



ENERGY INDUSTRY SOLUTIONS

<epam>

ORCHESTRATING DIGITAL SOLUTIONS FOR ENERGY AND O&G CLIENTS FOR MORE THAN A DECADE

WHAT WE DO

- Advanced Analytics and Data Sciences
- Big Data and Business Intelligence Solutions
- Digital Platform Engineering
- Innovation as a Service
- Internet of Things / Embedded Systems Integration
- Commercial-grade Agile Software Engineering
- Application and Cloud Management

WHO WE ARE

WE ARE

19,600+

ENGINEERS, DESIGNERS,
AND CONSULTANTS

GLOBALLY WITH OFFICES IN

25+

COUNTRIES

WHO WE SERVE

- Two of the top five multinational oil and gas majors
- Two of the top oilfield services companies
- Four of the largest national oil companies
- Diversified energy and utility companies
- High technology leaders in big data and advanced analytics
- A leading European ERP software vendor
- A diversified internet-related services and search leader



DISTINCTIONS

RECOGNIZED LEADER IN DIGITAL PLATFORM ENGINEERING –

Forrester Research Group describes EPAM as having the strongest grasp and execution of digital platform engineering of all vendors evaluated. “EPAM scored the highest of all providers on driving innovation and helping to create innovative new products and services.”¹

DISTINGUISHED IN “WINNERS CIRCLE” FOR ENERGY OPERATIONS –

HFS Research Group awards EPAM with distinction as “Winners Circle” provider across 16 vendors evaluated in their Energy Operations Blueprint 2016. “If you are looking for a service provider to help you on your digital transformation journey and put digital platforms in place, EPAM is really a company you should look at” - Derk Erbé - Research Vice President HFS

AGILE PURE PLAY IN COMMERCIAL SOFTWARE ENGINEERING –

Gartner describes EPAM as an “Agile Pure Play” which is a leading group of IT vendors who have significant experience and majority of their portfolio in executing and delivering Agile software product development.²

UNPARALLELED DELIVERY TRACK RECORD –

An executive product manager from a leading global oilfield services and software company commented that – “We’ve never been successful outsourcing or getting third party development firms involved until we started working with EPAM.”

¹ The Forrester Wave™: Digital Platform Engineering Services, Q2 2016.

² Agile Development Service Providers by Wolfgang Benkel and Diego Lo Giudice, December 8, 2014

YOUR PARTNER IN ADVANCED ANALYTICS & DATA SCIENCES

CUSTOMER CHALLENGES

A major service company reported that advanced analytics helped them achieve a 40% reduction in the cost of delivering a barrel of oil. Another operator was able to double production output in their older wells. Industry experts expect advanced analytics to have a significant impact in enhancing resource recovery, optimizing integrated workflows, and improving asset longevity. However, many O&G companies miss opportunities to operationalize analytics solutions beyond proof-of-concepts, drive and measure end user adoption, and achieve business transformation due to challenges in applying the diverse technical and change management skill sets needed to be brought to bear at scale.



EPAM DATA SCIENCE LAB

THE EPAM DATA SCIENCE LAB INCLUDES DATA SCIENTISTS AND SENIOR SOLUTION ARCHITECTS WITH MS/PH.D. DEGREES IN APPLIED MATH, PHYSICS, AND COMPUTER SCIENCE. ALONG WITH A STRONG MATHEMATICAL BACKGROUND, THE GROUP HAS VERTICAL EXPERTISE IN MULTIPLE INDUSTRIES AND EXTENSIVE EXPERIENCE WORKING ON AI ALGORITHMS FOR COMPLEX SURVEILLANCE PATTERNS IN FINRA (FRAUD DETECTION, INSIDER TRADING, MARKET MANIPULATION, WASH SALES, BEST EXECUTION, ETC.).

EPAM DATA SCIENCE TOOLS & ACCELERATORS

EPAM has developed both proprietary and open-source tools and accelerators in order to enable collaborative data science workflows and solution operationalization:



DATA ACCESS:

Methods and accelerators to deal with lack of or limited access to production or raw data typically requiring dedicated IT support.



DATA SCIENCE TOOLS:

On demand access to the latest stable open source tools used by data science and engineering teams, enabling multi-person collaboration, and reducing time spent dealing with complex, time-consuming security policies.



DATA SCIENCE SUPPORT:

Accelerators to support data scientists with operational tasks, so that they are not fully dependent on Dev/Ops teams and IT support.



ENTERPRISE DATA MANAGEMENT:

Toolkit to help enable data cataloguing, governance, policy enforcement, lineage, and reuse of data assets and services.

TECHNOLOGY SHOWCASE

CROSS-FUNCTIONAL DASHBOARD FOR UNCONVENTIONALS WELL FACTORY

EPAM developed a cross-functional dashboard that tracks KPIs on capital efficiency, cycle times, and production optimization, and inventories used to enable cycle time reduction, cost reduction, and improved recovery per well.

PUBLIC WELL FILES TEXT AND IMAGE ANALYTICS

EPAM applied data science and machine learning techniques to mine and process low-quality scanned PDF files/images from publicly available sources to harvest analytical insights into well completion characteristics with ~80% accuracy, significantly enhancing and accelerating offset well analysis.

WEATHER-BASED PREDICTIVE DEMAND FORECASTING

EPAM helped a client improve demand forecasting by 17% using weather data applied to a scientific model and operationalized in a distributed computing environment helping customers to prevent inventory shortages, reduce inventory excesses, and generate additional weather-related marketing opportunities.

AI-BASED INVOICE PROCESSING AUTOMATION

EPAM helped a leading European ERP vendor develop an AI-based solution to extract information from scanned invoices. The solution employed multi-layered bidirectional neuro networks and the TensorFlow model, and had 90% accuracy excluding OCR errors.

MACHINE LEARNING-BASED ANTI-FRAUD SOLUTION

EPAM delivered a machine learning-based solution that helped a leading technology company leverage historic data to increase fraud detection rates that resulted in a 15% increase in revenue.

YOUR PARTNER FOR BIG DATA AND BI SOLUTIONS

CUSTOMER CHALLENGES

According to the Manhattan Institute** – “Shale’s spectacular rise is also generating massive quantities of data... and the nearly 2,000 million well-feet drilled have produced hundreds of petabytes of relevant data... and remains largely untapped and is ripe to be mined by emerging big-data analytics.”

In fact, one survey found that 55% of big data projects are never completed. One major challenge that companies face is that big data technologies are rapidly evolving and there is a shortage of and high demand for market-available skill sets. In addition, big data environments are resource-intensive to maintain and support, and successful execution and operationalization of big data projects often requires a diverse set of technical and domain skills that can be easily and quickly scaled up and down on demand.

TECHNOLOGY SHOWCASE

UPSTREAM DATA LAKE FOR A MULTINATIONAL O&G OPERATOR

EPAM architects and supports a “best-in-class” Hadoop data lake enabling data scientists and real-time analytics, and ingestion from several dozen data sources including SoR’s, unstructured and near real-time streaming sources.

3 PETABYTE PLATFORMS FOR A MAJOR TECHNOLOGY LEADER

EPAM helped architect a successful big data analytics platform that ingests data from over 60 data streams, and processes over 30 TB of data per day from a total data volume of 3 petabytes. The solution processes ~100 GB/35-40 million of rows in near real-time.

GRAPHICAL DATA BROWSER FOR AN O&G DATA VENDOR

EPAM helped develop an information service application for online access to a subscription-based database of over 4 million well completions and 2 million production entities used by clients for data analysis, acreage evaluation, prospect generation, field outline identification, and competitive analysis.

PRODUCTION MONITORING, ANALYSIS, AND SURVEILLANCE SOLUTION FOR A PERMIAN OPERATOR

EPAM developed a centralized BI solution to support daily production surveillance and analysis and management by exception dashboards that replaces dozens of legacy solutions for a major operator.

CLOUD BIG DATA ARCHITECTURE STRATEGY

EPAM helped a major multinational O&G operator to develop their big data architecture including Hadoop implementations of AWS and Azure, linkage with data storage layer, exchange of information between AWS and Azure, and integration with Talend, Databricks, and SPARK.

HIGH PERFORMANCE BIG DATA SOLUTION FOR HOSPITALITY SEARCH LEADER

EPAM developed a high performance big data solution that processes 5 PB of structured, unstructured, and multi-structured data and provided significant cost reduction and 6x performance improvements. The solution migrated data sets from RDBMS to Hadoop, and ingests from over 60 data streams at over 0.5 TB per day.

EPAM has capabilities and partnerships across the entire BI and big data ecosystem. EPAM is also a direct contributor to the Hadoop projects as well as several major analytics frameworks and platforms.

RESOURCED TO HELP YOU SCALE

15+

WORLD CLASS BIG DATA ARCHITECTS

200+

BIG DATA AND DEV/ OPS ENGINEERS

10%

HADOOP CERTIFIED ENGINEERS

1000+

BI AND ANALYTICS PROFESSIONALS

DEEP PLATFORM EXPERTISE

CLUDERA	GIGASPACE	HADOOP
HORTONWORKS	KNIME	MARKLOGIC
MICROSOFT	MONGODB	ORACLE
SAP HANA	TABLEAU	TERADATA
TIBCO	DATABRICKS	HDINSIGHT

**Shale 2.0 Technology and the Coming Big-Data Revolution in America’s Shale Oil Fields, Center for Energy Policy and the Environment, at the Manhattan Institute. May 2015

YOUR PARTNER FOR COMMERCIAL GRADE SOFTWARE SOLUTIONS

CUSTOMER CHALLENGES

Volatility in O&G business conditions and hydrocarbon pricing is driving CIOs and CTOs to shift dramatically towards lean and agile software development models emphasizing agility and speed. Numerous factors hamper the ability to achieve the desired level of agility. One factor is that organizations have limited organizational capability in modern agile practices through both their traditional system integration partners as well as within their internal ranks. Another factor is that project processes particularly in larger organizations are generally modeled to support waterfall-based development making it difficult to execute, deliver, and support solutions at the desired scale and speed.

LEADER IN PRODUCT DEVELOPMENT



EPAM SCORED THE HIGHEST OF ALL PROVIDERS ON DRIVING INNOVATION AND HELPING TO CREATE INNOVATIVE NEW PRODUCTS

FORRESTER WAVE™: SOFTWARE PRODUCT DEVELOPMENT SERVICES, Q1 2014

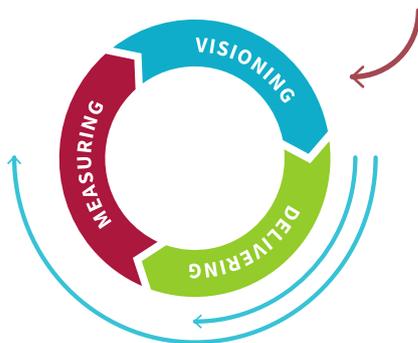
AGILE IS IN OUR DNA

AGILE THINKING

applies to every aspect of the business. We focus on smaller iterations of visioning, delivering and measuring. We embrace change and mitigate risk.

PRAGMATIC AGILE

is results-oriented and mixes methods and tools upstream and downstream to achieve faster time to value. (Scrum, Kanban, lean, scale, RUP, Xtreme etc.)



AGILE ENGINEERING AND PRODUCTIVITY TOOLS

bring DevOps to the forefront along with stress automation, CI/CD, machine learning, and software-defined everything.

TECHNOLOGY SHOWCASE

REAL-TIME DIRECTIONAL DRILLING ADVISOR FOR LEADING O&G SERVICE COMPANY

EPAM helped our client commercialize a drilling navigation system utilizing real-time downhole and surface data, and machine learning for motor assemblies to enable accurate steering within operator priorities and constraints.

MOBILE REAL-TIME ALERTING FOR DRILLING OPERATIONS

EPAM applied data science and machine learning techniques to mine and process low-quality scanned PDF files/images from publicly available sources to harvest analytical insights into well completion characteristics with ~80% accuracy, significantly enhancing and accelerating offset well analysis.

WELL DESIGN AND PLANNING SUITE FOR LEADING O&G ISV

EPAM helped a multinational O&G software vendor to develop a well design and planning solution that integrates key engineering and planning processes across the full range of technical disciplines (fluids, solids control, Bit/ BHA, directional, tubulars).

WELL CONSTRUCTION PROCESS STANDARDIZATION AND INTEGRATION FOR A MAJOR MULTINATIONAL OPERATOR

EPAM helped a client improve demand forecasting by 17% using weather data applied to a scientific model and operationalized in a distributed computing environment helping customers to prevent inventory shortages, reduce inventory excesses, and generate additional weather-related marketing opportunities.

GEOLOGICAL MODELING AND RESERVOIR SIMULATION SUITE

EPAM helped develop and modernize an industry-leading geological modelling and reservoir simulation suite across multiple product generations and also helped architect the software development framework upon which it is built that supports a large ecosystem of universities, independent software providers, and oil companies today.

COMMERCIAL-GRADE WELL BROWSER APPLICATION

EPAM worked with a major data services and software vendor to develop and provide QA for a browser-based proprietary and subscription-based database of over 4 million well completions and 2 million production entities. This solution helped O&G companies with data analysis, evaluation of acreage, prospect generation, identification of field outlines, and competitive position and oil well production analysis.

600+

CERTIFIED SCRUM MASTER/AGILE PROJECT MANAGER, PRODUCT OWNER, AGILE PRACTITIONER OR COACHES

2000+

AGILE CONSULTANTS

40+

AGILE AMBASSADORS

500+

CI/CD PROJECTS

YOUR PARTNER FOR DIGITAL INNOVATION AND IOT

CUSTOMER CHALLENGES

Innovation leaders recognize the opportunities to generate transformational business performance in the mashup of leading edge digital technologies such as VR/AR, cloud, machine learning, big data, robotics, and drone technologies. However, widespread adoption is hampered by limitations and costs of upgrading legacy field sensors and automation as well as balancing the competing interests of flexibility, scalability, maintainability, and infrastructure security, and in bridging the gap between the IT and OT.



EPAM GARAGE

FROM ZERO TO ONE RAPID DELIVERY

EPAM Garage is a leading edge division of EPAM focused on design, production, and integration of new hardware, firmware and software products. Garage provides the full cycle of device production, from research to a fully functional prototype.



INNOVATION AS A SERVICE

TOOLS AND METHODOLOGIES FOR BREAK-THROUGH IDEAS

The biggest innovation challenge can be GETTING IT DONE. Our heritage is in solving complex challenges via innovative solutions – and delivering what we promised, when we promised.

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TECHNOLOGY SHOWCASE

VIRTUAL/AUGMENTED REALITY FOR FIELD TRAINING

EPAM helped an O&G industry technology innovation center develop a functional proof of concept for transforming field training by leveraging virtual and augmented reality to enable a realistic, immersive, and collaborative process.

PIPELINE INSPECTION AND ASSET MANAGEMENT

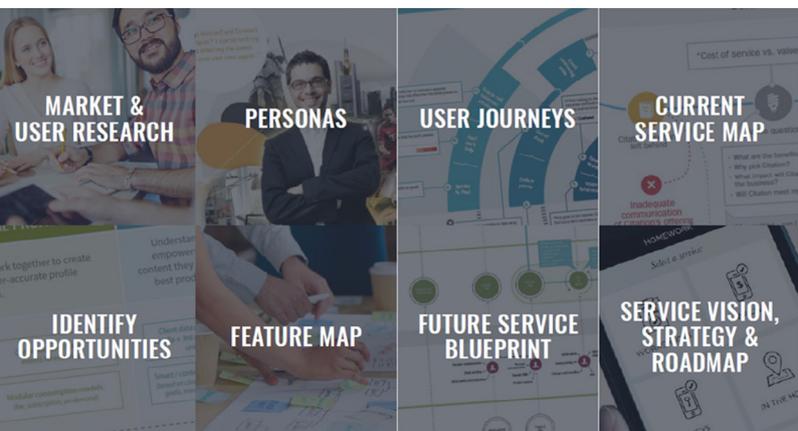
EPAM developed a robotic approach for pipeline inspection based on a remotely operated device with integration of laser and sonar sensors, GIS asset management features, and live video capture.

PREDICTIVE MAINTENANCE & CONNECTED SERVICES

EPAM developed a connected car solution integrating sensor data acquisition, back-office service request systems, failure prediction, and AR-based repair processing.

STRESS-DETECTION SMART WATCH

EPAM developed a smart wristband that detected stress levels via galvanic skin response, motion detection, and voice analysis that has the potential to be evolved to support HES and safety applications at the rig and well site.



SMART WRISTBAND





CONTACT US TODAY TO SET UP A FREE CONSULTATION.

SALES@EPAM.COM

FOR MORE INFORMATION, PLEASE VISIT **EPAM.COM**

41 University Drive, Suite 202

Newtown, PA 18940 USA

P: +1 267 759 9000 | F: +1 267 759 8989

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