Oliasoft WellDesign®

- Creating Value on multiple levels

OLIASOFT

How does companies use Oliasoft WellDesign?

Open API let users build custom solutions by connecting Oliasoft and third party applications like Lego building blocks

PLANNING

Perform automated well planning and increase iterations - use the power of our Integrated Cloud Engineering engine to optimise well designs and minimise the possibility of over-design

API 3RD PARTY INTEGRATION

Send Oliasoft WellDesign calculations to third-party applications to automate offshore drilling equipment - integrate planning and operations to develop fully digital environments

REAL TIME OPERATION

Receive real-time data directly from drilling rigs - iterate calculations to monitor and ensure drilling operations are performed according to industry regulations

Oliasoft WellDesign create customer value at several levels

1
Replace Landmark

2
Enable Digital Workflow and Automation

3
Contribute to Business and Organizational Issues

4
Real-time Operations

5
Simplify IT Infrastructure

6
Next step on the Technology Curve

7
No Legacy issues or Technical Debt

8
Replacement Cost

REPLACE HALLIBURTON LANDMARK

Get a better, more comprehensive product

Increased competence

- ✓ Oliasoft's WellDesign is user friendly and intuitive – this gets drilling engineers fast up to a high level of understanding of all modules, including blowout and kill

- ✓ A modern, intuitive software promotes motivation

- ✓ The engineers increased ability to collaborate throughout the whole well design process encourages transfer of experience, cross-disciplinary perspectives and team learning

- ✓ All calculation engines are fully documented – no black box. Understanding the calculations means the engineers can better improve and quality control the designs

Increased competence

Knowledge
Transfer

Motivating

Fully
Documented

Intuitive

User
Friendly
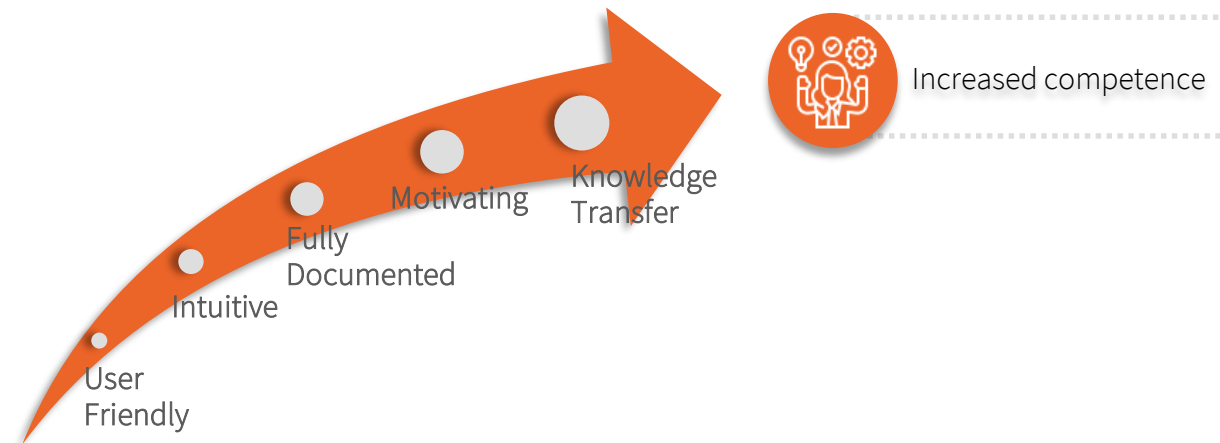
Increased safety

✓ Proper management of change prevents unforeseen, unwanted incidents – change of one module automatically results in recalculation and update of all modules

✓ Seamless connection to real-time data

✓ Monitoring of the operations and automatic re-calculations of critical design parameters

✓ Automated anti-collision calculations and planned vs actual well trajectories to rigside

Integrated software with machine to machine capabilities increases your safety

TUBING DESIGN

CASING DESIGN

BLOWOUT & KILL

WELL TRAJECTORY

OLIASOFT

TORQUE & DRAG

HYDRAULICS AND SURGE & SWAB

Through the use of Oliasoft WellDesign, major savings and additional effects can be achieved

For all wells you can achieve

SAVED ENGINEERING TIME

SAVINGS RELATED TO BLOWOUT AND KILL

SAVED TIME TO FOCUS ON OPERATIONS

For some wells / reservoirs you can achieve

OPTIMIZED DESIGN DUE TO ACCURATE CALCULATIONS AND ITERATIONS

FEWER WELLS DUE TO OPTIMISED DRAINAGE STRATEGY

REDUCED CASING PROGRAMME

ENABLE DIGITAL WORKFLOW AND AUTOMATION

Design better and more optimized wells

McKinsey & Company estimate 10 – 12$/boe cash flow improvement potential by succeeding with digital technologies

A **10 – 12 $/boe** pre-tax cash flow improvement potential by succeeding with the digital transformation through

Advanced Analytics

Process Automation

Robotics

Business Model Innovation

Source: McKinsey Oil and Gas Practice

Enabling the digital infrastructure in O&G

The digital infrastructure of the O&G industry is currently being built - enabled by cloud foundation and modern software

The new infrastructure is categorized by
- API based applications throughout the value chain.
- Everyone who joins must meet the criteria to extend automated and autonomous processes.

One thing is certain, the pyramid of the digital infrastructure will not contain outdated solutions and legacy systems.

You need solutions built for the digital ecosystem to maintain competitive
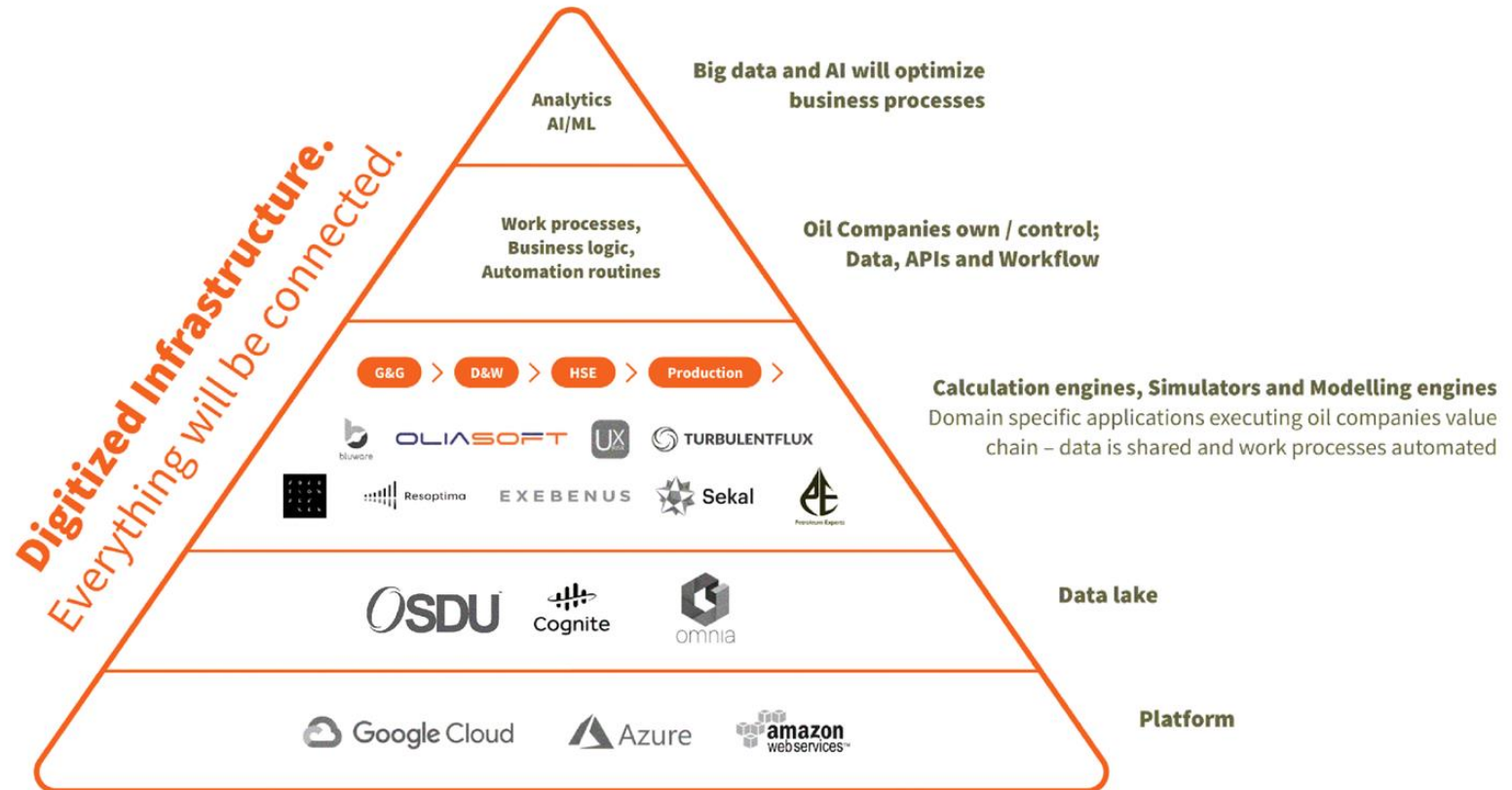
An ambitious drilling & well digitalization roadmap

START

Automated Well Designs for E&P Wells

Automated report generation

D&W Autopilot

Advisor & Automation for interventions

Real-time drilling analytics

Semi-automated drilling

Autonomous drilling

DIGITAL FUTURE
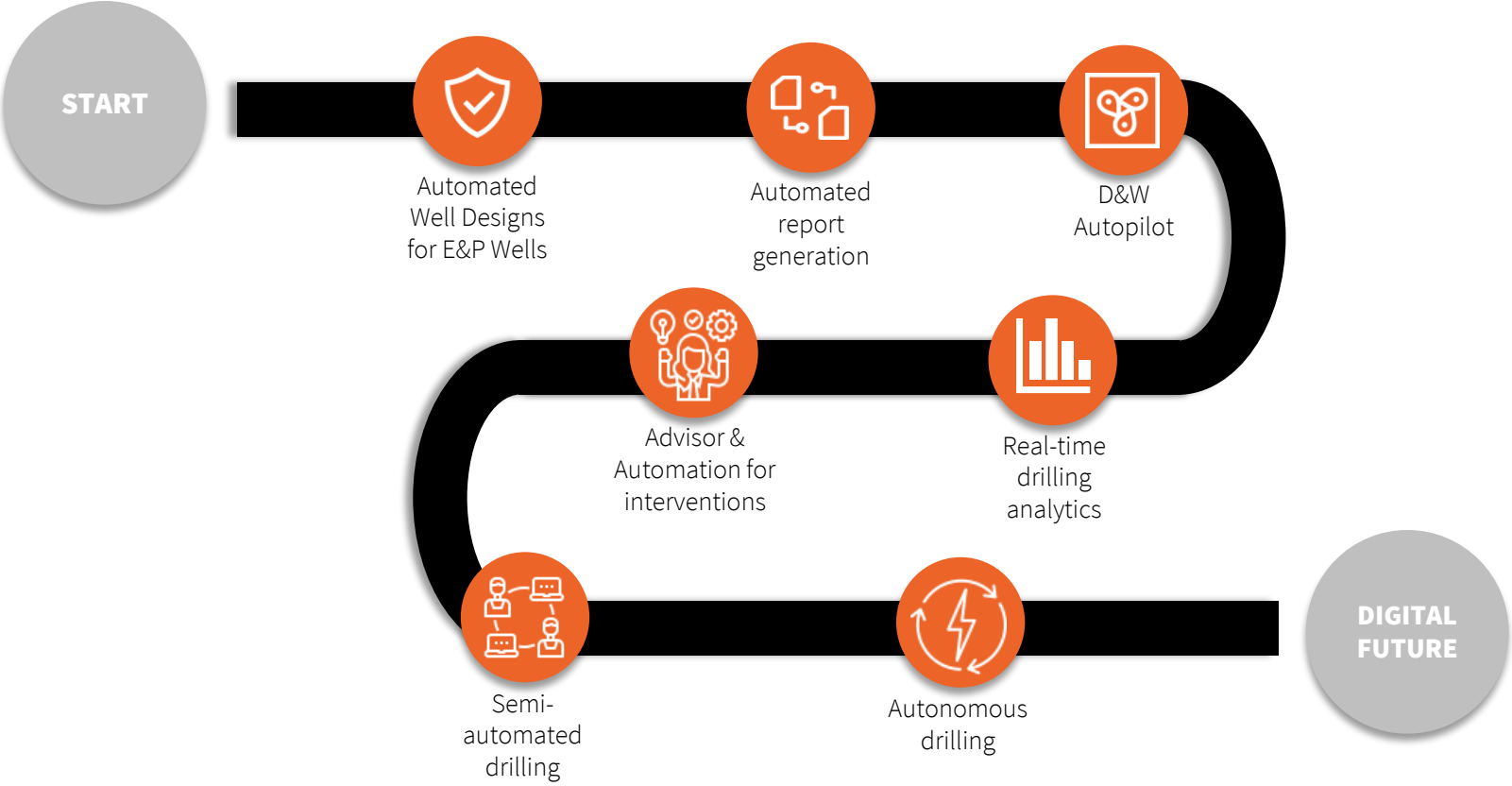
How to get there

Support modern technology to develop and implement all the necessary building blocks

Close collaboration with all players to improve the total well delivery

D&W Collaboration

Oliasoft WellDesign is an open, cloud based software enabling close collaboration with all players in the well delivery process to improve the overall performance

- ✓ All players in the well delivery process work on the same data
- ✓ Share data, knowledge and good ideas
- ✓ Your design is available anytime, anywhere, on any device

Authorities

Service companies

Any 3rd party companies or systems

OLIASOFT

Connecting all players in the well delivery process

Engineers on the rig

Engineers at the office

Rig companies

Oliasoft can connect to any 3rd party system to make up an extensive network of technology companies

FutureOn®
Leading provider of digital oilfield software and data visualization solutions

Operators internal systems
POZO
ADC 2.0
WellCom
CVX Chevron

Any 3rd party system

Keystone
Innovative software focusing on logistic, asset and personnel management

OLIASOFT
The core engineering engine in the drilling and well value chain

Petrel
E&P software providing geophysical workflows to solve complex stratigraphic challenges

Sekal
Leading provider of drilling simulation and automation software

Cognite
Industrially specialized DataOps and AI platform to unlock ROI at scale from digital programs

GeologiQ
Digitalization solution for the oil and gas industry. Digital twin displayed in a beautiful 3D model

Oliasoft WellDesign® - Connecting the oil and gas value chain closer together

Data is flowing through the network without human interactions

Value creation from digitalization

FieldAP from FutureOn

Oliasoft WellDesign is embedded into FieldAP to get updated well trajectory with casings then the topside location and equipment is updated. This enables testing of multiple locations to reach the reservoir the best way

GeologiQ

GeologiQ is a digital twin of an oilfield that assists Drilling and Well companies engaged in the well delivery process. GeologiQ has integrated their software with Oliasoft's API. Wells will automatically be updated in GeologiQ with accurate wellbore data from Oliasoft
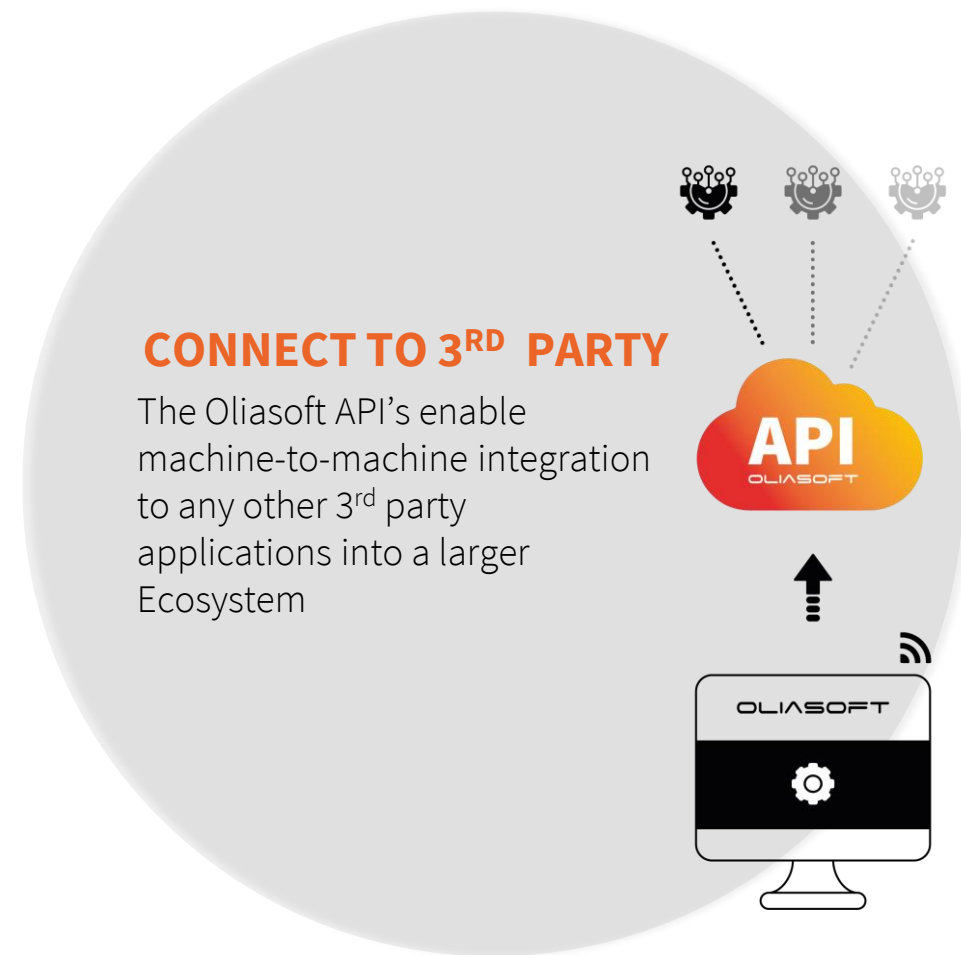
CDF – Cognite Data Fusion from Cognite

CDF can trigger recalculations from Oliasoft WellDesign by using the APIs and updated calculations can be sent back to CDF and made available for other third-party applications that need the data – and all of this can be done in real-time!

CVX – Chevron internal well design tool

Utilizing Oliasoft's WellDesign APIs to do advanced engineering calculations and simulations, including casing loads, multi string analysis, tri-axial designs, safety factor calculations and similar

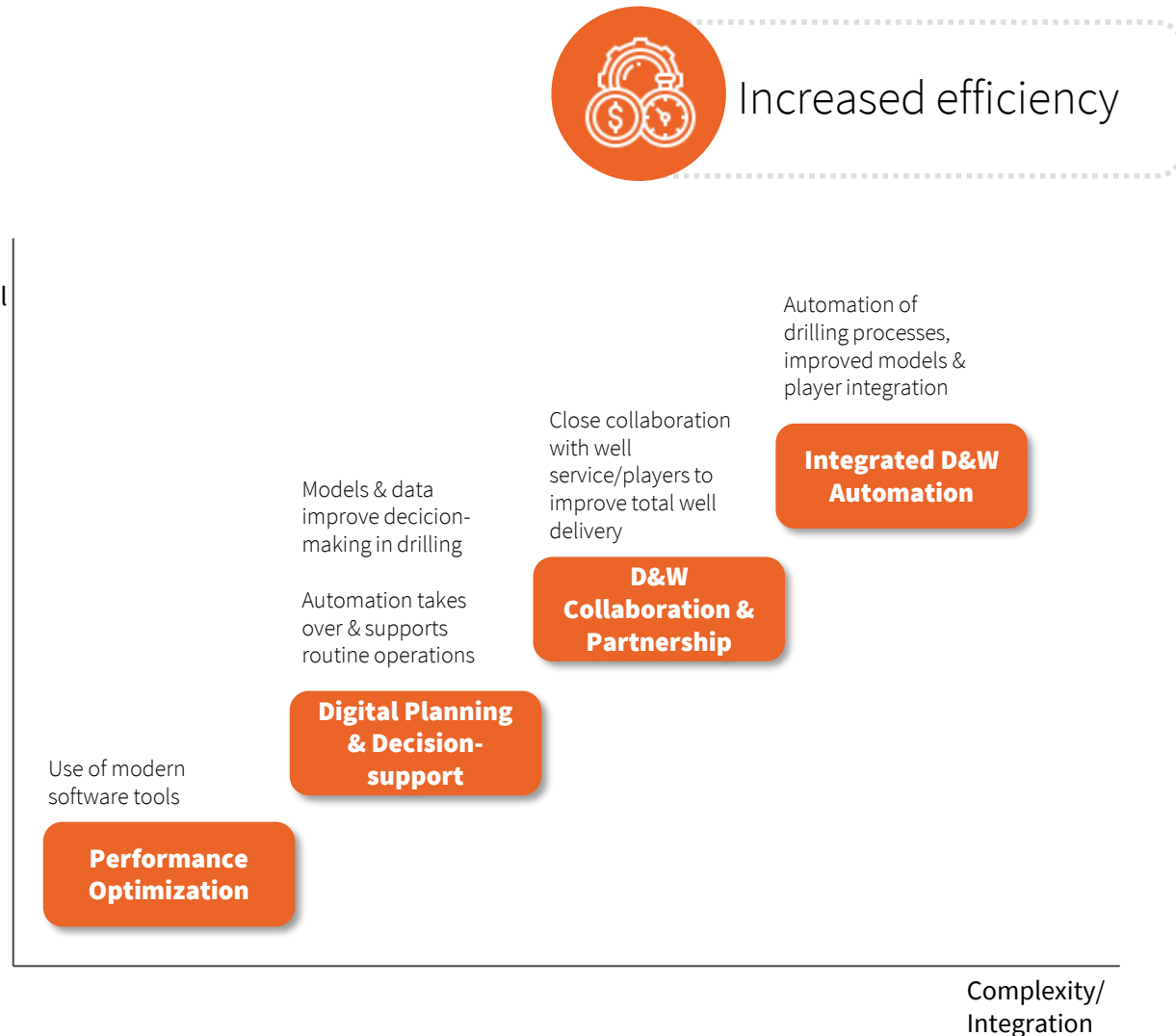**Operators internal systems (Like POZO, WellCom, ADC 2.0)**

Oliasoft WellDesign has enabled the POZO application using REST APIs to generate wells automatically with survey uncertainties applying rules that today are stored in governing documents or within the D&W expertise by "know how". This enables the D&W engineer to be less or not involved in the initial planning phase. This is very difficult with Schlumberger's DrillPlan – it works inside the Delfi / Drillplan silo, but not with 3. party applications

CONNECT TO 3RD PARTY

The Oliasoft API's enable machine-to-machine integration to any other 3rd party applications into a larger Ecosystem

Increased efficiency

✓ Oliasoft WellDesign uses fast and accurate calculators

✓ Any updates are immediately implemented by refreshing browser

✓ All modules are connected, change data in one and recalculations are done in every module

✓ Fast, automatic communication between different software in the oil chain makes the preferred wellbore design ready before the drilling engineer has begun preparations

✓ Digitizing the oil industry may reduce well planning time from 5000 man hrs to 1000 hrs per well – a digital well construction software is a vital puzzle for this to happen

✓ Through APIs, systems can be integrated to create a dynamic loop between planning and operation

✓ Real-time monitoring of drilling operations and immediate recalculation and update of drilling plan reduces NPT

Savings potential

Automation of drilling processes, improved models & player integration

Integrated D&W Automation

Close collaboration with well service/players to improve total well delivery

Models & data improve decicion-making in drilling

D&W Collaboration & Partnership

Automation takes over & supports routine operations

Digital Planning & Decision-support

Use of modern software tools

Performance Optimization

Complexity/ Integration

ORGANISATIONAL ISSUES

Impact and contribution of a complex product

Oliasoft WellDesign Contribute to Business and Organisational Issues

Decrease

Competition

Price Sensitivity

Importance of Features

Increase

5 Contribute to Organisational Issues — Make an Important Contribution

4 Contribute to Business Issues

3 Provide "Good" Service and Support

2 Deliver "Good" Products and/or Services

1 Deliver Commodity that Meets Specifications

Sell Product

Complex Products

Oliasoft is through the development of Oliasoft WellDesign contributing to business and organizational issues for oil companies

For services that make such an important contribution, the product cost is a lot less important than for products that are purely designed to meet certain specifications

REAL-TIME OPERATIONS

Unleash the potential in real-time data

Create value from utilizing real-time data

CONNECT PLANNING AND OPERATION

Oliasoft WellDesign® can be connected to a real-time data stream from the operation to automatically update the design and monitor critical design parameters

Nabors – Error modelling and anti-Collision

Using Oliasoft WellDesign APIs to do real-time anti-collision and error modelling that enables their automated drilling suite to provide updated real time statistical safety factors to minimize the probability of collisions with existing well bores in the area

Chevron – Torque & Drag

Using Oliasoft WellDesign calculation engine, models, and visualization for torque & drag, hydraulics and surge&swab to perform modelling and anomaly identifications in real-time. Utilize visualization to monitor plan vs actual results. Run calculations for multiple rigs (one offshore and one onshore). Prediction model is adjusted in real-time using both Wellview data and WITSML real-time data

SIMPLIFY AND REDUCE - IT INFRASTRUCTURE

Modern web technology and open API's

Simplify and reduce IT infrastructure

Oliasoft WellDesign

No installation is needed, it runs on any browser

Don't require specific cloud platforms and no proprietary cloud APIs are used. This means it can run on any cloud; the only requirement is that we can spin up a Linux machine on it.

We are currently running our servers on Digital Ocean (Linux Servers) and Azure (Microsoft Windows Servers).
The only exception for being "cloud agnostics" would be services that our customers typically depend on.

Halliburton Landmark

Installation is needed also for upgrades

Require database servers from Oracle or similar in addition

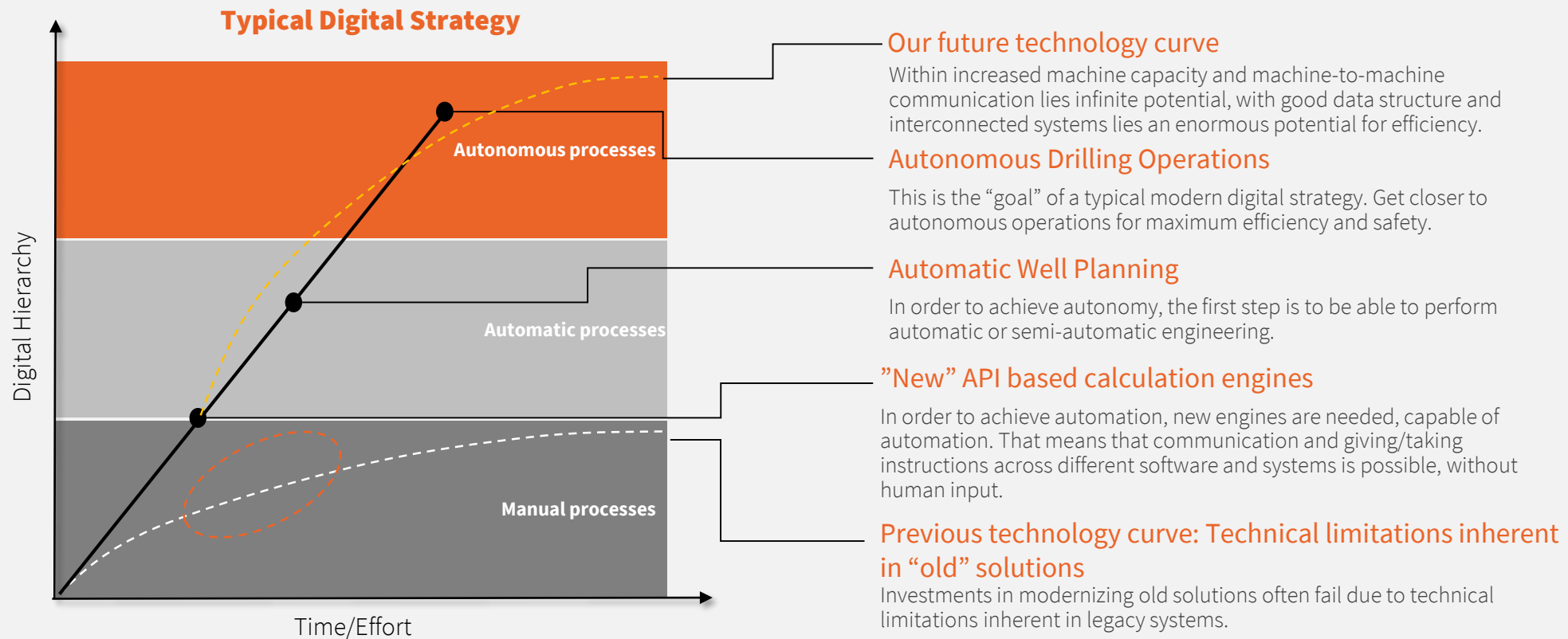Run using a Citrix solution to give the user a sense of modern solutions

NEXT STEP ON THE TECHNOLOGY CURVE

It's time for next level technology for the oil and gas value chain!

How we change the game
– by building our solution with the next generation technology

The industry wants to move towards a greater degree of automation and autonomy.
This requires new engines capable of automation, i.e "API based engines"

Typical Digital Strategy

Digital Hierarchy

Autonomous processes

Automatic processes

Manual processes

Time/Effort

Our future technology curve
Within increased machine capacity and machine-to-machine communication lies infinite potential, with good data structure and interconnected systems lies an enormous potential for efficiency.

Autonomous Drilling Operations
This is the "goal" of a typical modern digital strategy. Get closer to autonomous operations for maximum efficiency and safety.

Automatic Well Planning
In order to achieve autonomy, the first step is to be able to perform automatic or semi-automatic engineering.

"New" API based calculation engines
In order to achieve automation, new engines are needed, capable of automation. That means that communication and giving/taking instructions across different software and systems is possible, without human input.

Previous technology curve: Technical limitations inherent in "old" solutions
Investments in modernizing old solutions often fail due to technical limitations inherent in legacy systems.

NO LEGACY ISSUES AND TECHNICAL DEBT

Modern technology stack enable modern use-cases

# Technical Debt – Legacy issues

It is more or less impossible to add new code to support new use-cases on an old technology platform. The basic architecture was never designed for many of the use-cases a modern oil company needs and when the software developers try to add code that supports these use-cases they break the old architecture and foundation of the software.

Hence new use-cases are impossible to support and the platform cannot meet modern needs.

Oliasoft is built on a modern technology stack compared to Landmark and DrillPlan, which is built upon technology from the early 1990s. If you look at other industries, very few are willing to use software from the 1990s.

"Shipping first time code is like going into debt. A little debt speeds development as long as it is paid back promptly with a rewrite… The danger occurs when the debt is not repaid. Every minute spent on not-quite-right code counts as interest on that debt. Entire engineering organizations can be brought to a stand-still under det debt load of an unconsolidated implementation…"
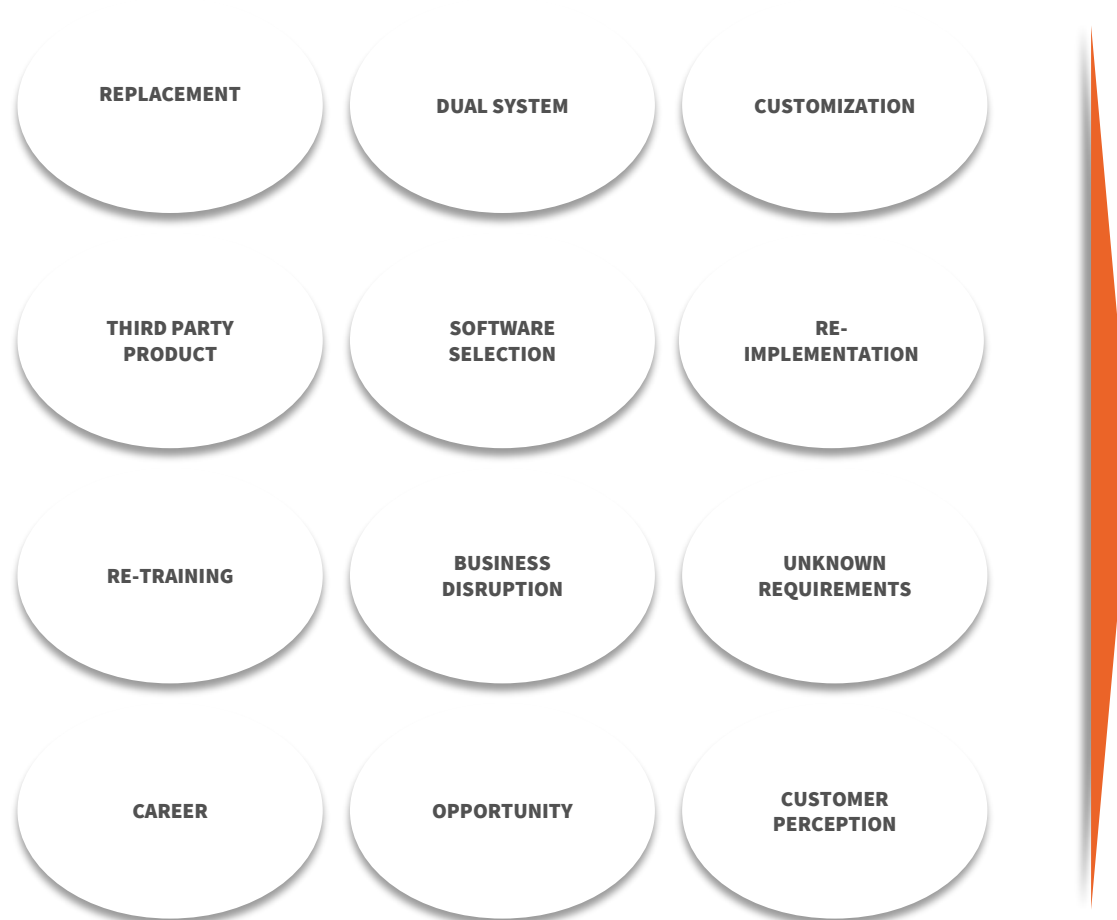
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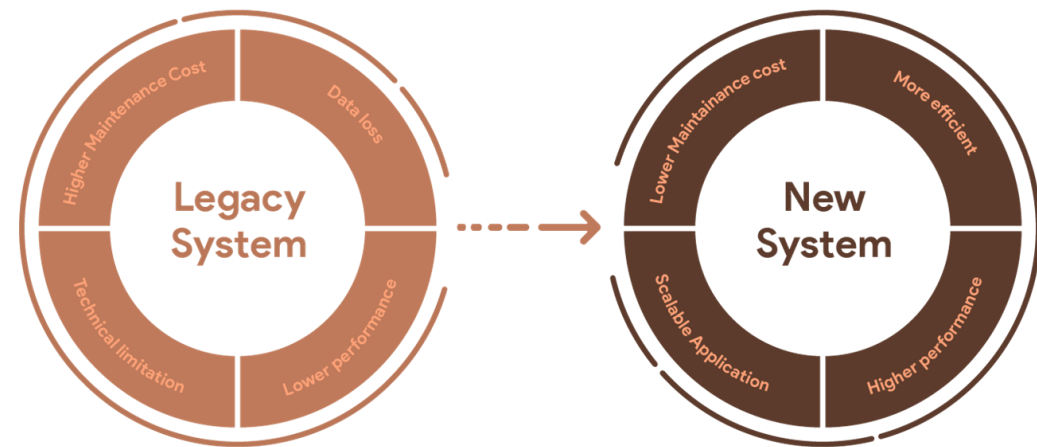
REPLACEMENT COST WITH NEW SOFTWARE

Investments for a better future

Investing in a better future

Cost related to implementing new software

REPLACEMENT

DUAL SYSTEM

CUSTOMIZATION

THIRD PARTY PRODUCT

SOFTWARE SELECTION

RE-IMPLEMENTATION

RE-TRAINING

BUSINESS DISRUPTION

UNKNOWN REQUIREMENTS

CAREER

OPPORTUNITY

CUSTOMER PERCEPTION

The cost of new software is necessary to move up the digitalization curve

The benefits using Oliasoft WellDesign are endless

Quality assurance

COMPREHENSIVE SOLUTION

All required well design calculations are included and fully documented. Reduce dependencies on consultants. Own every link of the well calculation chain.

VERIFIED & COMPLIANT

Verified and tested by leading oil and gas companies to ensure our software is capable of meeting the most demanding well design requirements.
All calculation engines are fully compliant with industry standard like NORSOK and well integrity regulations.

Flexibility to our customers

APIs

Oliasoft WellDesign's open API's work with any third party application, freeing you to design and automate your own well planning ecosystems.

DIGITALISATION

Oliasoft WellDesign allows you to unleash the potential of your data. You own the data - it is free to use anywhere, anytime, for any application.

The solution of the future

INTEGRATION

Seamless integration with any third party application allowing custom digital ecosystems. Connect to real time data streams from operations to automatically update designs and monitor critical parameters

INTEGRATED WORKFLOW

All calculations updates according to the latest data. One source of truth with no need for re-entering of information. Integration allowing unique automation and optimisation capabilities.

OLIASOFT

ANYTIME, ANYWHERE, ANY DEVICE
Collaborate and share work

INTEGRATED SOLUTION
One source of data, avoid re-entry of information

DIGITALIZATION
Standardized open data exchange