Asset Optimization System

OptimaWell is a Knowledge-Based Company Assisted with Artificial Intelligence, Offering Socio Technical Solutions to Optimize Value in a Sustainable Manner, During Life Cycle of Challenging Assets

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Our Mission is Helping You Achieve Sustainable Value Creation Through Asset Optimization
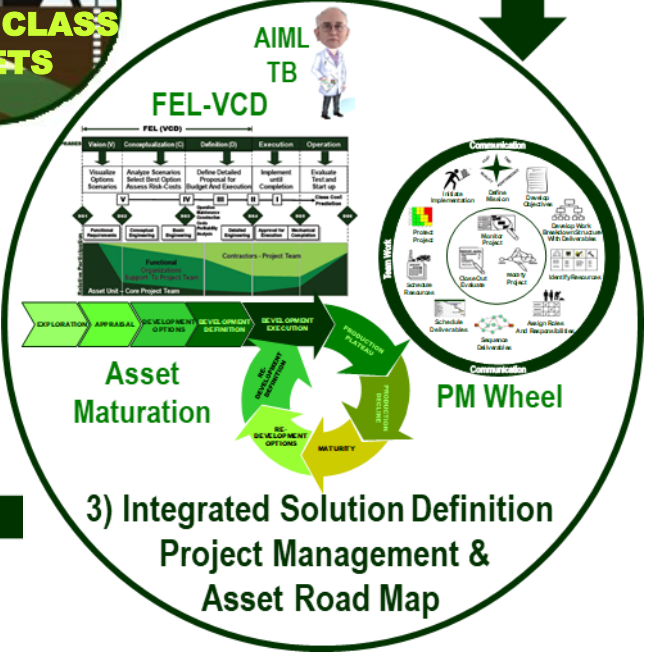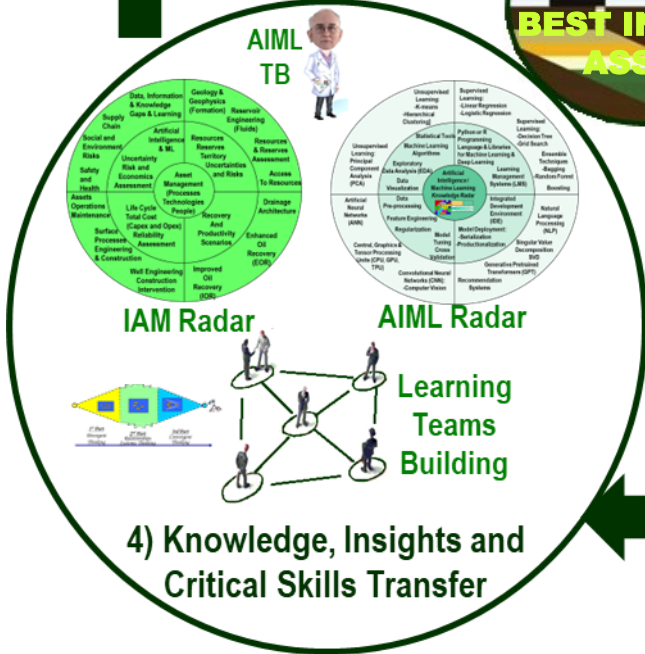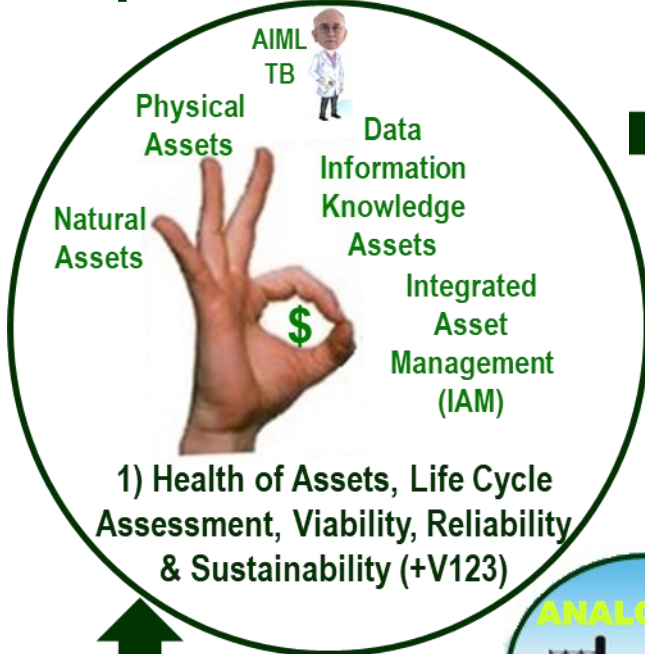
September 2023

OptimaWell Asset Optimization System
A Brief Description

- *Trist & Bamforth (1951) conducted a study on the mechanization effects on UK coal mine processes. They concluded that the existing productivity problems were a result of the introduction of new technologies without considering their impact on humans and the social work structure. Therefore, they proposed that any work process should not be viewed as merely a technical system (plants and machinery) or solely a social system (organization and work relations). Instead, it should be seen as an integrated socio-technical system. This school of thought provides the conceptual framework for the OptimaWell Optimization System, which delivers integrated solutions to create value, optimize productivity, and mitigate risks associated with complex natural and physical assets.*

- *Our "Value in 1, 2, and 3 (+V123)" approach comprises three maturity stages for approaching an asset: 1) Short-term rapid response for low-hanging fruit, 2) Mid-term integrated productivity solutions design, and 3) Long-term enhanced value scenarios.*

- *By applying best practices in asset-based project and process management, as well as drawing from data and knowledge bases that encapsulate lessons learned from best-in-class real assets spanning over 40 years, the OptimaWell Optimization System accelerates the analysis and diagnosis of complex and challenging-to-produce assets.*

- *Our integration workshops represent a value-enhancing practice that combines life-cycle strategic asset planning, maturation capability processes, competitive technology intelligence, and the identification of opportunities and risks for assets. It aims to identify the right combination of state-of-the-art technologies, processes, and competencies to generate life-cycle scenarios for value creation opportunities. This approach facilitates the definition of a strategy and asset reference plan to produce more output with fewer inputs sustainably, effectively, and efficiently while maintaining safety, social responsibility, and environmental sustainability.*

- *The OptimaWell Optimization System is augmented with artificial intelligence/machine learning tools, enabling data and information analysis to generate insights that support decision-making processes.*

- *Furthermore, the OptimaWell optimization system promotes cross-learning among projects by providing a baseline of high-quality content and learning tools using analogs. It leverages learning and teamwork through a toolbox that combines engineering with artificial intelligence, systemic thinking, and knowledge transfer via role-playing games.*
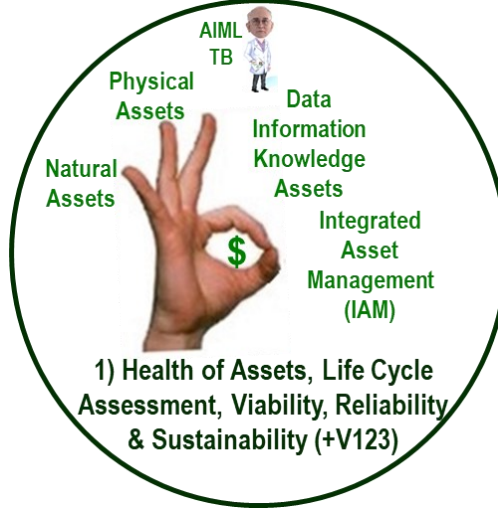
Asset Optimization System Map

OptimaWell Asset Optimization System (ID: OWP-AOS-230926) – www.optimawell.us

OptimaWell Asset Optimization System

AIML TB

Physical Assets

Natural Assets

Data Information Knowledge Assets

Integrated Asset Management (IAM)

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1) Health of Assets, Life Cycle Assessment, Viability, Reliability & Sustainability (+V123)

AIML TB

Technologies (Far & Near Market)

Competencies (Strategic & Soft)

Processes & Projects Best-In-Class Assets

2) Socio Technical Options & Scenarios To Create Value & Improve Productivity Safely and Sustainably

ANALOGUES

BEST IN CLASS ASSETS

AIML TB

IAM Radar

AIML Radar

Learning Teams Building

4) Knowledge, Insights and Critical Skills Transfer

AIML TB

FEL-VCD

Asset Maturation

PM Wheel

3) Integrated Solution Definition Project Management & Asset Road Map

Asset Databases - Benchmarking – Reliability & Failure Statistics

Artificial Intelligence / Machine Learning Toolbox (AIML TB)

Asset Optimization System Map

AIML TB

Physical Assets

Data Information Knowledge Assets

Natural Assets

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Integrated Asset Management (IAM)

1) Health of Assets, Life Cycle Assessment, Viability, Reliability & Sustainability (+V123)

ID: C-ADIICAMP-8

Assessment Of Data And Information Requirements For Your Business Or Asset Plan And Preparation Of Measurement, Control, Automation and Optimization Asset Master Plan

ID: C-ADIICAMP-8

Description
This assessment addresses all production operations processes that occur from the sand face at the bottom of each producing or injection well up to the surface in the custody transfer point of the surface production system. All activities within processes are analyzed in terms of measurement and basic control, supervision and advanced control, optimization and finally business integration. Benefits and costs are evaluated and opportunities for value creation are ranked. This model has been used successfully in the oil and gas industry with actual examples that also can be used as analogs.

DATA INFORMATION KNOWLEDGE PYRAMID INSTRUMENTATION, CONTROL AND AUTOMATION

Outcomes
- Identification of data coming from each activity and process within the production system as well as the existing instrumentation, control and automation levels are mapped and analyzed to determine what decisions are made, which data bases and applications are using these data.
- Data reliability diagnosis and failure mode and effect analysis (FMEA) and risks assessment is performed for each data elements.
- Four levels of instrumentation, control and automation levels are assessed in terms of cost benefits for each failure mode and risks.
- Benefits are classified by their effect on reduction of production losses, operating costs, HSE related risks mitigation.
- Potential combination of options are visualized, and proposals are prepared.

Consulting

ID: C-ADE-LCAA-4

Analysis, Diagnosis of Production And Life Cycle Cost Assessment Of Physical And Technology Assets
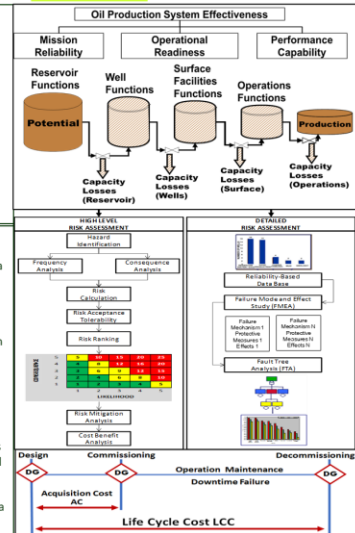
ID: C-ADE-LCAA-4

Description
Check if your assets are performing the required functions to sustain resources recovery and reserves production. Identify capacity losses impacting your production system. Review if your current flow of data, information and decisions is supporting identification of failures, production losses and life cycle cost losses . This services will provide operators about health and performance of existing assets and identification of production losses which prevents achieving target volumes and costs.

Oil Production System Effectiveness

Outcomes
- High level risk assessment with hazard identification and risk ranking including a review of the criteria for risks under the ALARP classification.
- Detailed assessment for assets showing high risk levels using failure mode and effect analysis, fault trees and action plan to achieve acceptable levels of volumes and life cycle cost performance.
- Production allocation and reporting process assessment and production losses associated causes and action plan life cycle status and recommendations.
- Data and information flow and decisions process supporting production losses and life cycle cost management.
- Appraisal of competencies vs. required levels for application and preparation of a learning plan.

Life Cycle Cost LCC

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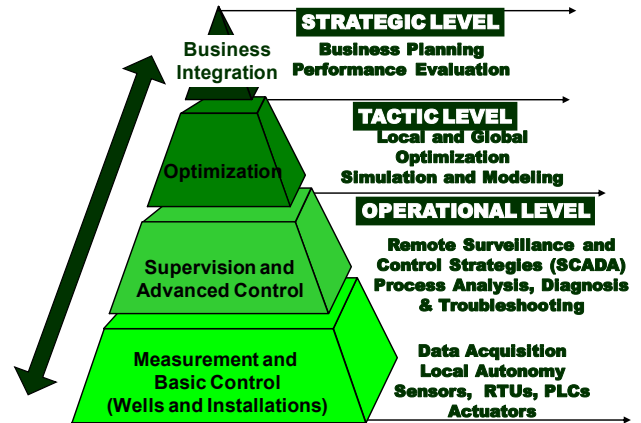

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DATA INFORMATION KNOWLEDGE PYRAMID INSTRUMENTATION, CONTROL AND AUTOMATION

STRATEGIC LEVEL
Business Planning
Performance Evaluation

TACTIC LEVEL
Local and Global
Optimization
Simulation and Modeling

OPERATIONAL LEVEL
Remote Surveillance and
Control Strategies (SCADA)
Process Analysis, Diagnosis
& Troubleshooting

Data Acquisition
Local Autonomy
Sensors, RTUs, PLCs
Actuators

BENEFITS ($)

Field (F)			O-F	A-F
Reservoir (RE)		ASC-RE	O-RE	
Surface Installation (SI)	BSC-SI	ASC-SI	O-SI	
Well Head (WH)		ASC-WH	O-WH	
Drainage Area (DA)		ASC-DA	O-DA	
	Basic Supervision Control	Advanced Supervision Control	Optimized	Asset

INVESTMENTS ($)

Outcomes

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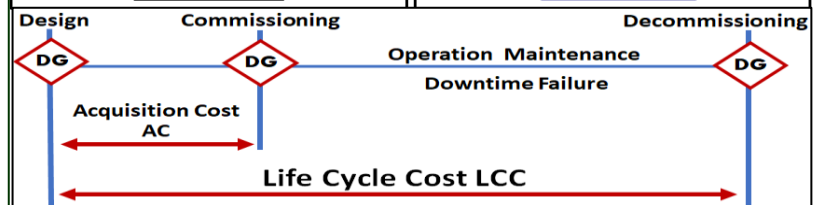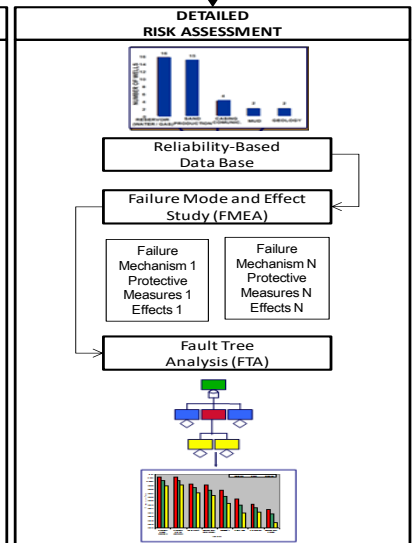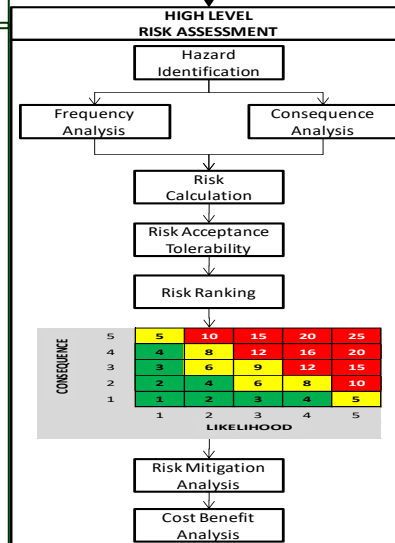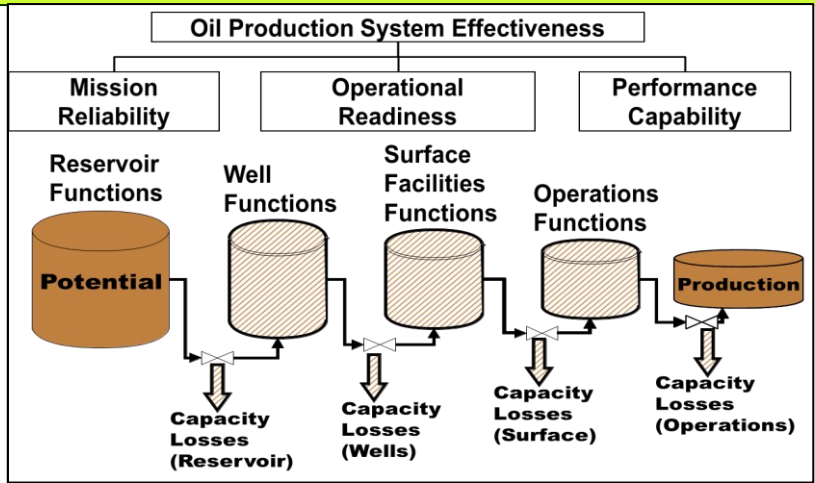
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Oil Production System Effectiveness — Mission Reliability, Operational Readiness, Performance Capability; Reservoir Functions, Well Functions, Surface Facilities Functions, Operations Functions; Capacity Losses (Reservoir), Capacity Losses (Wells), Capacity Losses (Surface), Capacity Losses (Operations); High Level Risk Assessment and Detailed Risk Assessment; Life Cycle Cost LCC.

AIML TB

Competencies (Strategic & Soft)

Technologies (Far & Near Market)

Processes & Projects Best-In-Class Assets

2) Socio Technical Options & Scenarios To Create Value & Improve Productivity Safely and Sustainably

ID: C-PCORRT-5

Production Control and Optimization Rapid Response Team (Single Asset Or Portfolio Of Assets)

Description

We provide combined expertise to review a producing field from reservoir to export with the objective of identifying opportunities to boost production, drive down operating costs and to agree on a work plan to realized the benefits and execute further in-depth analysis in particular components of the system.

This service consists of immediate identification of the capacities and limitations of the current production system base line by a team that review all processes that support the flow of field data and information and analyze available daily production potential distribution from reservoirs and wells, producing the first map of production volumes.

Production Method Analysis
- Production losses identification, root cause analysis and design of correction actions plan
- Nodal analysis and method optimization
- Artificial lift method change analysis

Surface Network and Facility Analyses
- Measurement and accounting with volumes allocation to wells and reservoirs
- Instrumentation and control diagnosis
- De-bottlenecking, separation, treatment

Drainage Area Candidate Recognition
- Production potential vs. daily production
- Formation damage assessment
- Reservoir-well connectivity analysis
- Non wanted water & gas diagnosis

General Reservoir Revision
- Resources and reserves review
- Partially drained areas
- Abnormal fluid distribution
- Rock quality and fluid pressures distribution

Outcomes
- Review and analysis of field production data process (data capture, validation, uploading and management) and identification and classification of problems associated to field production data flow
- Production volume losses identification, root cause analysis and correction action plan
- Identification of underperforming wells, production problems, failure modes, root cause analysis
- Classification of problem causes and recommendations for handling them at operational level.
- Activity-based cost and time cycle analysis and preparation of a project execution plan with benefits and costs
- Knowledge transfer through mentoring during project execution (optionally: field work, field visits)
- Appraisal of competencies vs. required levels for application and preparation of a learning plan.

ID: C-IOR-ASD-3

Improved Oil Recovery and Productivity Opportunity Assessment, Candidate Selection and Solution Design

Description

Optimize oil and gas recovery and productivity from your existing wells – Make sure your wells are producing at their potential – Get another view of your current reservoir exploitation plan and operations

This best practice has been applied in thousand of wells in different kind of reservoirs and types of hydrocarbons. The aim is to provide recovery and productivity integrated solutions and independent, unbiased advice to select the best combination of technologies for your reservoir exploitation plan.

- RESERVOIR ANALYSIS
- WELL ANALYSIS
- RESERVOIR-WELL-SURFACE INTEGRATED RELIABILITY BASED ASSESSMENT
- FEL-VCD INTEGRATED SOLUTION DESIGN AND PLANNING
- INTEGRATED SOLUTION IMPLEMENTATION AND EVALUATION

Outcomes
- Evaluation of individual wells performance with identification of opportunities to improve recovery and productivity and visualization of scenarios for integrated solutions with cost estimates, risk assessment and economic evaluation.
- Identification of opportunities for re-development or re-exploration of existing areas of the asset.
- Definition of improved recovery and productivity integrated solutions using front end loading FEL-VCD and preparation of execution plan including coordinating the participation of service companies that are providing new products and services for each solution.
- Implementation of plan by coaching and mentoring a project team assigned by operating company.
- Appraisal of competencies vs. required levels for application and preparation of a learning plan.

ID: C-RRMPA-6

Resources And Reserves Management Process Assessment

Description

This service provides a review of the hydrocarbon life cycle from undiscovered to discovered resources, reserves and production in order to improve your performance in resources and reserves management. This service range from short assessments to full implementation of a resources and reserves management process with all options, so the customer decides which one is best for their business needs.

Current Data Analysis & Process Assessment

Adopting/Adapting Petroleum Reserves Management System PRMS 2007 Guidelines

USE OF EXPERIENCES FROM EXISTING RESOURCES AND RESERVES SYSTEMS

Improved Process Rapid Implementation

Resources and Reserves Project BasedSystem

Outcomes
- Assessment of current data and process including identification of uncertainties and barriers.
- Identification of opportunities for process improvement by addressing uncertainties and barriers
- Short workshops typically 1 to 3 days to review hydrocarbon volumes life cycle activities, PRMS 2007 guidelines and experiences from existing resources and reserves systems that are being used in several countries.
- Feasibility analysis for application of software solutions depending on the size of the resource base or implementation of simple applications using standard commercial software.
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Asset Optimization System Map

2) Socio Technical Options & Scenarios To Create Value & Improve Productivity Safely and Sustainably

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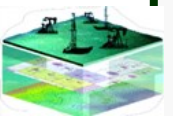- Artificial lift method change analysis

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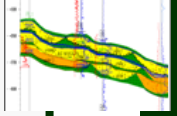- De-bottlenecking, separation, treatment

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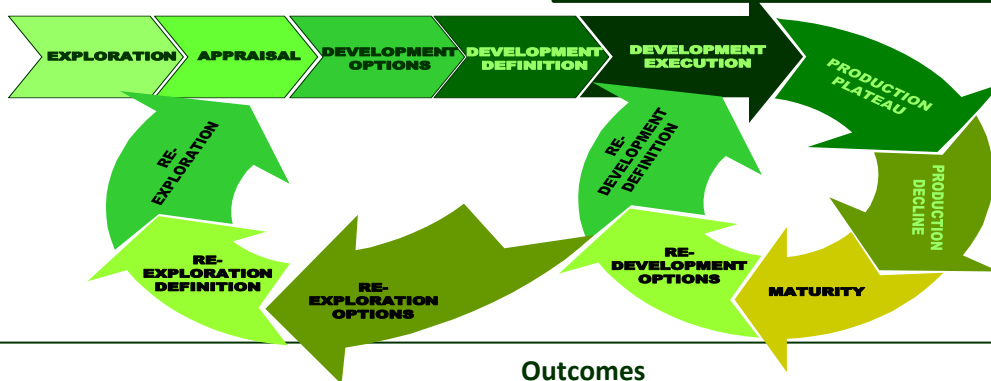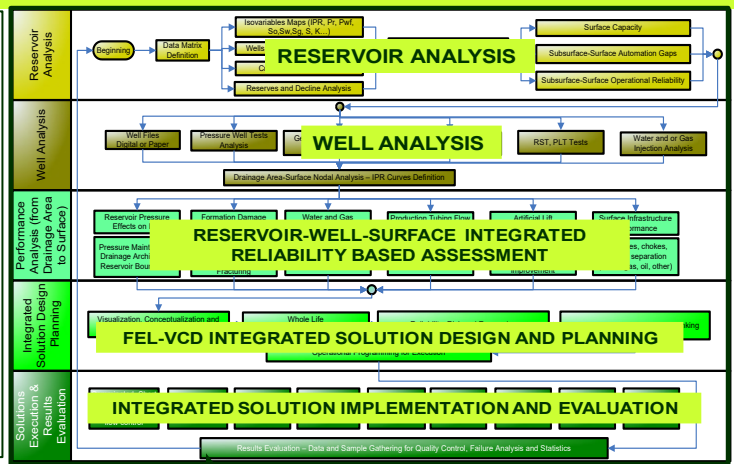
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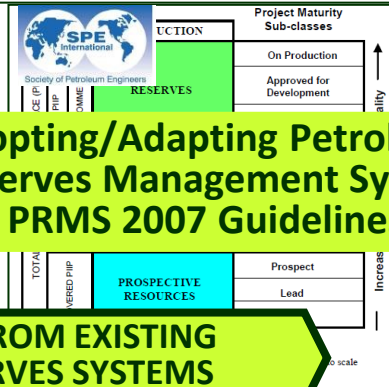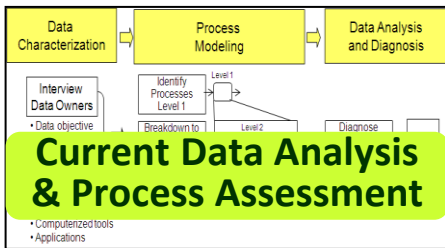# 2) Socio Technical Options & Scenarios To Create Value & Improve Productivity Safely and Sustainably

AIML TB

Technologies (Far & Near Market)

Competencies (Strategic & Soft)

Processes & Projects Best-In-Class Assets

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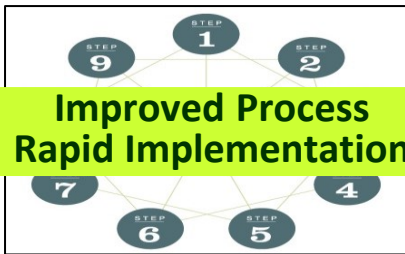
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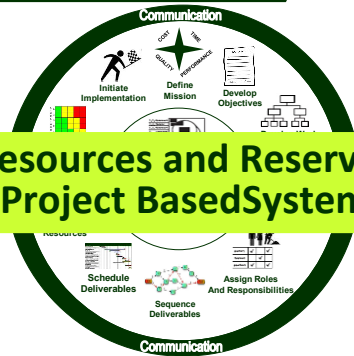
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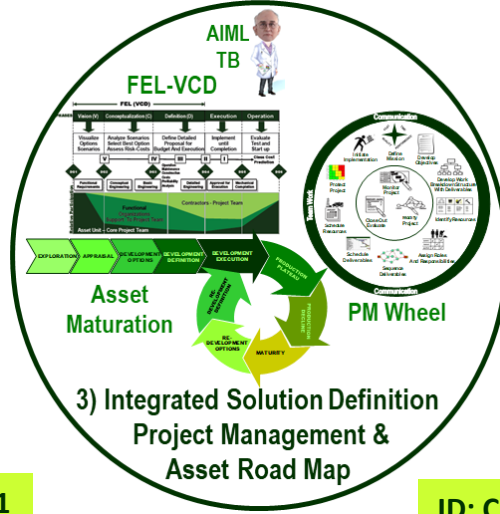**Improved Process Rapid Implementation**

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Asset Optimization System Map

3) Integrated Solution Definition, Project Management & Asset Road Map

3) Integrated Solution Definition Project Management & Asset Road Map

ID: C-FELVCD-1

Opportunity Identification and Definition Of Projects (O-FEL) For All Phases Of Asset Life Cycle (Opportunity to Abandonment)

Description

Review your existing asset business reference plan using O-FEL (VCD) and you will be surprised of the many opportunities you could be missing compared to traditional approaches. Combine O-FEL (VCD) with your existing subsurface integrated studies to get another level of oil and gas business performance.
This consulting services provides support for implementation of Opportunity-Front-End Loading (OFEL) which stands for Opportunity Identification (O), Visualization (V), Concept (C) and Definition (D). This best practice for asset maturation is used in successful asset projects and can be applied in natural and physical assets undergoing different phases of asset life cycle (discovery, development, production until abandonment). Implementation of O-FEL will bring a new portfolio of opportunities for optimizing total cost (capital and operational expenditures) and project time cycle while mitigating risks, achieving economic return and productivity goals.

Outcomes
• Business asset modeling, life of asset assessment, evaluation of existing projects and asset plan to identify value added after application of O-FEL and preparation of proposal to improve your existing business plan.
• Implementation of O-FEL methodology, tools and complexity and definition indices using a rapid implementation method that focuses on results project by project.
• Design of O-FEL indices to optimize your project management process by measuring complexity, level of definition (maturity), project performance and reliability of operations.
• Appraisal of competencies vs. required levels for application of O-FEL and preparation of a learning plan.

ID: C-WCP-VCDFEL-2

Well Construction And Intervention Project Management Using FEL-VCD

Description

Review and improve your well construction and intervention project portfolio by applying FEL-VCD.
Implementation of project management and front-end loading (FEL-VCD) to your well construction and intervention project portfolio. This tool will allow any operator to have an independent, impartial assessment of industry services, products and equipment and it is a practice used by operators worldwide.

Outcomes
• Evaluation of well construction or intervention projects to identify value added after application of FEL (VCD).
• Visualization of scenarios and well cost estimates for all phases of the hydrocarbon life cycle.
• Coaching and facilitation of conceptual and detailed well completion design including participation of service companies that are providing new technologies .
• Design of indices to optimize your project management process by measuring complexity, level of definition, project performance and reliability of operations.
• Appraisal of competencies vs. required levels for application of FEL (VCD) and preparation of a learning plan.
• Implementation of FEL (VCD) methodology, tools and indices in your company using a rapid method.

ID: C-IETPP-7

Independent Evaluation Of Technologies (Technology Intelligence and Pilot Projects)

Description

We offer assistance for technology intelligence and pilot projects during all phases of the life cycle from project initiation with the screening and feasibility analysis, preparation of the project execution plan, field assistance during evaluation and evaluation of results to support decision on proceeding to commercial project plan. We have the experience of running integrated field laboratories which is a particular application of this service to integrated multidisciplinary evaluation of selected areas that can be scaled up to the totality of the reservoir.
This service includes appraisal of competencies and preparation of a learning plan to support the change management process to ensure a successful massive application of the technology being tested.

Outcomes
• Project initiation document (charter)
• Technology identification and economics
• Design of heavy oil field pilot tests including data acquisition, analysis and interpretation process adapted to the requirements of technologies under evaluation.
• Project execution plan (PEP) with resources sequence and schedule, roles and responsibilities matrix for each resource and pilot project activity
• Results evaluation and preparation of technology implementation plan at massive scale.
• Competency assessment and development plan for asset team members.

ID: C-ISHERA-9

Integrated Health, Safety And Environmental Risk Assessment And System Implementation

ID: C-ISHERA-9

Description

We carry out technical reviews for new and existing assets. The objective is to assess all safety, operability and environmental aspects of your assets. We use an integrated health, safety and environmental risk assessment methodology where risks are analyzed, evaluated and mitigation strategies are organized into a system that is implemented in phases that triggers a learning curve and a culture that can be measured and monitored by the members of the asset team.

Outcomes
• Major risks and priorities (risk ranking)
• Program for risk control
• Strategy for risk reduction
• Identification of needs for in-depth studies
• Continuous risk evaluation process, tools and competences to support risk control program and risk reduction strategy
• Establish where the organization is in terms of risk management (who, what and how)
• Develop or update criteria for intolerable, tolerable and broadly accepted risks
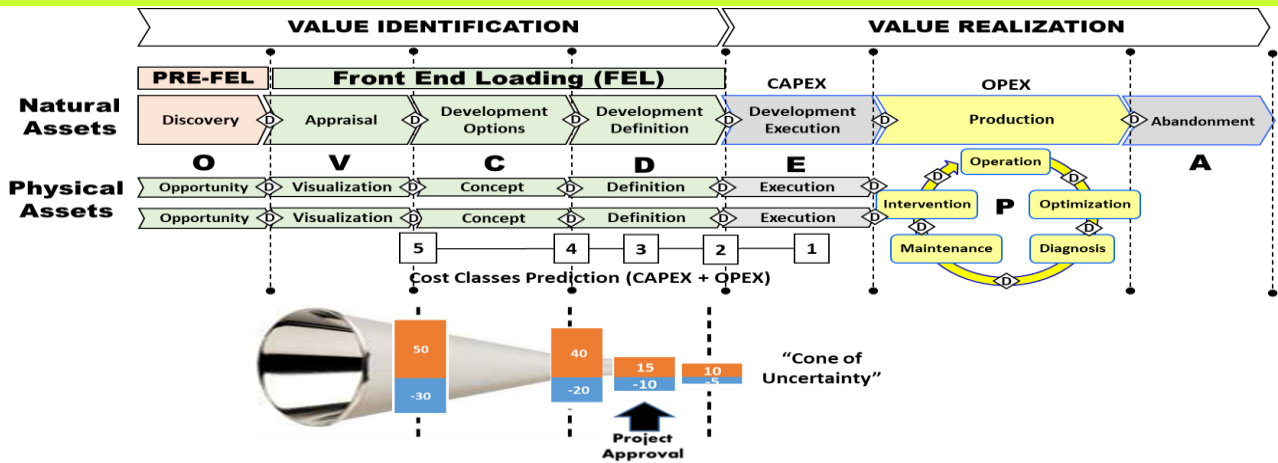• HSE competency development plan for all members of the asset team.

"The first duty of business is to survive, and a guiding principle of business is the avoidance of loss - not only the maximisation of profit"

Asset Optimization System Map

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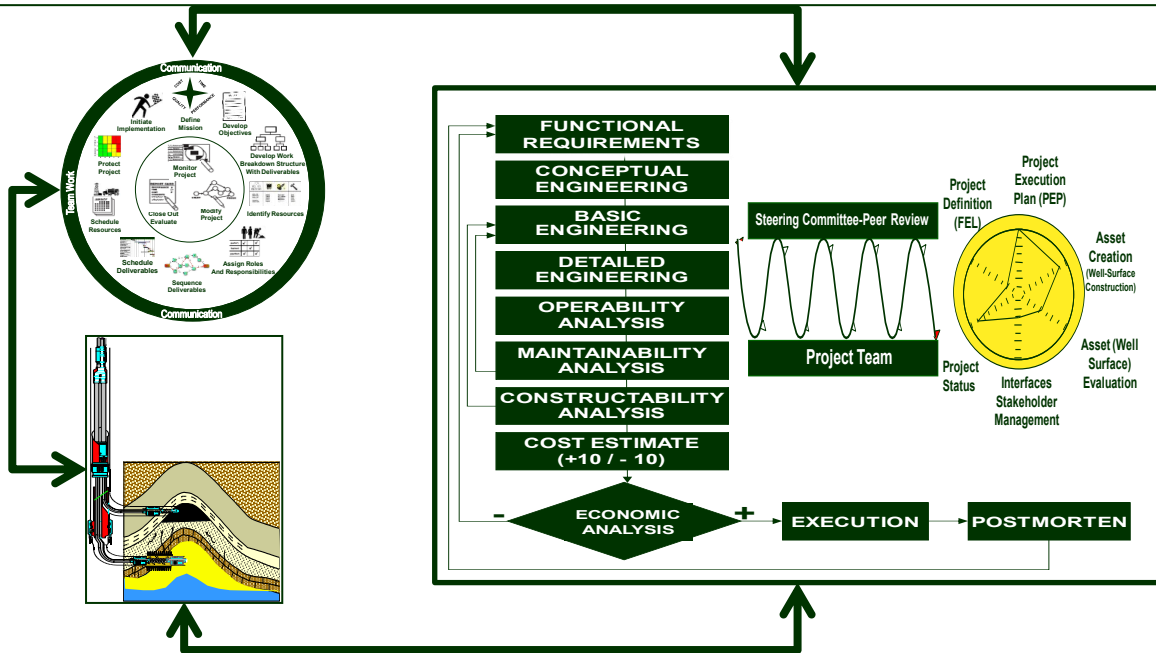
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Well Construction And Intervention Project Management Using FEL-VCD

Description

Review and improve your well construction and intervention project portfolio by applying FEL-VCD.
Implementation of project management and front-end loading (FEL-VCD) to your well construction and intervention project portfolio. This tool will allow any operator to have an independent, impartial assessment of industry services, products and equipment and it is a practice used by operators worldwide.

Outcomes

- Evaluation of well construction or intervention projects to identify value added after application of FEL (VCD).
- Visualization of scenarios and well cost estimates for all phases of the hydrocarbon life cycle.
- Coaching and facilitation of conceptual and detailed well completion design including participation of service companies that are providing new technologies .
- Design of indices to optimize your project management process by measuring complexity, level of definition, project performance and reliability of operations.
- Appraisal of competencies vs. required levels for application of FEL (VCD) and preparation of a learning plan.
- Implementation of FEL (VCD) methodology, tools and indices in your company using a rapid method.

Asset Optimization System Map

OptimaWell Asset Optimization System (ID: OWP-AOS-230926) – www.optimawell.us   **Page 13 of 31**

3) Integrated Solution Definition, Project Management & Asset Road Map

AIML TB
FEL-VCD

Asset Maturation
PM Wheel

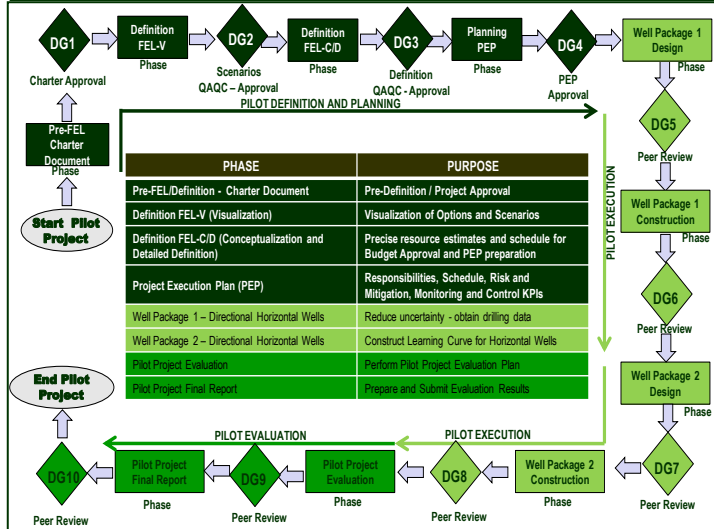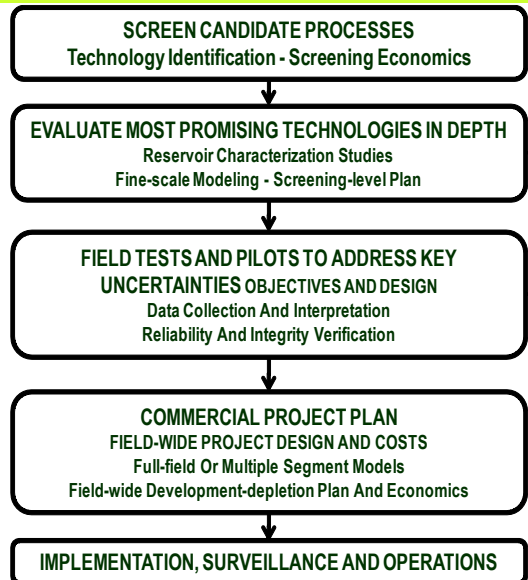3) Integrated Solution Definition Project Management & Asset Road Map

ID: C-IETPP-7

Independent Evaluation Of Technologies
(Technology Intelligence and Pilot Projects)

Description

We offer assistance for technology intelligence and pilot projects during all phases of the life cycle from project initiation with the screening and feasibility analysis, preparation of the project execution plan, field assistance during evaluation and evaluation of results to support decision on proceeding to commercial project plan. We have the experience of running integrated field laboratories which is a particular application of this service to integrated multidisciplinary evaluation of selected areas that can be scaled up to the totality of the reservoir.

This service includes appraisal of competencies and preparation of a learning plan to support the change management process to ensure a successful massive application of the technology being tested.

SCREEN CANDIDATE PROCESSES
Technology Identification - Screening Economics

EVALUATE MOST PROMISING TECHNOLOGIES IN DEPTH
Reservoir Characterization Studies
Fine-scale Modeling - Screening-level Plan

FIELD TESTS AND PILOTS TO ADDRESS KEY
UNCERTAINTIES OBJECTIVES AND DESIGN
Data Collection And Interpretation
Reliability And Integrity Verification

COMMERCIAL PROJECT PLAN
FIELD-WIDE PROJECT DESIGN AND COSTS
Full-field Or Multiple Segment Models
Field-wide Development-depletion Plan And Economics

IMPLEMENTATION, SURVEILLANCE AND OPERATIONS

PHASE	PURPOSE
Pre-FEL/Definition - Charter Document	Pre-Definition / Project Approval
Definition FEL-V (Visualization)	Visualization of Options and Scenarios
Definition FEL-C/D (Conceptualization and Detailed Definition)	Precise resource estimates and schedule for Budget Approval and PEP preparation
Project Execution Plan (PEP)	Responsibilities, Schedule, Risk and Mitigation, Monitoring and Control KPIs
Well Package 1 – Directional Horizontal Wells	Reduce uncertainty - obtain drilling data
Well Package 2 – Directional Horizontal Wells	Construct Learning Curve for Horizontal Wells
Pilot Project Evaluation	Perform Pilot Project Evaluation Plan
Pilot Project Final Report	Prepare and Submit Evaluation Results

Outcomes

- Project initiation document (charter)
- Technology identification and economics
- Design of heavy oil field pilot tests including data acquisition, analysis and interpretation process adapted to the requirements of technologies under evaluation.
- Project execution plan (PEP) with resources sequence and schedule, roles and responsibilities matrix for each resource and pilot project activity
- Results evaluation and preparation of technology implementation plan at massive scale.
- Competency assessment and development plan for asset team members.

Asset Optimization System Map

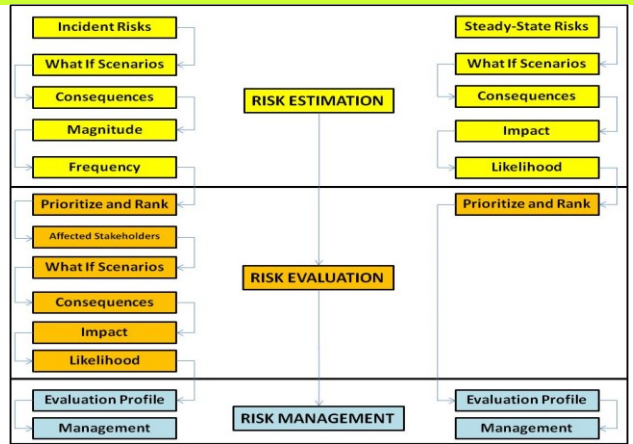# 3) Integrated Solution Definition, Project Management & Asset Road Map

ID: C-ISHERA-9

Integrated Health, Safety And Environmental Risk Assessment And System Implementation

Description

<u>We carry out technical reviews for new and existing assets. The objective is to assess all safety, operability and environmental aspects of your assets</u>. We use an integrated health, safety and environmental risk assessment methodology where risks are analyzed, evaluated and mitigation strategies are organized into a system that is implemented in phases that triggers a learning curve and a culture that can be measured and monitored by the members of the asset team.

Outcomes

- Major risks and priorities (risk ranking)
- Program for risk control
- Strategy for risk reduction
- Identification of needs for in-depth studies
- Continuous risk evaluation process, tools and competences to support risk control program and risk reduction strategy
- Establish where the organization is in terms of risk management (who, what and how)
- Develop or update criteria for intolerable, tolerable and broadly accepted risks
- HSE competency development plan for all members of the asset team.

"The first duty of business is to survive, and a guiding principle of business is the avoidance of loss - not only the maximisation of profit"

Asset Optimization System Map

AIML TB

IAM Radar

AIML Radar

Learning Teams Building

4) Knowledge, Insights and Critical Skills Transfer

ID: C-AI-SPFA-11

Artificial Intelligence Opportunity Assessment, Strategy and Plan for Implementation

Description

This service is executed by interacting with business staff data owners using interviews, surveys and assessment tools which are the result of successful experiences in the industry. We offer proven methodologies to review existing data and information flow for processes & projects, computerized tools and AI applications currently in use. We compare the maturity of AI-based systems vs. best-in-class similar assets, to generate a portfolio of opportunities for AI applications that are evaluated with multiple indices.

Outcomes

- Assessment of AI maturity vs. challenges (risks, uncertainties, opportunities and barriers).
- Review life cycle activities, AI guidelines and experiences from existing systems that are being used.
- Feasibility analysis for application of AI using standard commercial software or tailor-made solutions.
- Strategy for closing AI gaps including identification of learning while doing learning activities.
- Data and information availability and quality required to train AI models for core processes and projects.
- AI Competency maps coupled to workflows within projects and processes for easy implementation.
- Options and scenarios for AI-based solutions for improvement by addressing risks, and barriers
- Strategy and business plan with options and scenarios for decision making and implementation.

Delivery Of Tailor-Made, Fit-For-Purpose, Just-In-Time On-The-Job Onsite or Remote Training And Mentoring Artificial Intelligence Implementation Plan Aligned To Your Business Goals And People´s Talents

ID: C-ABCA-LMP-10

Activity-based Competency Assessment For An Asset And Preparation Of Learning Master Plan

Description

We provide an activity-based competency assessment to satisfy the specific learning needs of your projects and processes. We design a result oriented, learning while doing mentoring, facilitation and coaching program to be executed as part of the business plan. This service is executed by interacting with your staff using interviews, surveys and competency assessment tools which are the result of successful experiences in the oil and gas industry. We offer proven methodologies.

Outcomes

- Strategy for closing competencies gaps using learning while doing activities.
- Competency maps coupled to workflows within projects and processes for easy implementation of knowledge.
- Learning plans for exploration and production assets and projects
- Teaching and mentoring programs adapted to customer's particular reservoir needs.
- Permanent follow up, evaluation and adjustments as part of execution of the learning plan.

Delivery Of Taylor Made, Fit For Purpose, Just In Time On The Job Onsite/Remote Training And Mentoring Plan Aligned To Your Business Goals And People´s Talents

ID: C-IWOI-230924

Integration Workshops (IW)

Description

The IW map follows a value enhancing practice used to support identification of options for preparation of scenarios for decision making related to an asset, with all the components as indicated by project management best practices. The dynamics allows the necessary interrelationships among participating disciplines, to clearly identify options to approach each challenge, level of definition, complexity, completeness and resources required for opportunity valuation and future work related a value creation business proposal.
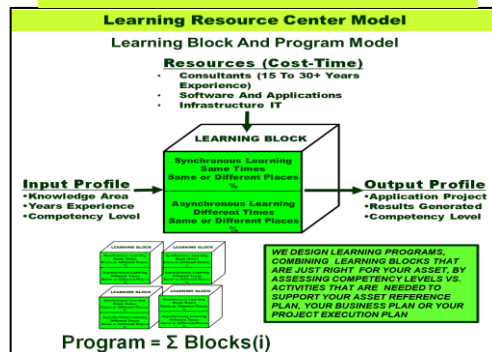

Outcomes

- Evaluation of known data, determination of complexities, uncertainties, and risks and benchmarking with selected field analogs.
- Identification of technology options and feasible scenarios.
- High level proposal with strategy road map for next phases, including estimates of resources and value assurance requirements to initiate Project Gate System for CAPEX allocation.
- Value drivers, uncertainties, risks, critical components, and needs.
- Opportunity Assessment Valuation

Integration Workshop benefits asset team building, ownership, and identifies critical points early in the life of any project
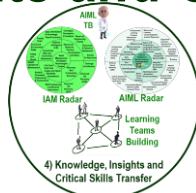
ACTIVE LEARNING STRATEGY

Active Learning Strategy

	After a period people tend to remember	And they are able to:	
Passive	10% of what they read	Reading	Define Describe name, explain
	20% of what they heard	Hearing words	
	30% of what they saw	Looking at pictures	Demonstrate Apply Practice
	50% of what they heard and saw	Watching a demonstration, movie, Attending exhibitions	
Active	70% of what they said and wrote	Participate in a discussion, talk, workshops, presentations	Analyze Design Create Evaluate
	90% of what they said and did	Simulate from a Model Design/Perform/Do Real things Role Playing Games	

LEARNING RESOURCE CENTER

Learning Resource Center Model

Learning Block And Program Model

Resources (Cost-Time)
- Consultants (15 To 30+ Years Experience)
- Software And Applications
- Infrastructure IT

LEARNING BLOCK

Synchronous Learning Same Times Same or Different Places %

Asynchronous Learning Different Times Same or Different Places %

Input Profile
- Knowledge Area
- Years Experience
- Competency Level

Output Profile
- Application Project
- Results Generated
- Competency Level

WE DESIGN LEARNING PROGRAMS, COMBINING LEARNING BLOCKS THAT ARE JUST RIGHT FOR YOUR ASSET, BY ASSESSING COMPETENCY LEVELS VS. ACTIVITIES THAT ARE NEEDED TO SUPPORT YOUR ASSET REFERENCE PLAN, YOUR BUSINESS PLAN OR YOUR PROJECT EXECUTION PLAN

Program = Σ Blocks(i)

OptimaWell Asset Optimization System (ID: OWP-AOS-230926) – www.optimawell.us
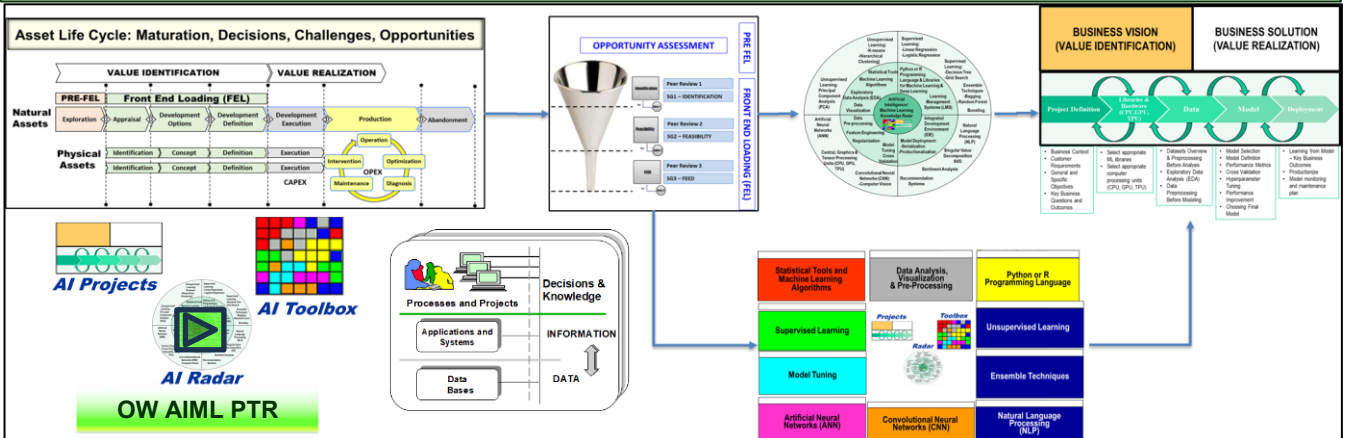
ID: C-AI-SPFA-11

Artificial Intelligence Opportunity Assessment, Strategy and Plan for Implementation

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This service is executed by interacting with business staff data owners using interviews, surveys and assessment tools which are the result of successful experiences in the industry. We offer proven methodologies to review existing data and information flow for processes & projects, computerized tools and AI applications currently in use. We compare the maturity of AI-based systems vs. best-in-class similar assets, to generate a portfolio of opportunities for AI applications that are evaluated with multiple indices.
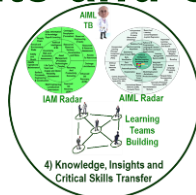

Outcomes

- Assessment of AI maturity vs. challenges (risks, uncertainties, opportunities and barriers).
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Delivery Of Tailor-Made, Fit-For-Purpose, Just-In-Time On-The-Job Onsite or Remote Training And Mentoring Artificial Intelligence Implementation Plan Aligned To Your Business Goals And People´s Talents

Asset Optimization System Map

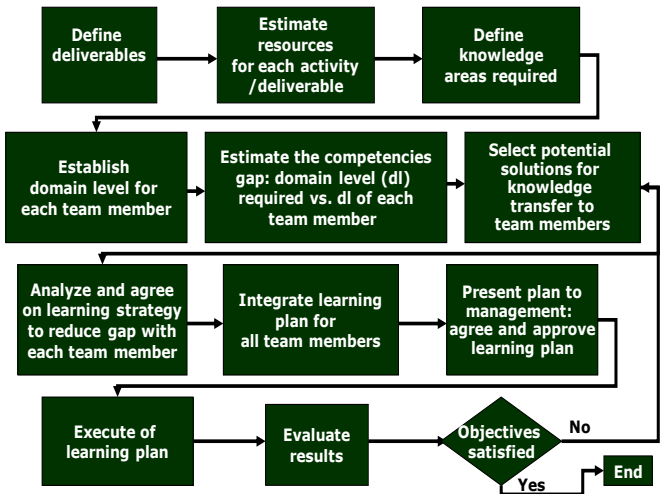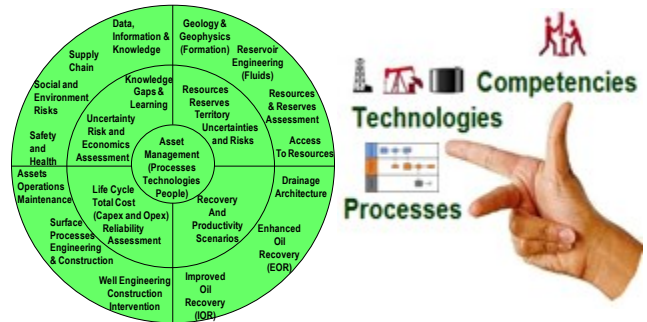# 4) Knowledge, Insights and Critical Skills Transfer

ID: C-ABCA-LMP-10

Activity-based Competency Assessment For An Asset And Preparation Of Learning Master Plan

Description

We provide an activity-based competency assessment to satisfy the specific learning needs of your projects and processes. We design a result oriented, learning while doing mentoring, facilitation and coaching program to be executed as part of the business plan. This service is executed by interacting with your staff using interviews, surveys and competency assessment tools which are the result of successful experiences in the oil and gas industry. We offer proven methodologies.

Outcomes

- Strategy for closing competencies gaps using learning while doing activities.
- Competency maps coupled to workflows within projects and processes for easy implementation of knowledge.
- Learning plans for exploration and production assets and projects
- Teaching and mentoring programs adapted to customer's particular reservoir needs.
- Permanent follow up, evaluation and adjustments as part of execution of the learning plan.

Process flow:

Define deliverables → Estimate resources for each activity/deliverable → Define knowledge areas required → Establish domain level for each team member → Estimate the competencies gap: domain level (dl) required vs. dl of each team member → Select potential solutions for knowledge transfer to team members → Analyze and agree on learning strategy to reduce gap with each team member → Integrate learning plan for all team members → Present plan to management: agree and approve learning plan → Execute of learning plan → Evaluate results → Objectives satisfied? No → (loop back); Yes → End

Delivery Of Taylor Made, Fit For Purpose, Just In Time On The Job Onsite/Remote Training And Mentoring Plan Aligned To Your Business Goals And People´s Talents

Asset Optimization System Map

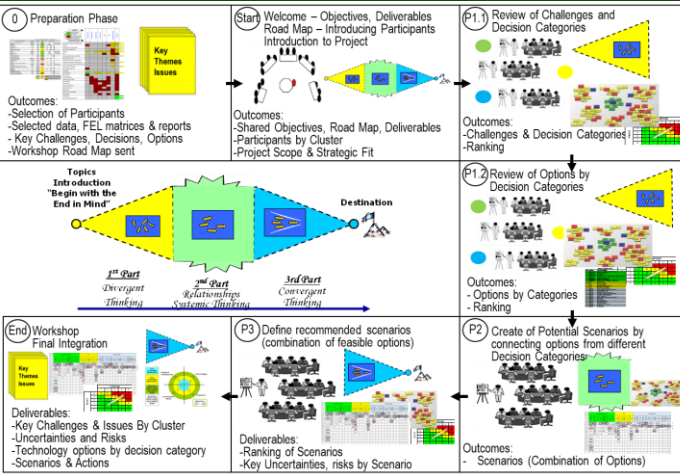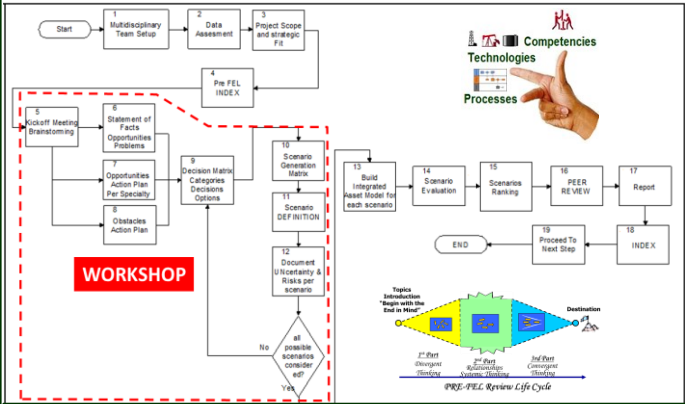# 4) Knowledge, Insights and Critical Skills Transfer

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Description

The IW map follows a value enhancing practice used to support identification of options for preparation of scenarios for decision making related to an asset, with all the components as indicated by project management best practices. The dynamics allows the necessary interrelationships among participating disciplines, to clearly identify options to approach each challenge, level of definition, complexity, completeness and resources required for opportunity valuation and future work related a value creation business proposal.
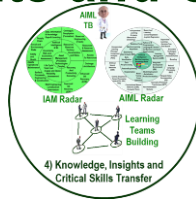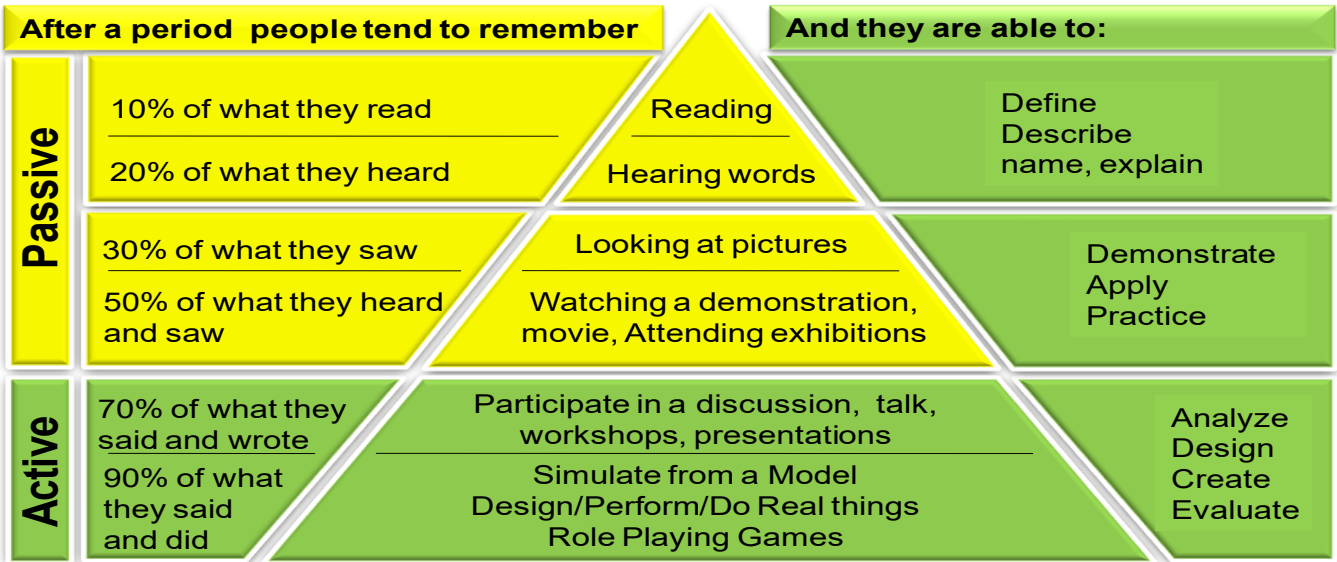

Outcomes

- Evaluation of known data, determination of complexities, uncertainties, and risks and benchmarking with selected field analogs.
- Identification of technology options and feasible scenarios.
- High level proposal with strategy road map for next phases, including estimates of resources and value assurance requirements to initiate Project Gate System for CAPEX allocation.
- Value drivers, uncertainties, risks, critical components, and needs.
- Opportunity Assessment Valuation

Integration Workshops benefit asset team building, ownership, and identifies critical points early in the life of any project

Active Learning Strategy (1 of 2)

	After a period people tend to remember		And they are able to:
Passive	10% of what they read	Reading	Define Describe name, explain
	20% of what they heard	Hearing words	
	30% of what they saw	Looking at pictures	Demonstrate Apply Practice
	50% of what they heard and saw	Watching a demonstration, movie, Attending exhibitions	
Active	70% of what they said and wrote	Participate in a discussion, talk, workshops, presentations	Analyze Design Create Evaluate
	90% of what they said and did	Simulate from a Model Design/Perform/Do Real things Role Playing Games	

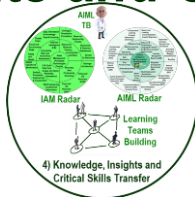Adapted from the original Edgar Dale´s Cone of Learning

OptimaWell uses an active learning strategy which accounts for 70% or more of the learning process as shown in the adapted Dale´s Cone of Learning model).

Our methodologies are based on our experience in the oil and gas industry with knowledge management tools designed to close the loop with results and can be translated into business value. In each learning while doing activity we facilitate teamwork, mentoring, communities of best practices, learning before during and after projects.
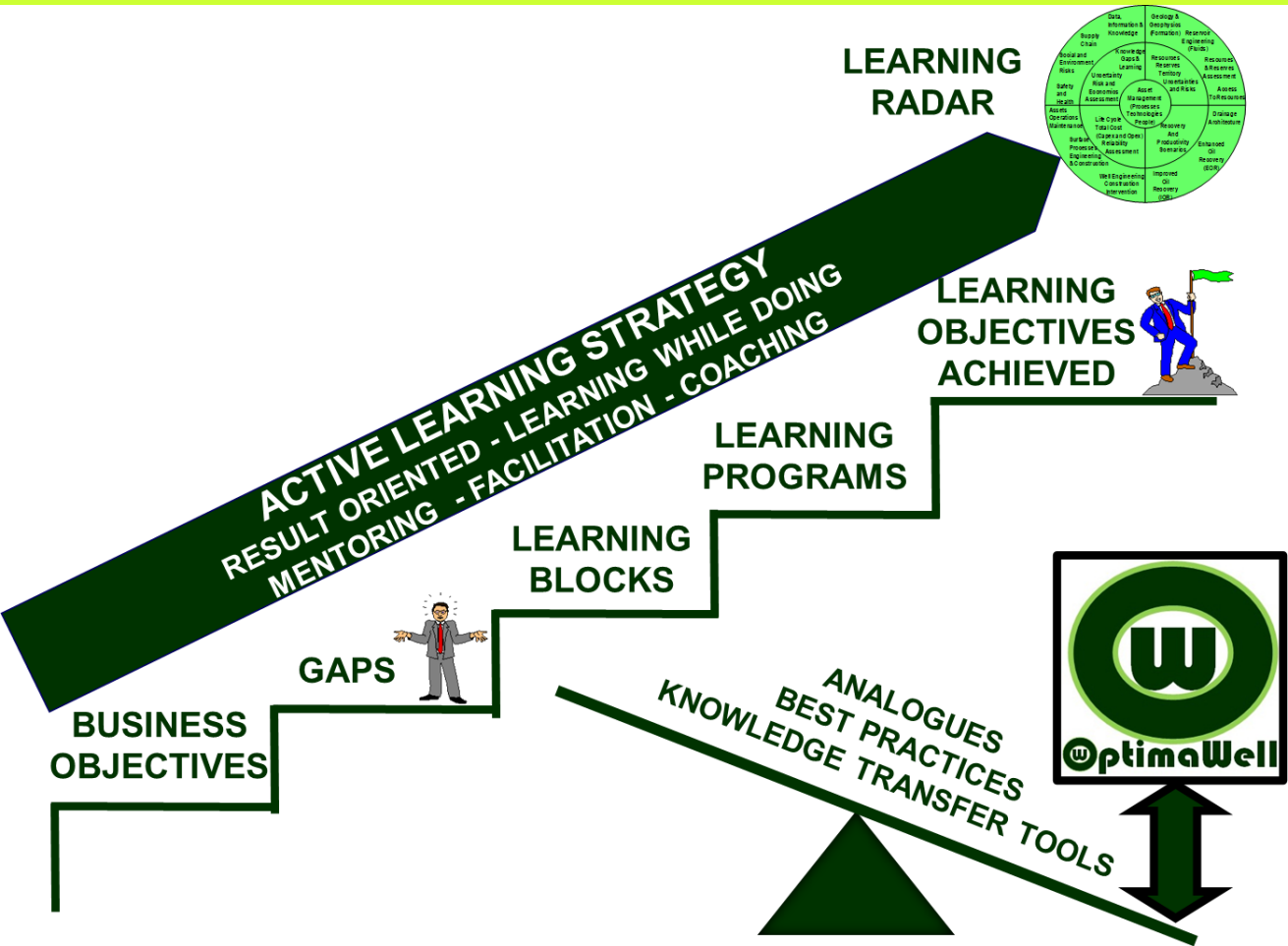
*All our services, training and products are designed to **leverage** your learning needs which are identified by direct interaction with our customers using interviews, surveys and competency assessment tools which are the result of successful experiences in the oil and gas industry. We offer proven methodologies!*

An example of learning while doing is our role-playing simulation method in which we use actual cases from analog assets to create a context that encourages the integration of concepts, methodology and the participant's knowledge. Role playing simulation is an active practical session where the facilitators set up a scenario where the participants are assigned different roles similar as those they will undertake in the field. This learning approach has high positive impact in any project dealing with high levels of uncertainties and risks

Asset Optimization System Map

OptimaWell Asset Optimization System (ID: OWP-AOS-230926) – www.optimawell.us **Page 20 of 31**

Active Learning Strategy (2 of 2)

LEARNING RADAR

ACTIVE LEARNING STRATEGY
RESULT ORIENTED - LEARNING WHILE DOING
MENTORING - FACILITATION - COACHING

LEARNING OBJECTIVES ACHIEVED

LEARNING PROGRAMS

LEARNING BLOCKS

GAPS

BUSINESS OBJECTIVES

ANALOGUES
BEST PRACTICES
KNOWLEDGE TRANSFER TOOLS

OptimaWell

1. *Learning Plans For Assets And Projects*
2. *Tripod Learning Model: % Videos, % Online-interactive and % Work Project For Immediate and Advanced Applications.*
3. *Interactive Customer Centered Learning Model For Individuals And Groups.*
4. *Teaching And Mentoring Programs Adapted To Customer's Particular Assets Needs.*
5. *Competency Maps Coupled To Workflows For Easy Implementation Of Knowledge.*
6. *Practical Examples (Analogues) From Successful Worldwide Assets And Projects.*
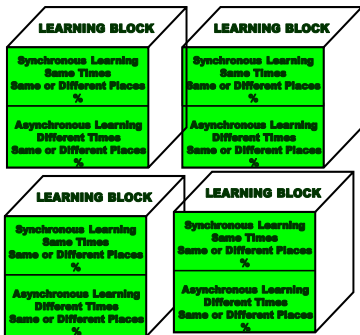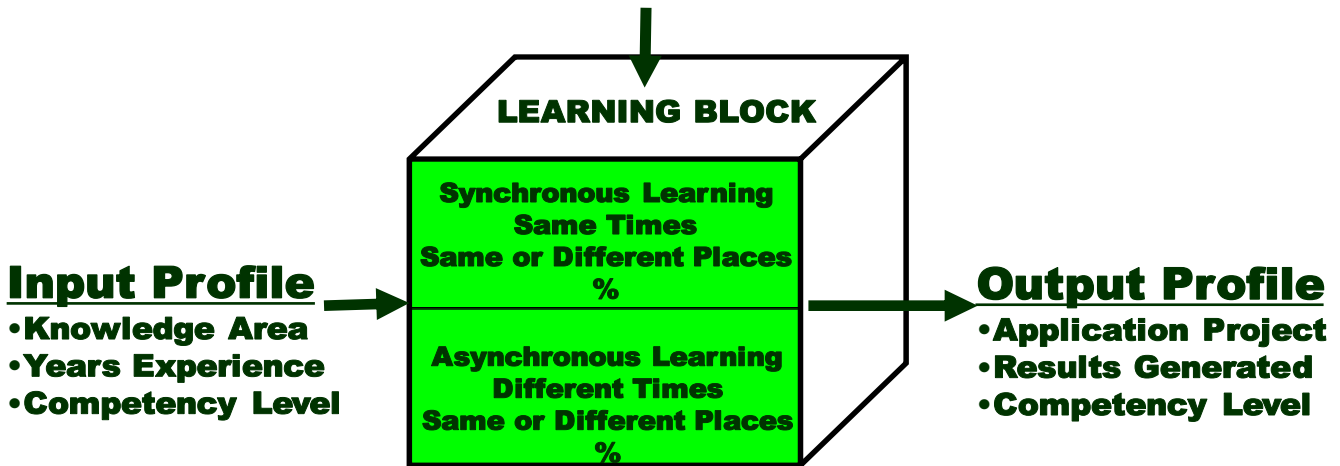
Asset Optimization System Map
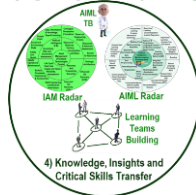
Learning Resource Center (1 of 9)

Learning Block And Program Model

Resources (Cost-Time)
- Consultants (15 To 30+ Years Experience)
- Software And Applications
- Infrastructure IT

LEARNING BLOCK

Synchronous Learning
Same Times
Same or Different Places
%

Asynchronous Learning
Different Times
Same or Different Places
%

Input Profile
- Knowledge Area
- Years Experience
- Competency Level

Output Profile
- Application Project
- Results Generated
- Competency Level

LEARNING BLOCK

Synchronous Learning
Same Times
Same or Different Places
%

Asynchronous Learning
Different Times
Same or Different Places
%

LEARNING BLOCK

Synchronous Learning
Same Times
Same or Different Places
%

Asynchronous Learning
Different Times
Same or Different Places
%

LEARNING BLOCK

Synchronous Learning
Same Times
Same or Different Places
%

Asynchronous Learning
Different Times
Same or Different Places
%

LEARNING BLOCK

Synchronous Learning
Same Times
Same or Different Places
%

Asynchronous Learning
Different Times
Same or Different Places
%

WE DESIGN LEARNING PROGRAMS, COMBINING LEARNING BLOCKS THAT ARE JUST RIGHT FOR YOUR ASSET, BY ASSESSING COMPETENCY LEVELS VS. ACTIVITIES THAT ARE NEEDED TO SUPPORT YOUR ASSET REFERENCE PLAN, YOUR BUSINESS PLAN OR YOUR PROJECT EXECUTION PLAN

Program = Σ Blocks(i)

Asset Optimization System Map

Learning Resource Center (2 of 9)

Learning Blocks - Foundation
Basic entry level - Learning loop closed with concepts and fundamentals relevant to company assets and fields and a total duration less or equal than 24 hours.
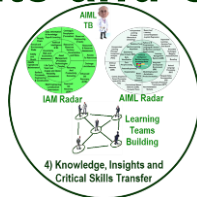
Learning Programs at Tactical Level
Intermediate level - Learning loop closed with results in particular projects and processes supporting assets and fields and a total duration less than 1 week.
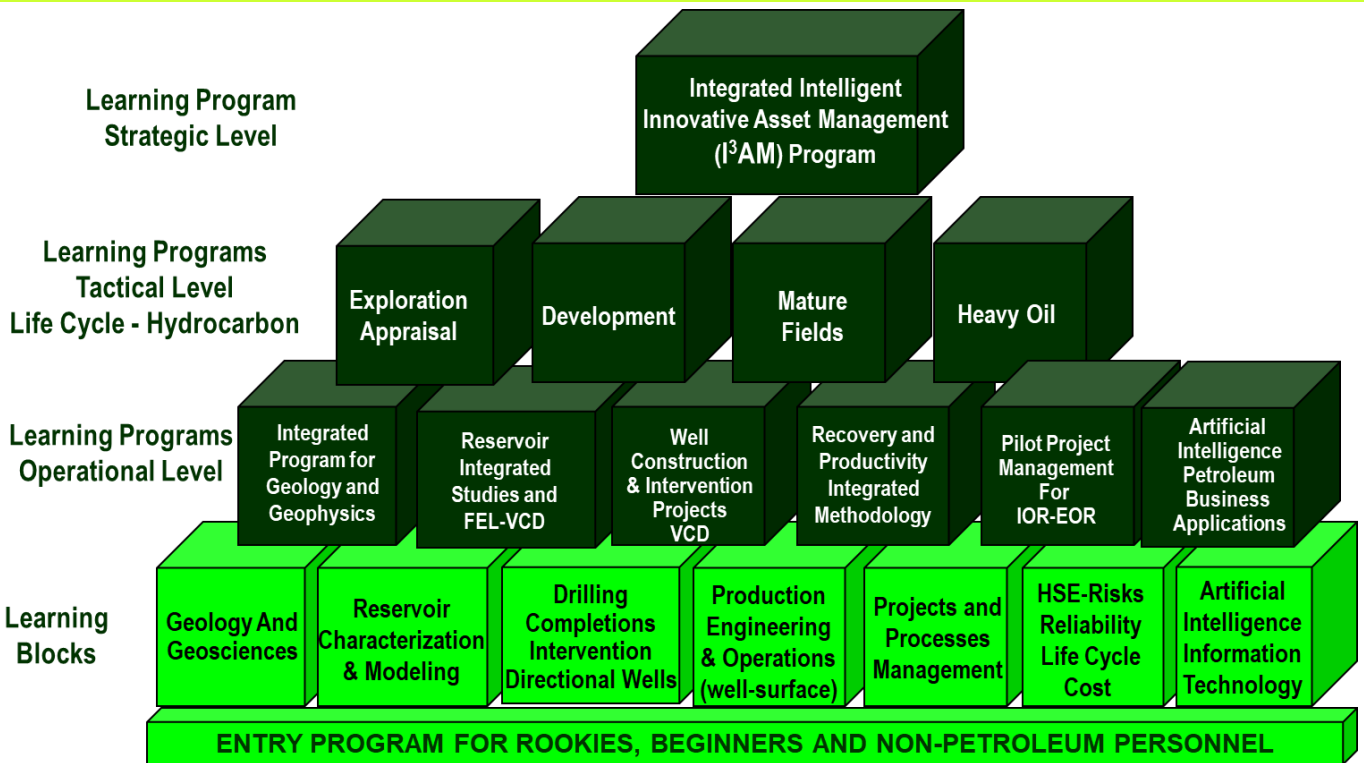
Learning Programs at Strategic Level
Advanced level for managers and leaders of business projects and processes - Learning loop closed with business plan objectives and goals and a total duration of more than 1 week.

OptimaWell Asset Optimization System (ID: OWP-AOS-230926) – www.optimawell.us

4) Knowledge, Insights and Critical Skills Transfer

Learning Resource Center (3 of 9)

Energy and Petroleum Assets

Learning Program Strategic Level

Integrated Intelligent Innovative Asset Management (I^3AM) Program

Learning Programs Tactical Level Life Cycle - Hydrocarbon

Exploration Appraisal | Development | Mature Fields | Heavy Oil

Learning Programs Operational Level

Integrated Program for Geology and Geophysics | Reservoir Integrated Studies and FEL-VCD | Well Construction & Intervention Projects VCD | Recovery and Productivity Integrated Methodology | Pilot Project Management For IOR-EOR | Artificial Intelligence Petroleum Business Applications

Learning Blocks

Geology And Geosciences | Reservoir Characterization & Modeling | Drilling Completions Intervention Directional Wells | Production Engineering & Operations (well-surface) | Projects and Processes Management | HSE-Risks Reliability Life Cycle Cost | Artificial Intelligence Information Technology

ENTRY PROGRAM FOR ROOKIES, BEGINNERS AND NON-PETROLEUM PERSONNEL

1. *Learning Blocks and Learning Programs Adapted For Your Particular Asset So You Save Money And Precious Time In Applicable Courses Aligned To Your Needs*
2. *Our Entry Program For Rookies, Beginners and Non-Petroleum Personnel Is Based On Successful Experiences From Oil and Gas Industry*
3. *We Shorten Your Learning Curve By Providing Online Assistance At Competitive Prices*

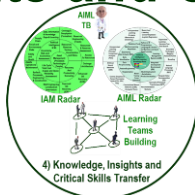*Asset Optimization System Map*
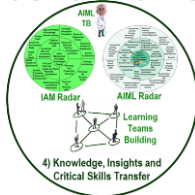
Learning Resource Center (4 of 9)

Learning Games

- *Artificial Intelligence Fun Game - Building Insights from Data*

- *Role Playing Board Simulation Game And Book For Managing Natural Assets and Associated Physical Assets*

- *Integrated Asset Management (Processes And Projects) Games Cards and Templates*

Asset Optimization System Map

Learning Resource Center (5 of 9)

Software – Workflows

- *Process Based Workflow Software For Analysis And Diagnosis Of Oil And Gas Wells*

- *Analogue Based Software For IOR-EOR Screening*

- *Software for Risk Adjusted Life Cycle Costing and Economic Evaluation*

- *Strategic and Soft Skills Toolbox For Project And Asset Teams (Cards, Quick Study Guide, and Book)*

- *Petroleum Asset Management: Integrated Innovative and Intelligent (PAMI3) Book, Asset and Project Databases and Software*

Asset Optimization System Map
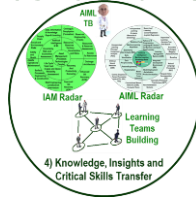
Learning Resource Center (6 of 9)

eBooks & Prints

English

- *Toolboxes for Outperformers (ID: OWP-TBFO-230706)*

- *The Intelligent Project Management Wheel (ID: OWP-IPMW-230706)*

- *Introductory Guide to Risk Management Systems For Asset Optimization (ID: OWP-IGRM-230922)*

- *OptimaWell Artificial Intelligence & Machine Learning PTR (ID: OWP-AIMLPTR-230711)*

- *OptimaWell Asset Optimization System (ID: OWP-AOS-230923)*

Spanish

- *100 Common Sense Rules for an Asset Project Manager (Spanish version) (ID: OWP-100CSRFAPM-230706)*

- *Asset Based Process Modeling and Simulation Guide (Spanish version) (ID: OWP-ABPMASG-230706)*

- *Guide for Introduction To Risk Management (Spanish version) (ID: OWP-GIGR-230707)*

Asset Optimization System Map
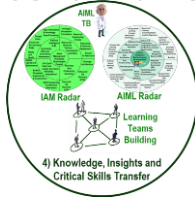
Learning Resource Center (7 of 9)

Databases

- *World Oil Field Size Distribution Database*

- *World Oil and Gas Operating Companies Database*

- *World Oil and Gas Service Companies Database*

- *World Oil and Gas Assets Analogues Benchmarking Database*

- *Venezuelan Oil and Gas Assets Analogues Benchmarking Database*

- *Petroleum Industry Accidents, Disasters & Fatalities Database*

- *Well Blowouts Database*

- *Well Cost Database*

- *Petroleum Industry Outliers (Records) Database*

Asset Optimization System Map
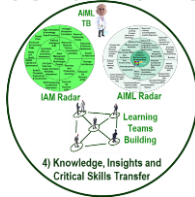
Learning Resource Center (8 of 9)

Technology & Market Intelligence Reports

- *Enhanced Oil Recovery EOR Technology Intelligence Report*

- *Far Market Technologies Applicable to Oil and Gas Industry Report*

- *Heavy Oil Economics Benchmarking Report*

- *Health, Safety and Environment Technologies Intelligence Report*
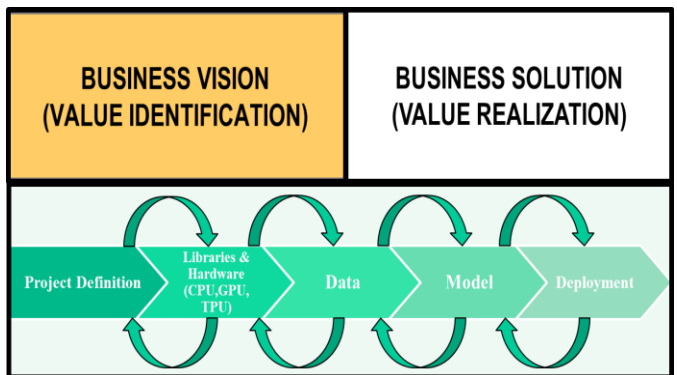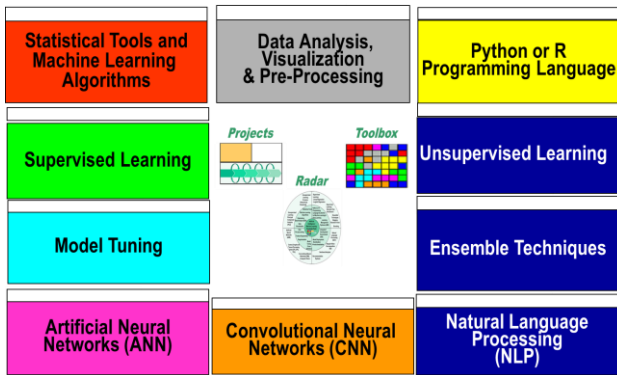

- *Enhanced Oil Recovery EOR Suppliers Market Report*

- *Artificial Lift Market Report*

- *Venezuela Petroleum Industry Market Report*

- *Latin-American Petroleum Industry Market Report*

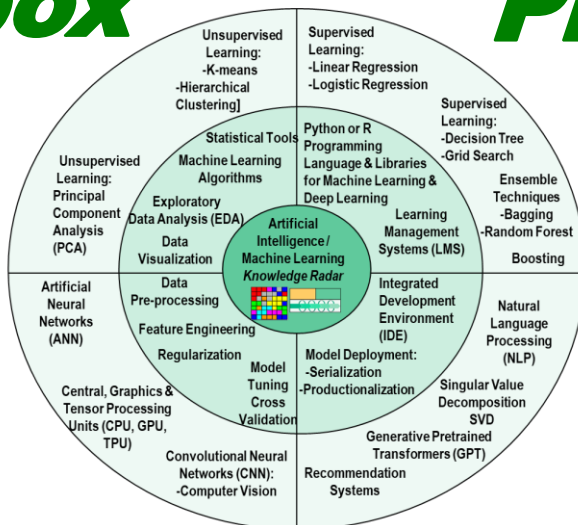*Asset Optimization System Map*
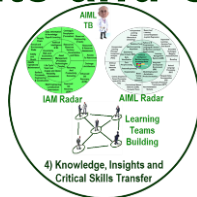
Learning Resource Center (9 of 9)

OptimaWell Artificial Intelligence-ML Toolbox

Toolbox

Projects

Radar

ID: C-AI-SPFA-11

Asset Optimization System

September 2023

OptimaWell Asset Optimization System (ID: OWP-AOS-230926) – www.optimawell.us