



# YOUR BEST CUSTOMER: THE WELL

Digital Transformation of Exploration and Production  
Companies Creates a Performance Edge for Oil and Gas

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# The Business Issue

Over the last decade, exploration and production (E & P) companies chased the incremental oil and natural gas from new wells, but almost completely abandoned base business improvement efforts. E & P companies spent billions of dollars annually to deliver new wells and enjoyed record-setting production growth and profits. And the investors that lined up to fund these development programs demanded greater capital efficiency in return.

With hundreds of thousands of exploration and production (E & P) jobs lost in the recent past, times are tough in Oil and Gas. Many companies have slashed budgets. Some have drawn on available lines of credit too, aiming for a “lower for longer” price reality. Others have simply retreated to survival mode, convinced that the best hope is to wait for higher product prices to justify large capital investments for drilling new wells.

The good news is that, in 2015, preeminent shale basin developers reported that the cost of new wells fell by 25% to 50% from just a few years earlier<sup>1</sup>. This increased efficiency can be credited in part to a winning combination of digital technology and processes borrowed from the manufacturing industry. However, as witnessed by the recent turmoil and oscillations in Oil and Gas, the industry still faces formidable challenges.



Digital transformation promises to increase profitability and improve business process for the oil and gas industry.

## The Solution

A few smart E & P companies aspire to do more than simply survive. These forward thinkers are leveraging their financial restructurings by focusing on base business process improvement. The search for ways to do more with less has led these pioneering E & P companies to choose a new path: Digital Transformation. Digital transformation, already adopted enthusiastically by many other industries, has begun to deliver impressive results to a number of oil and gas E & P companies.

Read on to see how a customer service mindset combined with a future-oriented technology platform can deliver on the promise of improved business process and greater profitability.

# Where It Hurts: Oil and Gas Pain Points

The challenges faced by Oil and Gas reach far beyond crazy price oscillations and the resulting job losses. The industry's E & P companies face other difficulties, including:

- Commodity price volatility related to geopolitical uncertainty and supply and demand imbalances.
- Increasing industry regulation.
- Aging infrastructure—such as pipelines, tanks and vessels—that requires increased maintenance.
- Aging workforce presents a “Big Crew” change, as approximately 40% hit retirement age by 2025.
- Difficulty attracting young, innovative talent to replace retiring staff.

Efficiency-seeking managers may be unfamiliar with the transformational value of new digital technology and the lessons presented by other industries. They can, however, turn pain points to opportunity by applying process discipline to improve performance and employing technology to help. The partnership of process discipline and technology provides a pragmatic approach for increasing the profitability of thousands of new wells. We call this winning combination Digital Business Transformation.

## Solution: Leveraging Digital Business Transformation

Moving oil and gas industry practices into the future will require a dedicated digital transformation platform to take advantage of associated agile methodologies and best practices. In conjunction with these technical tools, transformation requires a new mindset, one that looks at the well as not just a “hole in the ground,” but as a customer requiring service and attention. If that sounds strange, read on.

### **TREAT THE WELL AS YOUR CUSTOMER**

In the last decade, the installation of wellhead and down-hole sensors has given wells a “voice.” This voice communicates pressures, temperatures, flow rates and other physical properties. Applying conditional logic and trend-based analysis to this data effectively equips wells to ask for help, describe the problem, and later confirm when issues have been resolved.

Like human customers in consumer-oriented industries, your customer—the well—has a lot to say. Digitization has made possible connected wells with remote connectivity and control via digital well twins. Thanks to end-to-end automation/digitization of value streams, E & P companies have new, always current knowledge, and can act effectively upon the insights gleaned from the “chatty” wells. The real-time insight provided by listening to connected wells provides strategic opportunities and efficiencies.

Armed with a new understanding of the benefits of listening to what the well has to say, let's look at the technology needed to disrupt the Oil and Gas status quo.

### **BUILDING A DIGITAL TRANSFORMATION PLATFORM**

The successful digital transformation platform encompasses process, analytics, automation, integration, and an innate flexibility to support updates and expansion. These technologies are often characterized by the SMACIT acronym: social, mobile, analytics, cloud, and Internet of Things. Let's look at the platform pieces and the roles they play in transformation.

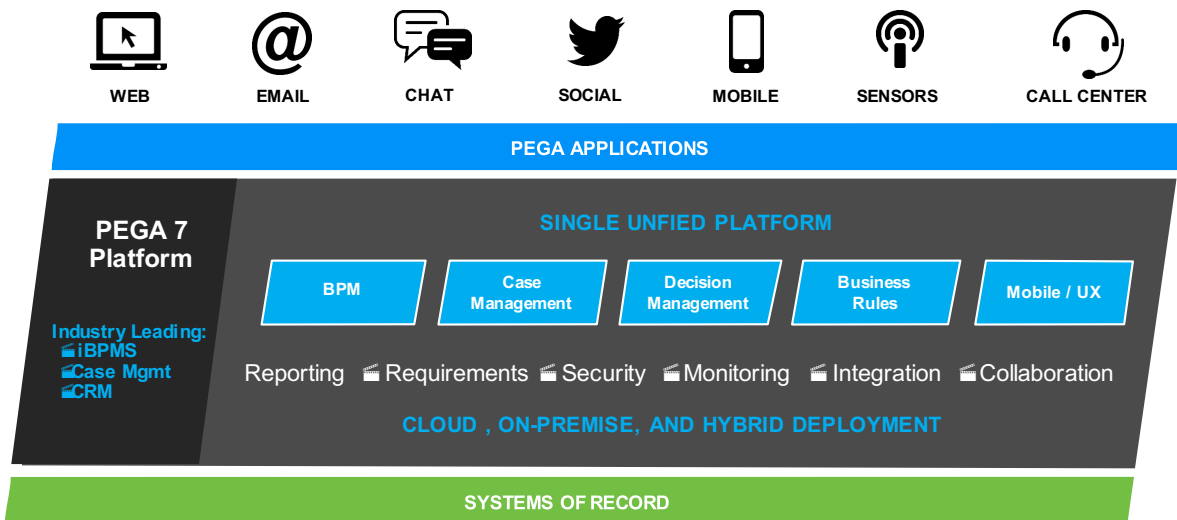
## COMPONENTS OF THE PLATFORM

A unified and easy-to-use digital transformation platform for Oil and Gas (or any other industry) will include the following key components:

- Digitized and automated value streams with processes
- Business rules
- Structured processes and dynamic cases
- Analytics
- Event processing
- Intelligent integration
- Work automation
- Mobile applications
- Cloud-ready—able to move from on premise to cloud, and back

## DIGITIZED AND AUTOMATED VALUE STREAMS WITH PROCESSES

The platform can easily model and execute end-to-end value streams, including those involving connected wells (essentially, IoT), oil fields, logistics, field support, and the data center ERP applications. These value streams typically involve digitized processes to orchestrate the work and tasks with complete visibility and business activity monitoring of operations.



The digital transformation platform

## BUSINESS RULES

The platform relies on a rich collection of policies or business rules, including easy to author and update rules for regulatory compliance, tax calculations, revenue calculations, constraints, risk assessment and service levels, to name a few. Usually experts or knowledge workers author these rules, but they can now be actively participating in both authoring and changing rules that are then readily digitized.

## **STRUCTURED PROCESSES AND DYNAMIC CASES**

The digital transformation platform supports modeling and immediate execution of structured flowcharts or workflow processes. In addition, various processes and planned and unplanned tasks can be organized in dynamic case hierarchies. A case is a higher level construct that can organize work automation tasks and potentially involve various units in completing and resolving a case. A dynamic case automates the value stream in stages or milestones, offering complete visibility to all production process stakeholders and control to production managers.

## **ANALYTICS**

Wells are speaking—sensors on wells generate enormous amounts of data. The digital transformation platform employs predictive algorithms to extract or mine executable models from well data and then operationalizes the models within the aforementioned digitized value streams. Combining business rules (typically human-authored) with analytics (provided through machine learning) is very powerful and results in optimized Next Best Actions for well services. These actions are intelligent, responsive, and contextual.

## **BIG DATA**

Event data and ongoing well operations and sensor data are aggregated in Big Data databases and used to discover and operationalize recommendations based on patterns detected in the Big Data repositories. Big Data are usually characterized through volume, velocity, and variety—all three of which are definitely characteristic of well data.

## **EVENT PROCESSING**

Wells constantly generate events on their status. Event rules and event correlation strategies can be used to decide when and how to respond to specific events, such as operating conditions which are exceeding design or permitted levels as detected by multiple well sensors within a prescribed area or temporal window. Event correlation rules can then activate and instantiate processes to respond appropriately.

## **INTELLIGENT INTEGRATION**

The digital transformation platform also needs flexible and intelligent integration with systems of record, especially related to enterprise resource planning (ERP). After all, this modernization, digitization, and innovation platform lives on top of existing legacies. Thus it wraps, renews, and modernizes well operation ERPs, leveraging legacy data as needed and just in time, using a plethora of integration technologies.

## **WORK AUTOMATION**

The platform for optimized well operations is first and foremost a work automation platform. This means that well devices are participants in end-to-end digitized work. It also means the platform performs skills-based routing to assign tasks to the most qualified, available workers in the field or in the office. Production managers have complete visibility and control of the end-to-end digitized and automated value streams when monitoring wells, fixing wells, or improving overall operations.

## **MOBILE APPLICATIONS**

The digital transformation platform supports generations of responsive user experiences (UX), relying on a design once and deploy everywhere approach, whether the UI targets browsers, smartphones, or tablets. Furthermore, UX designers can easily build and deploy mobile applications or mashups with the well operation's existing mobile applications.

## **CLOUD READY AND FLEXIBILITY FROM ON-PREMISE TO CLOUD**

The platform is cloud-enabled. It allows various digitized value stream well operations to be deployed on public, private, or hybrid clouds. Sometimes organizations develop and test on a public cloud and then deploy on premise due to security considerations. This flexibility and agility in private, public, and hybrid cloud options is essential in modernizing well operations.

# Obliterating Silos with Digital Transformation

As is true of most industries, E & P deals with the painful reality of silos. Thankfully, digital transformation can obliterate silos when it is applied as an Agile discipline. Here are some areas where silos inflict serious operational, execution, and budgeting overhead on E & P companies:

- **Well Operations and Maintenance:**  
The end-to-end digital prescriptive maintenance (beyond predictive, it involves technical resources to maintain the well).
- **Coordination and Consistency Across Oil Fields:**  
Often, waste and inconsistencies in well operations exist across different oil fields or even wells within the same oil field. Wells and oil fields should not operate as silos.
- **Operation Technology (oil field and wells) and Information Technology:**  
Operation technology (OT) focuses on wells and other assets or devices that need to be sensed, monitored, and controlled in real-time. The emergence of IoT means these devices need to be connected to the rest of the organization's strategic information technology (IT) applications. In addition to standardization initiatives, both in terms of reference architectures as well as communication standards, the actual digitized process flows need to be operationalized. The integration of OT and IT addresses silos that typically exist in organizations.

## Real-Time Responsiveness for E & P

Applying the OT/IT combination to the operation, maintenance, and repair of thousands of existing wells will be challenging. The process can increase production rates for existing wells and reduce unit operating costs, but it's a process foreign to most oil and gas organizations. And digital historically haven't delivered acceptable returns to E & P companies. Existing processes, workflows, and current culture are typically the biggest barriers to capturing full value from digital technology investments<sup>2</sup>.

Experience suggests that these barriers are real and expensive, and yet companies continue to invest in technologies that fail to deliver on the promised benefits. Often investments arise from the temptation of finding a single "silver bullet" technology, such as business intelligence, stand-alone mobility, or ERP extensions. The organization's fervent hope is that this time, the new technology and implementation will be different—business-driven vs. IT-driven.

Seldom does the latest silver bullet technology supply more than a short-lived improvement bump, because the focus is on the wrong issue. Success comes from focusing less on a specific technology and more on the business need, prioritizing continuous business process improvement and new ways to drive organizational behaviors.

As the oil and gas industry looks beyond the fast-paced growth of the last decade to improving base business processes, examining what we need technology to help us do is worthwhile.

# Focus on What is Most Important

What is the first question management asks every morning? What information do you seek? What report do you review first? If your answer is that you're most interested in knowing yesterday's production, you're in good company.

These questions highlight the importance of production, but they focus on something that can't be impacted—yesterday's production is history and nothing can be done to change it, for better or worse.

To improve results, we need to focus on what can be done today, to improve today's performance. Ask yourself these questions:

- Does each well have what is needed to produce every barrel or MCF it can?
- Are people allocating their time to removing barriers to that production?
- How does management know what wells need and whether or not their staff is focused on meeting those needs?

Take a look at the aircraft manufacturing sidebar. How can Jim's experience apply to Oil and Gas? We don't build a barrel of oil or MCF of gas on a factory floor. In the oil and gas industry, hundreds or thousands of wells represent the beginning of a production line. The oil, gas, and water starts down-hole, travels up the wellbore, through production pipelines and vessels to the sales meter.

Regardless of the physical landscape, the lesson is to focus on the point of value creation. For Jim, the aircraft under construction represents the point of value creation. For the upstream oil and gas industry, it is the well. Wells are our customers. And the men and women charged with keeping those wells producing everyday are executing a customer service process. Really, we're in the customer service business.

Instead of reviewing yesterday's production report, every morning, we need to identify our customers that need help to produce oil and gas:

- How many of our wells are producing today?
- How many are not producing, down, waiting on remedial actions? How much production is associated with these down wells?
- How many are in the process of being repaired today and what is needed so these repairs are completed?

Asking these questions, first thing every morning, ensures everyone is focused on providing the best customer service to wells. No celebration or regret for yesterday, but undivided attention on what is needed today.

Admittedly, it isn't as easy to assess the current state of oilfield work as it is for Jim to see the progress on that airplane. Jim could visit one large facility to see most activity and workers responsible for progress. In contrast, oilfields lack ceilings and walls and can have a footprint of tens of square miles or more. Workers spend much of their time scattered at well sites or equipment locations out of eyesight. If we can't see our well customers, how can we quickly assess what they need, the status of work in progress and determine actions are needed today?

Thank goodness for technology.

## LEARNING FROM AIRCRAFT MANUFACTURING



*A story about how one manager created focus on getting the most from today.*

Jim was promoted to assume responsibility for delivering a new model for an aircraft manufacturer. Headquarters expected Jim to get this project back on schedule and budget quickly. Despite Jim's best efforts, deadlines continued to be missed weeks later. Department heads hadn't identified the root causes for delays, and instead were blaming each other.

One morning Jim bypassed his office and headed directly to the assembly floor. Jim approached a mechanic working on the huge airplane structure and asked, "What work do you need to complete, today?" The mechanic replied, "I need to install an aileron kit but the procurement guys say the parts are back ordered. I can't finish without those parts."

Jim pulled out his cell phone and called the procurement manager. "Hey Bob, I'm on the assembly floor with Mike, the mechanic. He doesn't have the parts to complete his scheduled work. Please come down here so you and Mike can figure out how to get back on schedule." Bob showed up a few minutes later.

Jim continued these early morning assembly floor visits for a couple of weeks. Often, just as with Bob, he summoned a department head to meet face to face with assembly line staff to try to remove obstacles. One morning, Jim arrived on the floor to see the following:

- Procurement manager talking with the electrical supervisor and his team.
- Engineering manager looking at the wing section with Janet.
- Maintenance manager reviewing new filters with the mechanics.

Jim's entire organization now had as their first priority, every morning, meeting the needs of their customers— the people assembling that airplane. Departmental goals didn't disappear, but no longer interfered with meeting the needs of internal customers. Jim was confident this focus on the base business would deliver needed results.

# Communicating with Well Customers

E & P engineers and technicians can use sensor technology to assess status of field operations remotely. In fact, a few companies have recently established remote assisted operations centers (ROC) to receive well requests, diagnose problems and recommend remedial actions. These are important first steps, but the well remains in need of help until these remedial actions are executed and issues resolved.

Whether or not your company is currently using ROCs, you may already be providing exceptional well customer service. If so, then, answering the following questions will be easy:

- What is the cycle time, measured in days, from the time a well is identified as needing assistance to its return to ideal productive state? Has that cycle time trend changed over time?
- What are the three most common causes of “down” production diagnosed and the crude and natural gas volumes associated with each?
- How effective are the remedial actions at correcting the problem for each cause?

The above metrics are monitored and improved by excellent customer service providers. If these metrics aren't key performance indicators for your business units, read on to learn practical steps for providing excellent well customer service.

## INSIGHT TO ACTION: DATA RICH AND INFORMATION POOR

One might assume that giving a well a voice, as well sensors have done, would be the biggest challenge to providing excellent customer service. In reality, the biggest stumbling block is the limited ability of our engineers and operations staff to hear and understand what the well is requesting. This common organizational difficulty is best characterized as being technology and data rich and information poor. The situation can be summarized as:

1. **Wells are talking:**  
Sensors are capturing data.
2. **We are listening:**  
Data is communicated and available in databases and dashboards.
3. **We don't always hear:**  
Data displayed doesn't translate into meaningful action.
4. **We are challenged to respond timely, consistently:**  
Too many wells wait too long in an unsatisfied state.

ROCs are specifically designed to monitor sensor data and listen to the well, but few companies have the innate organizational capability to perform steps 1 through 4 effectively and efficiently. Requiring workers to execute an adaptive multi-functional process isn't easily accommodated in a strongly functional working environment. For those companies up to the task, data overload may get in the way of hearing (or understanding) a well's request for help.

Providing excellent well customer service means working outside of and across functional organizational boundaries. Companies are often hesitant to adopt process-based work, fearing significant organizational disruption.

## Flawless Execution of the Well Service Case

Delivering effective customer service to the hundreds or thousands of wells in your base business requires integration and coordination. Over the course of multiple days, dozens of people—internal and external—need to perform numerous actions at just the right time in this end-to-end process. When executed flawlessly, operating conditions are restored quickly and the well returns to producing at an optimal rate.



Improving E & P base business results requires the collective wisdom of the most experienced people in operations and engineering. These experts will:

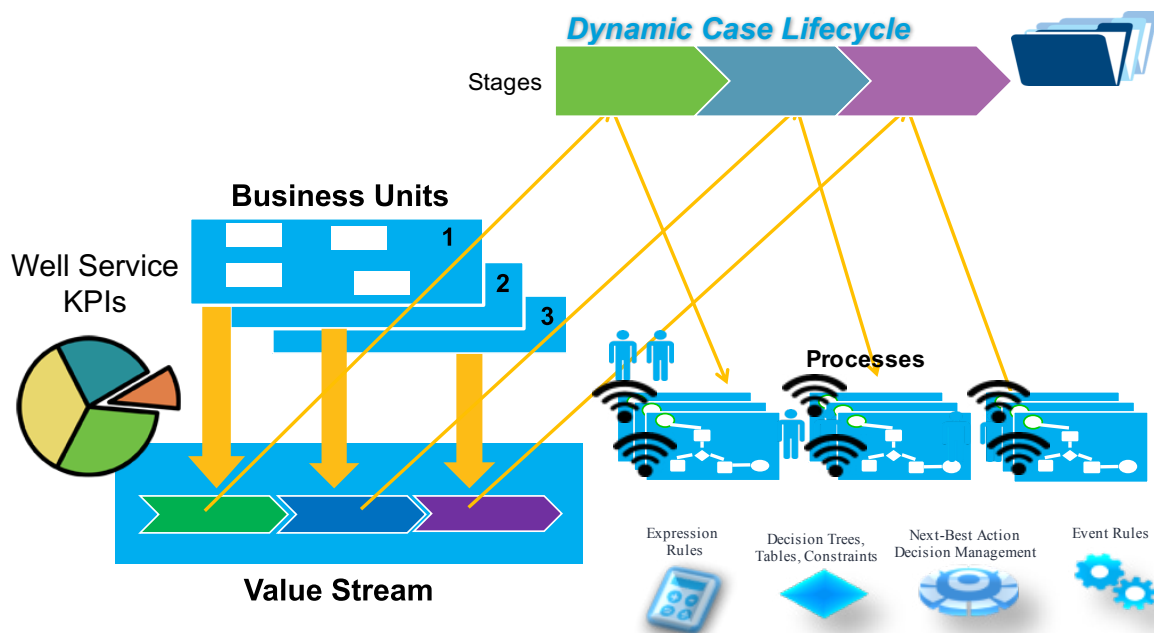
1. Define a single, end-to-end, customer service process for wells
2. Use Pega's DX Platform to:
  - Create and automate role-based standard processes, workflows, and dynamic cases
  - Instantiate the dynamic case for well service
  - Create and monitor the well customer service dashboards
3. Learn and optimize: Leverage the experience of experts through harvested business rules, creating analytical models that are mined and discovered from well or logistics data

## THE END-TO-END WELL CUSTOMER SERVICE VALUE STREAM

The most important first step in building your process is selecting the right group of respected engineers and operations staff. The group should include a cross section of experienced production surveillance staff, well-work practitioners, and a few "questioners of the status quo." This assembled group, the Well Customer Service Process Team (WCSPT), will describe the related activities needed to "hear" a well's request for help. The team continues its work by defining specific response activities needed to return the well to optimum producing conditions.

In establishing your team, don't be tempted to skimp on resources. Ensure that your WCSPT has sufficient time, appropriate tools, and funds. Given that customer service is a novel concept for upstream work, supplying an external, experienced facilitator may help promote original thinking. Additionally, dedicating a full-time facilitator should stimulate progress.

Consider asking the WCSPT to generate a value stream map, which is a Toyota Lean manufacturing tool. The map is a graphical illustration used to understand and analyze steps in the customer service process that deliver greatest value to the well. This map will represent the current best, integrated thinking on the company's production surveillance and well repair work. Current is an explicit qualifier as this first map is not the end point, but is only the beginning.



The end-to-end well customer service value stream

# Build the Solution: Use the DX Platform

With Pega's DX platform, the value streams are mapped directly to stages in automated dynamic cases. Each stage employs intelligent processes to respond to well service and maintenance requirements, often in real time. Leaning on the experience of your WCSPT experts, you'll build role-based standard processes, establish workflows through harvested business rules, and create analytical models that are mined and discovered from well or logistics data.

## I. CREATE AND AUTOMATE ROLE-BASED, STANDARD PROCESSES, AND DYNAMIC CASES

Your first objective is to integrate and coordinate the actions of engineering and operations to seamlessly execute the entire well customer service process. Too often companies apply technology at this point, believing that decision-making will improve just by connecting the right people and systems. And too often, companies are disappointed with weaker than expected returns on these investments. In reality, more process work is required to define what needs to be done and who needs to do it. Only then can the fit for purpose technology be determined effectively.

These digital transformation platform applications are also intelligent. Digitized business rules and analytics resulting in mined knowledge from data are both used to optimize the automated processes—treating different wells differently. The WCSPT's collective knowledge and experience equip them to be the organization's standard bearers.

These standards are important in defining roles and workflow actions which, when taken, deliver excellent customer service. Additionally, the standards serve as the benchmark against which future process performance will be measured. The team, using field specific experience, can analyze historical data and:

- Define field specific triggering events that equip a well to self-identify its need for help. These specific operating condition exceptions direct attention to just those wells in trouble, out of the hundreds or thousands producing. Examples of triggering events include unexpected drops in production or changes in pressure or temperature.
- Document standard operating procedures (SOP) for responding to triggering events. These SOPs are the actions taken to diagnose the well problem, develop remediation recommendations, and execute the remedy. SOPs establish the sequence of steps, facilitate the hand-offs between all process executors, and require referencing the right material.

Armed with detailed process and triggering event definitions and the standards for response actions, digital technology can now be applied.

Platforms that digitize dynamic processes and cases are ideally suited to automate well identification and task assignment. E & P companies need to diagnose and remediate the problem. The best DX platforms, like Pega 7's BPM solution, execute a system that scales well and is able to maintain and increase its level of performance when tested by the larger operational demands of the business.

Pega uses an advanced business decisioning hub to perform multi-variant logic and analyze data trends. This hub ensures that triggering events are recognized and responsible parties alerted, continuously. The BPM software can also handle complex events generated by the wells, for example when events need to be correlated within a specified temporal window (e.g., elevated temperature or declining production rates sensed from multiple wells within a period of time). The event correlation rules are also handled by the Pega decisioning hub.

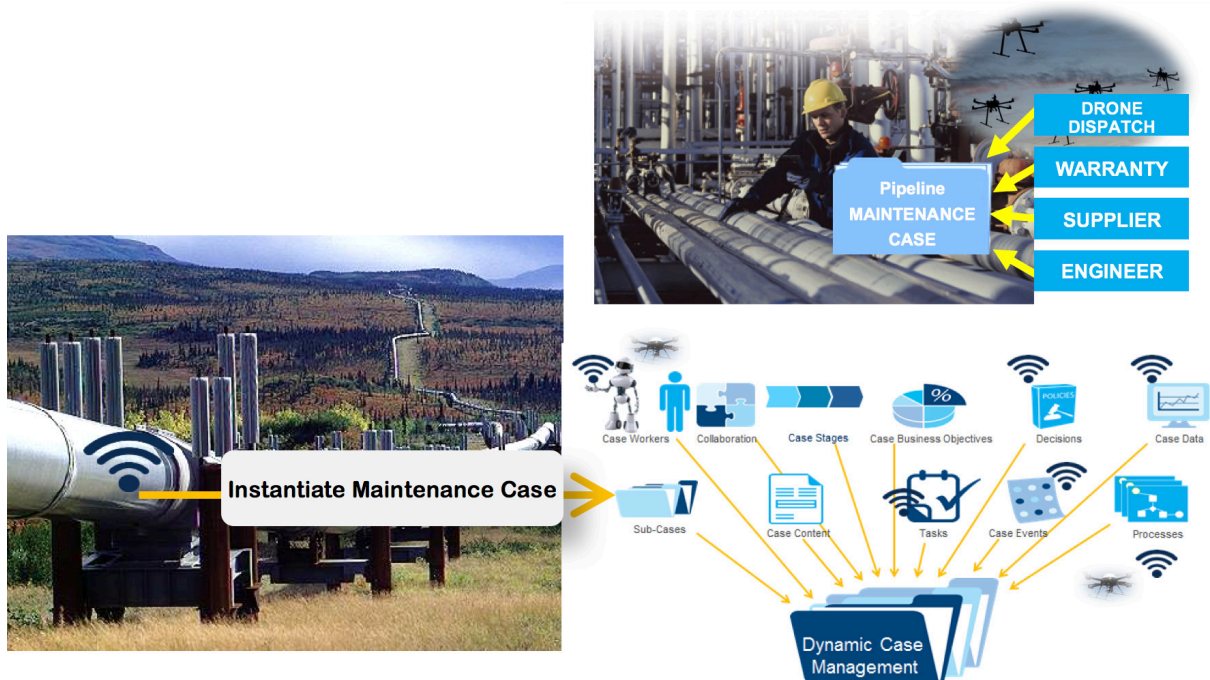
The DX platform software initiates automated workflows based on the response SOPs created by the WCSPT. Each well benefits from the best current knowledge regardless of level of experience of the individual engineer, technician, or operations person responding. Additionally, the Pega DX platform goes even further than enabling efficient execution of defined processes, by facilitating the improvement of those processes.

Pega's DX platform provides intuitive process design tools and automated generation of application code. The benefit? It puts the subject matter experts and business users in control of defining, optimizing, and managing their processes. A reduced reliance on IT departments allows the user to incorporate improvements into standard workflows more often and with greater ease.

## II. INSTANTIATE THE DYNAMIC CASE FOR WELL SERVICE

Your second objective is to ensure that process executors remain focused on the business outcome—well customer service. If task completion becomes the primary goal, wells can be stranded and stop moving through the end-to-end process. No doubt a legion of activity is underway, but without a focus on business outcomes, the well's problems may remain unresolved and production down.

Once we realize that we are in the customer service business, we can learn from those industries whose very existence depends on this. Many non-Oil and Gas companies that are known for excellent customer service use a dynamic case management approach.



Dynamic case management applied to well customer service

Using case management requires automatically instantiating the case when a triggering event occurs. The file is only closed when all SOP workflow tasks are completed. The case file preserves the context of each piece of work as it passes between department and company silos. And tracking the age of open case files is a constant reminder of those well customers still waiting for final problem resolution.

The dynamic case accesses transactional data and material relevant to one triggering event. During process execution, the case file facilitates communication, collaboration, and cooperation between different people, departments, and even companies. After the well is returned to ideal producing conditions, the process-monitoring data captured in the file is used to assess the effectiveness and efficiency of the SOPs.

## III. CREATE AND MONITOR CUSTOMER SERVICE DASHBOARDS FOR THE WELL

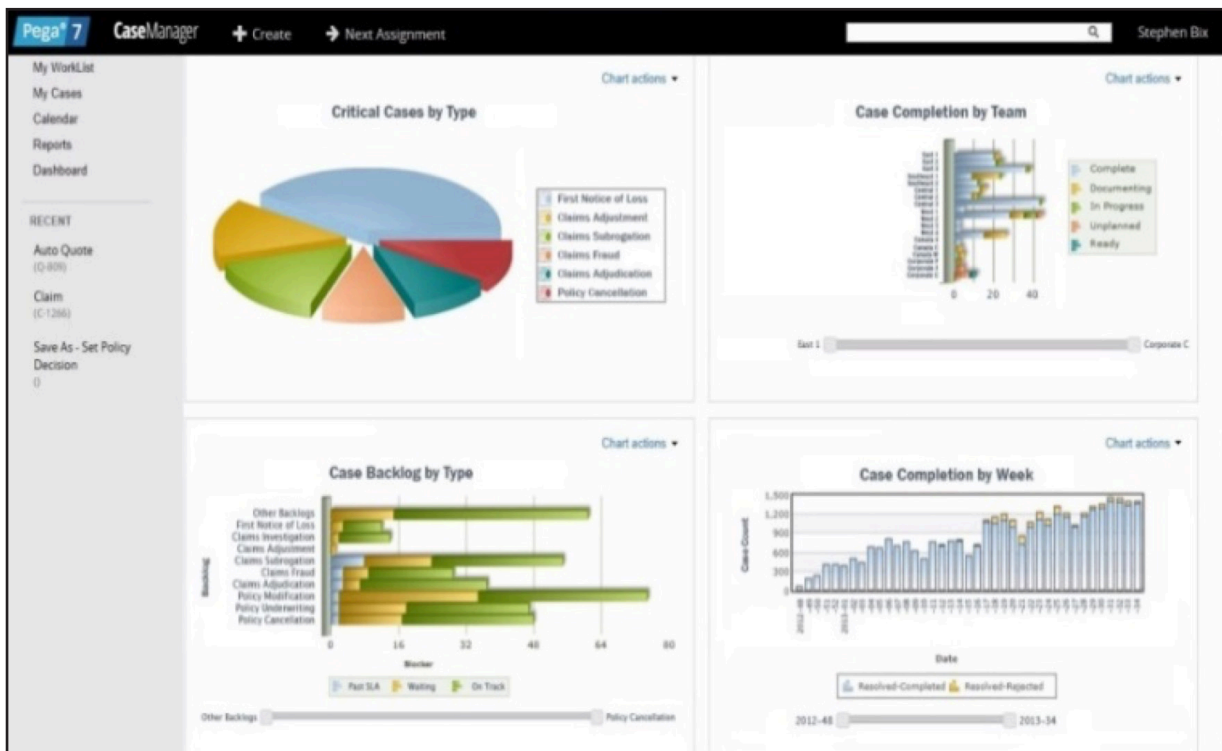
Your third objective is to create visibility to understand well status and facilitate focus on the greatest value adding activities, today. Two separate dashboards may be used to help organizations answer the following questions:

- How many wells are not producing, down, waiting to return to production?
- How much production is associated with these down wells?
- How many wells are awaiting customer service response?
- What is needed so the responses are completed most timely?

Unlike our aircraft manufacturer, Jim, we can't assess the status of all producing wells by looking out office windows onto a factory or plant floor. For us, process and triggering event definitions and SOPs are combined with digital technology to create a 360-degree window to see remote wells, virtually.

Many companies today (some with ROCs) use electronic dashboards as windows to see wells request help. Dashboards are then used to track status as the well moves from waiting on diagnosis to waiting on remedial recommendation. Often visibility ends here, because the recommendation is handed off to operations for implementation. The well isn't returned to optimum producing conditions; the exception-based surveillance process resides only within the engineering function.

Our DX-based dashboard will encompass the end-to-end well customer service process as defined by our WCSPT, regardless of functional location. The organization wide visibility into well status promotes focus on base business. Tracking wells from start to finish (asking for help to a return to optimum production) creates Next Best Action recommendations for service and maintenance. This way, well performance is kept in control in real-time through digitized intelligent processes. The orchestration of well operations has complete end-to-end visibility.



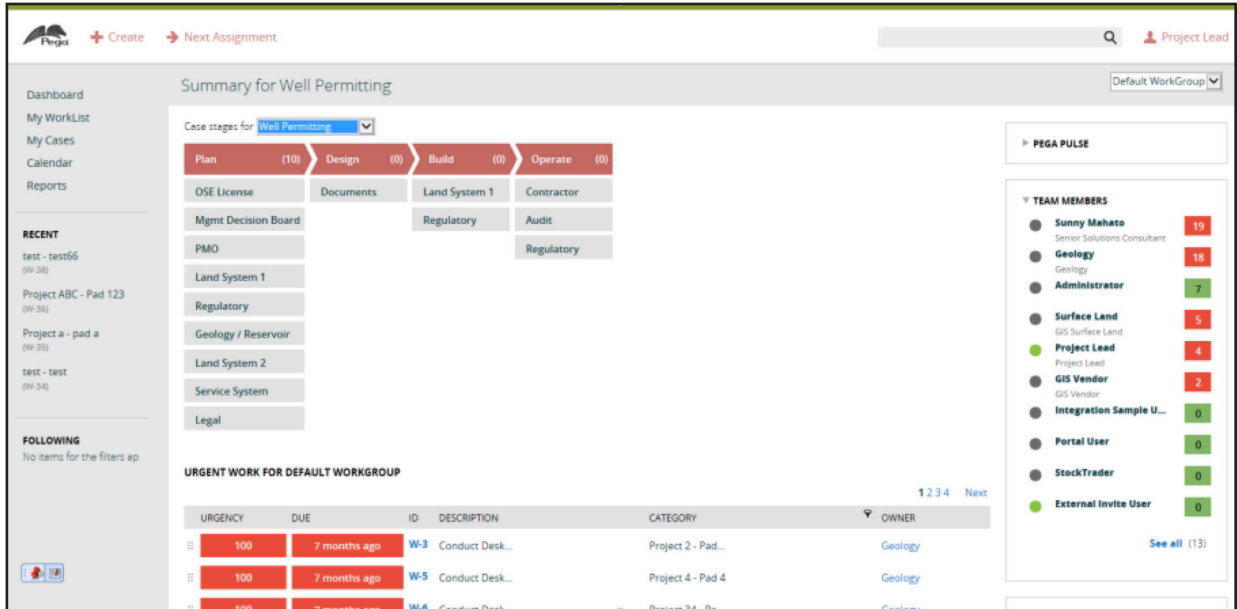
### Orchestrating well operations with the DX-based dashboard

Take a look at our overview chart. Each number in the chart indicates the count of wells that have experienced a triggering event. Generally, to minimize “down” production, the numbers in the Total line should be as low as possible. The well is the customer. The digitized rules, predictive and machine learning adaptive models will indicate the Next Best Action for the well – with specific propositions (what to do) and their propensities (probabilities prioritized the weight of the action).

As the junior engineer for Area A completes the SOP for a particular triggering event, the automated workflow forwards a notification to the inbox of the next responsible party. The well count number will be reduced on the junior engineer's dashboard and increase on another dashboard.

This dashboard design provides data to do the following:

- Optimize resource allocation. A manager can request engineers to help each other perform SOPs to minimize the amount of time a well waits for attention, relying on automation, skill-based routing, and the DX platform engine for end-to-end digitization to facilitate the resource allocation.



Dashboard provides critical summaries of task assignments and completion, reassigning through the workflow

- Prevent wells from being “orphaned” during the customer service process as a result of incomplete hand-off between responsible parties.
- Customize response to well’s need. The transformational principal of treating different customers differently has become paramount in many industries. Wells are customers, therefore different wells need to be treated differently. The decisioning logic as well as the operationalized execution of the well service is enabled by the DX platform.
- Balance workloads. The DX Platform can do skill-based routing, essentially assigning the best resource for the well customer in a particular context. It can also balance the workload of the automated robots and service personnel maintaining and servicing the well. For example, the number of wells per area can be reduced or increased to remedy an imbalance in triggering events between responsible parties. This triage—deciding which well to fix first and prioritize—provides the Next Best Actions for a field in addition to an individual well.
- Refine triggering event definitions and SOPs. When executed SOP actions don’t have the expected effect, the triggering event definitions and SOPs can be modified to try to improve effectiveness.
- Well performance is kept in control in real-time through digitized intelligent processes. Automation of predictive models and machine learning is leveraged when applicable.

We can’t physically see our remote field operations, but the dashboard provides critical information on what is happening there. The dashboard focuses everyone on priority activities for the day, based on the needs of our customers.

Furthermore, through dynamic process capabilities, ad-hoc tasks can be assigned as needed with their service levels. The dashboard also provides a platform for various personnel to collaborate socially and have discussions in the context of a particular well issue or the well oilfield as an aggregate. Analytics and continuous adaptive learning is leveraged to identify and optimize Next Best Actions on an ongoing basis. Changes can be introduced via new policies or business rules and digitized instantaneously.

# Conclusion

The father of business process reengineering, Michael Hammer, expressed it this way in his seminal work, The Agenda:

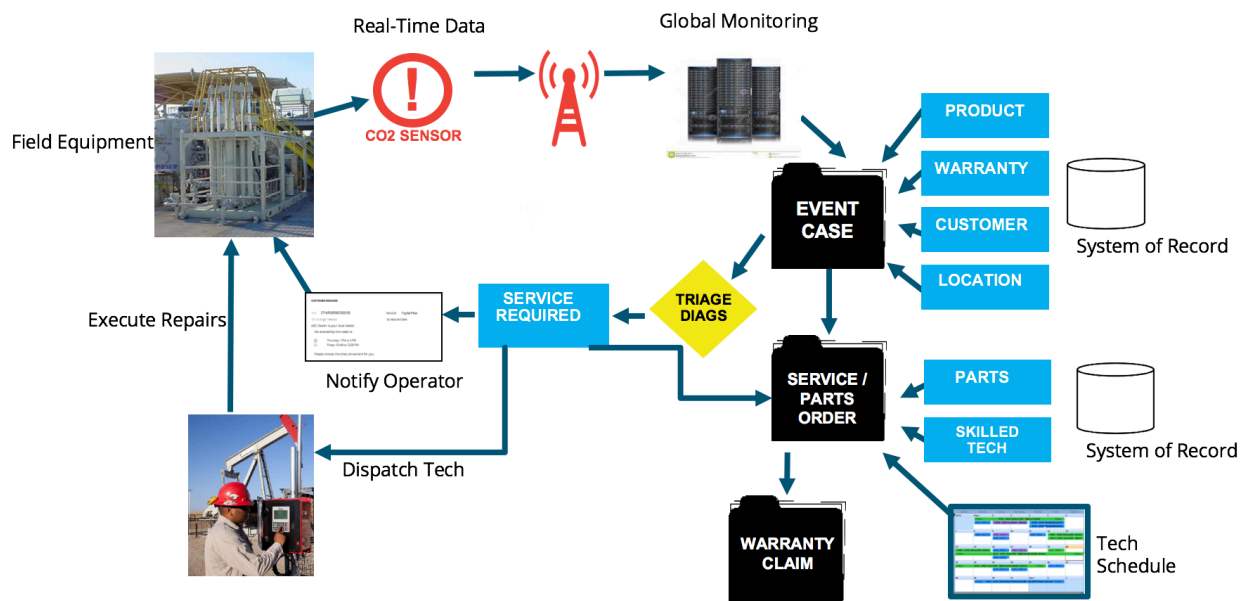
Process is the Clark Kent of business ideas: seemingly mild and unassuming but actually amazingly powerful.

Process is the way in which the abstract goal of putting customers first gets turned into its practical consequences.

Without process, companies decay into a spiral of chaos and internal conflict.

Maintaining, operating, and repairing existing wells can be routine and tedious. Oil and Gas resources are often directed to meet the challenges of increasing external regulations, knowledge and skills gaps related to the “Big Crew Change,” and data overload that obscures access to real information minimizing focus on wells.

The E & P organization that adopts a well customer service mindset and implements a technology-based process to optimize identification, analysis, and execution actions will have the capability to address pain points and known challenges. Establishing a digital transformation platform supports a more confident production unit management with visibility into well surveillance and repairs.



Maintaining, operating, and repairing wells with a digital transformation platform

## Pega's DX Platform

Some extremely successful companies that depend on customer service for their very existence rely on Pega's DX platform. Regardless of the industry, Pega brings together the people and information needed to get work done across a maze of system and organizational silos. For Oil and Gas, pairing dynamic cases with Pega's end-to-end customer service process ensures that wells receive complete, correct, and consistent responses throughout the entire lifecycle of a case.

The Pega DX Platform drives work to optimal outcomes and the bottom line improves. In the value chain, from upstream to midstream to downstream, this implies increased production output and decreased unit operating costs. The result is higher production rates and more efficient resource utilization.

“If you can't describe  
what you are doing  
as a process,  
you don't know  
what you're doing.”

-Dr. W. Edwards Deming



## References

[1] Hess Corporation at Bank of America Merrill Lynch Global Energy Conference, November 11, 2015 and Marathon 2015 Barclay's CEO Energy Power Conference, September 9, 2015 and Devon at the Scotia Howard Weill Energy Conference, March 21, 2016.

[2] Accenture Oil and Gas Digital Technology Trends Survey, 2015.





## ABOUT PEGASYSTEMS

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