The assignment of part or all of an oil, natural gas or mineral interest to a third party.

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