

NOVEMBER 2022

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# AVEVA™ Value Chain Optimization

Roadmap and Vision

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**AVEVA**

# Oil and Gas Downstream Industry Current Scenario

Significant changes on workplace, workforce and market imperatives

## Market Dynamics

### Less predictable market

Oil price more volatile, balance between Nuclear, Conventional, Renewables changes rapidly



### Complexity

More JVs, new processes to monetize gas, Increasing regulation



### Workforce

Generational Changes;  
Knowledge Management



### Socio-Political pressure

Carbon neutrality, regulations, ...



### Tightened Margins

Reduced oil and product prices,  
smaller “spread” between supply and output



## Business Challenges

*Better Visibility,  
Rapid Response*

*Improved return on capital*

*Process, Operational  
Efficiencies & Cost Out*

*Risk Management*

*New Business Models*

*Value Chain Optimization*

## Technology Trends



**Cloud and  
Continuous Delivery**



**Digital Twin**



**Big Data &  
Analytics**



**AI and High-  
Performance  
Computing**



**Cyber Security**

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# Exceptional times

- Post-pandemic demand volatility
- Supply disruptions
- Limited storage capacity
- Price volatility
- Drastic changes in optionality
- Wide-ranging energy transition objectives



# Digital Agility Forges Digital Resilience



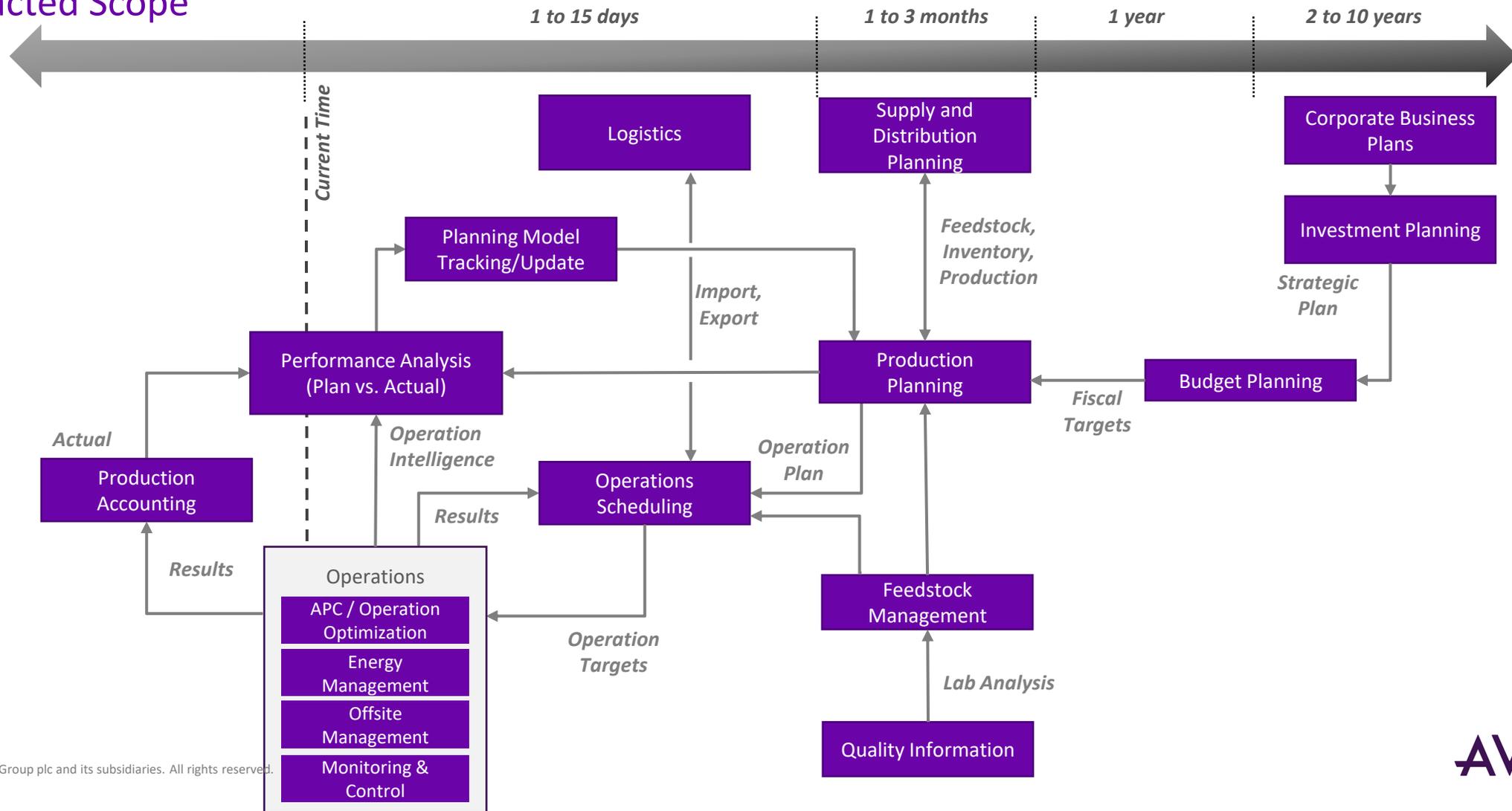
*"Oil and gas companies and their suppliers need to have capabilities in place to enable greater resiliency and adaptability as they face disruptive market environments."*



**-IDC Report**

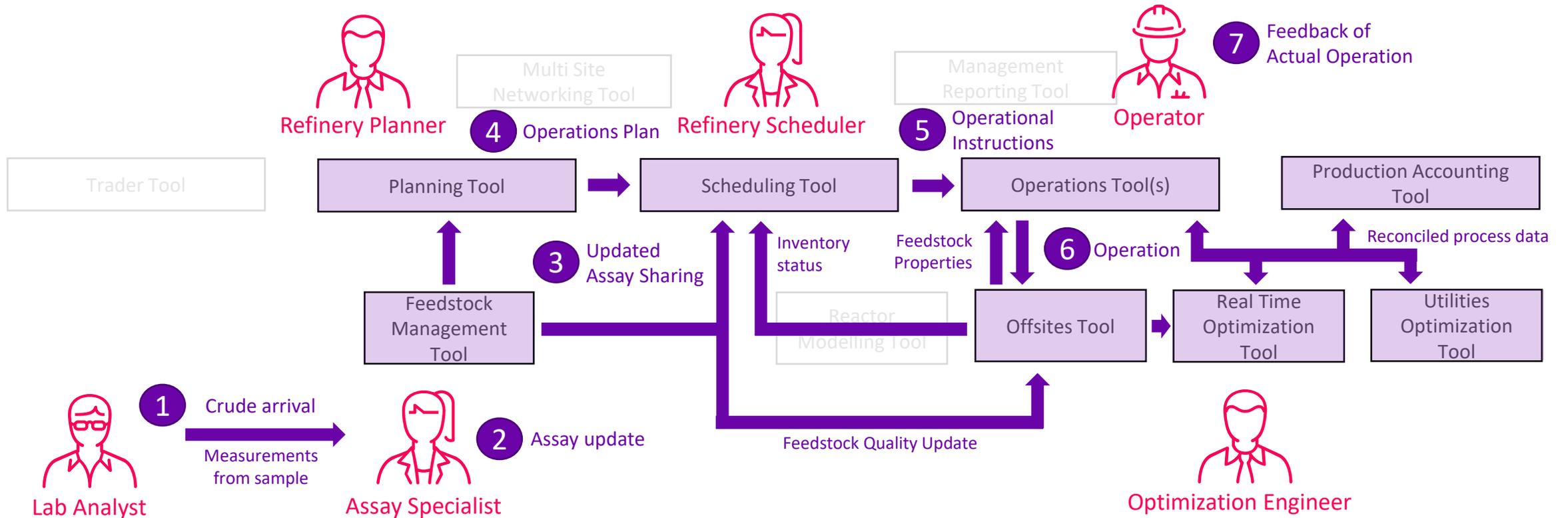
# Refining and Petrochemical Value Chain

## Abstracted Scope



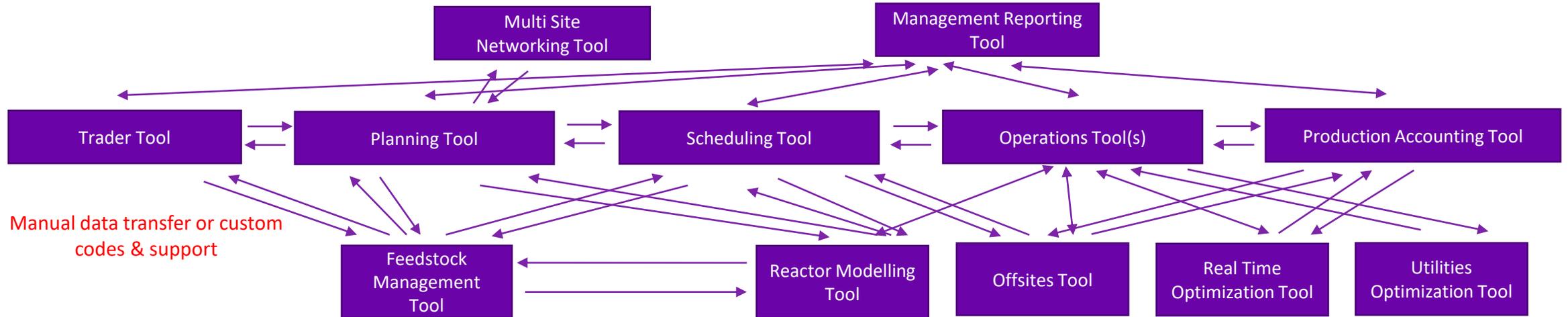
# Real Workflows - Oil and Gas Downstream Value Chain

Example: The operations execution workflow



# Downstream O&G Value Chain

Real Workflows: Legacy of Point Solutions



  
Value Leaks & Lost Opportunities

Low Transparency

Low Consistency

High Tool Dependency

Lack of Agility

Low Accuracy

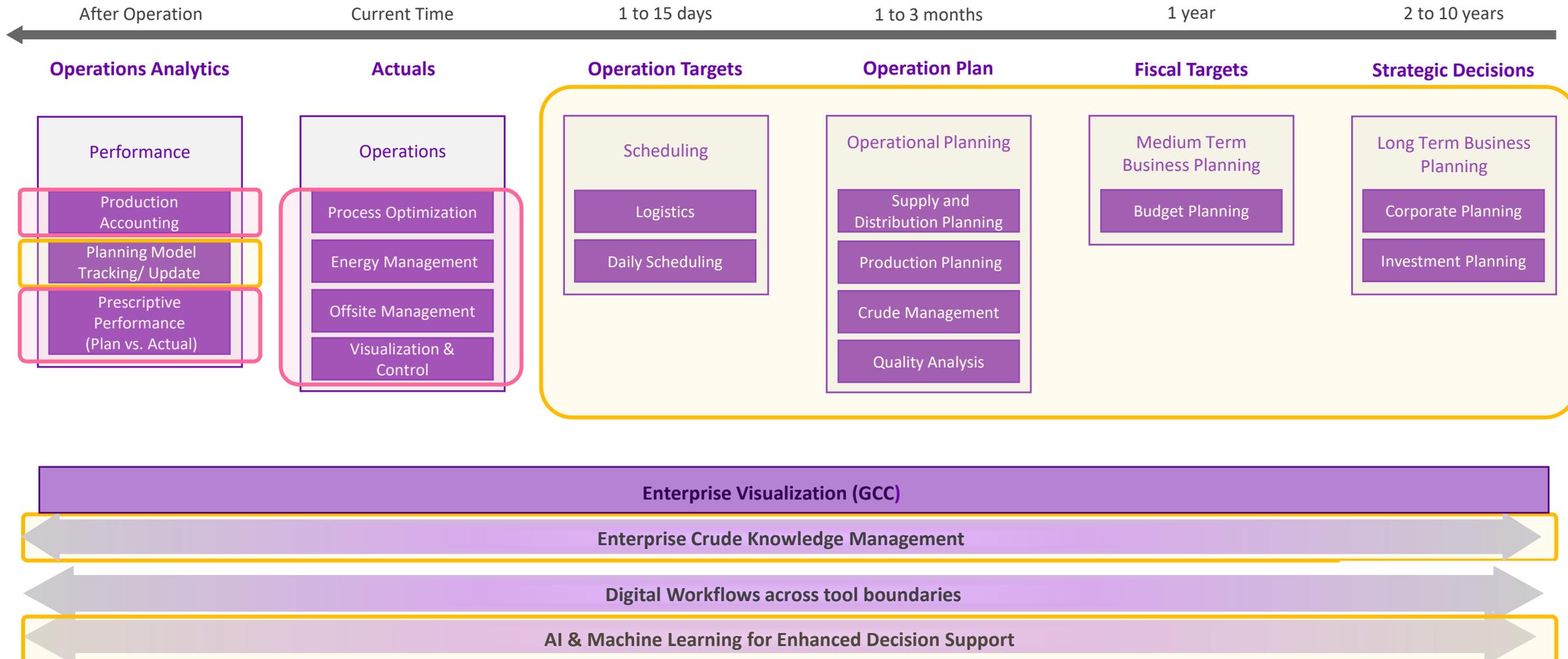
High Maintenance

# Value Chain Optimization Vision

Digital Twin  
(Process)

Digital Twin  
(Supply Chain)

Enable Enterprise Collaboration & Agility to Maximize Profitability Across the Value Chain



ONE AVEVA

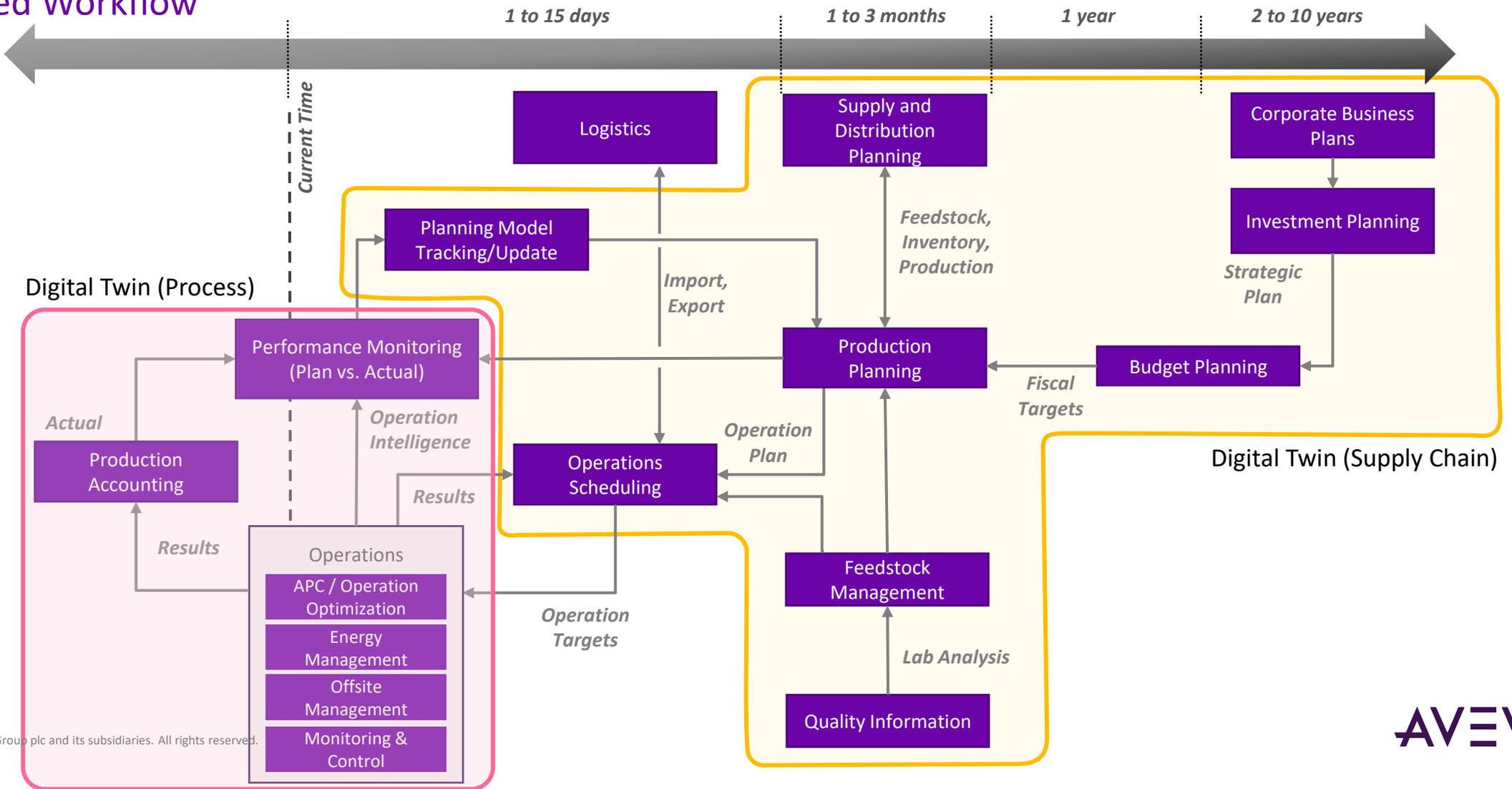
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# Contribution to cloud platform

AVEVA

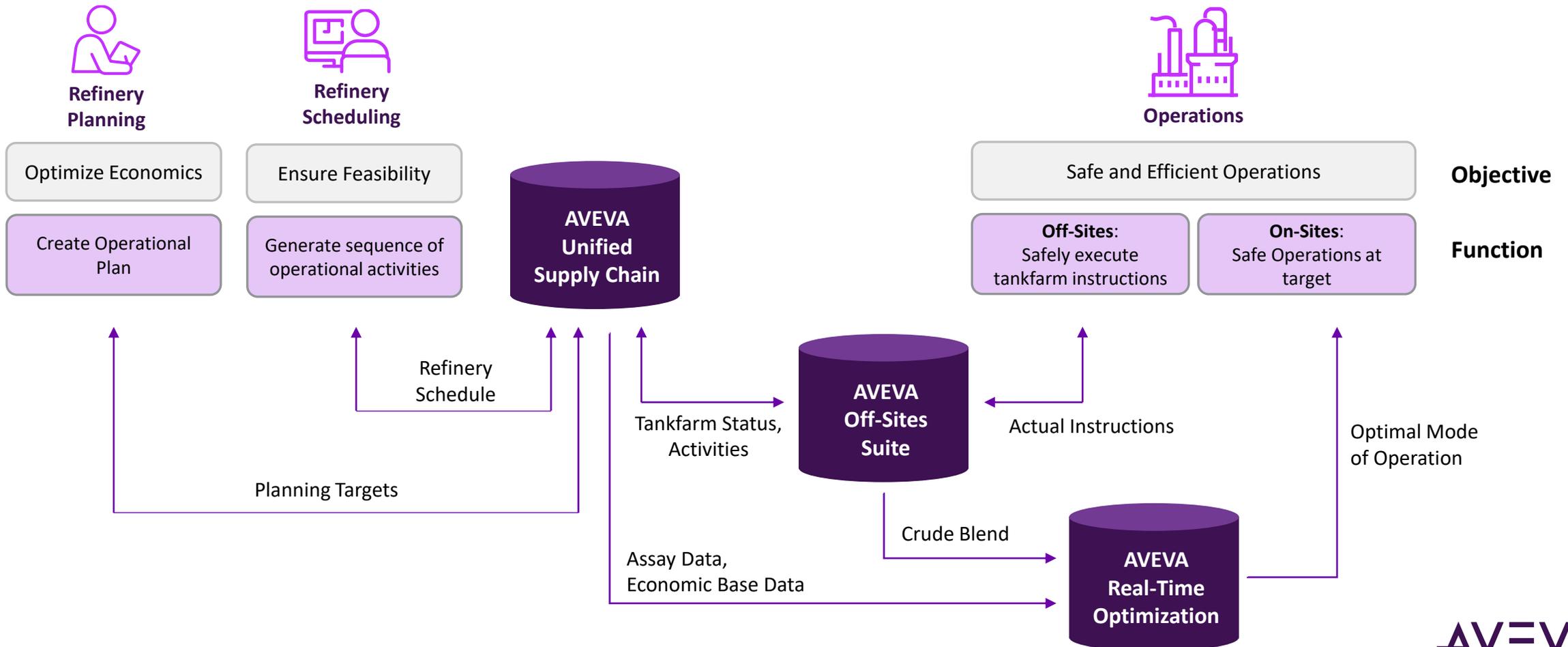
# Refining and Petrochemical Value Chain

## Detailed Workflow

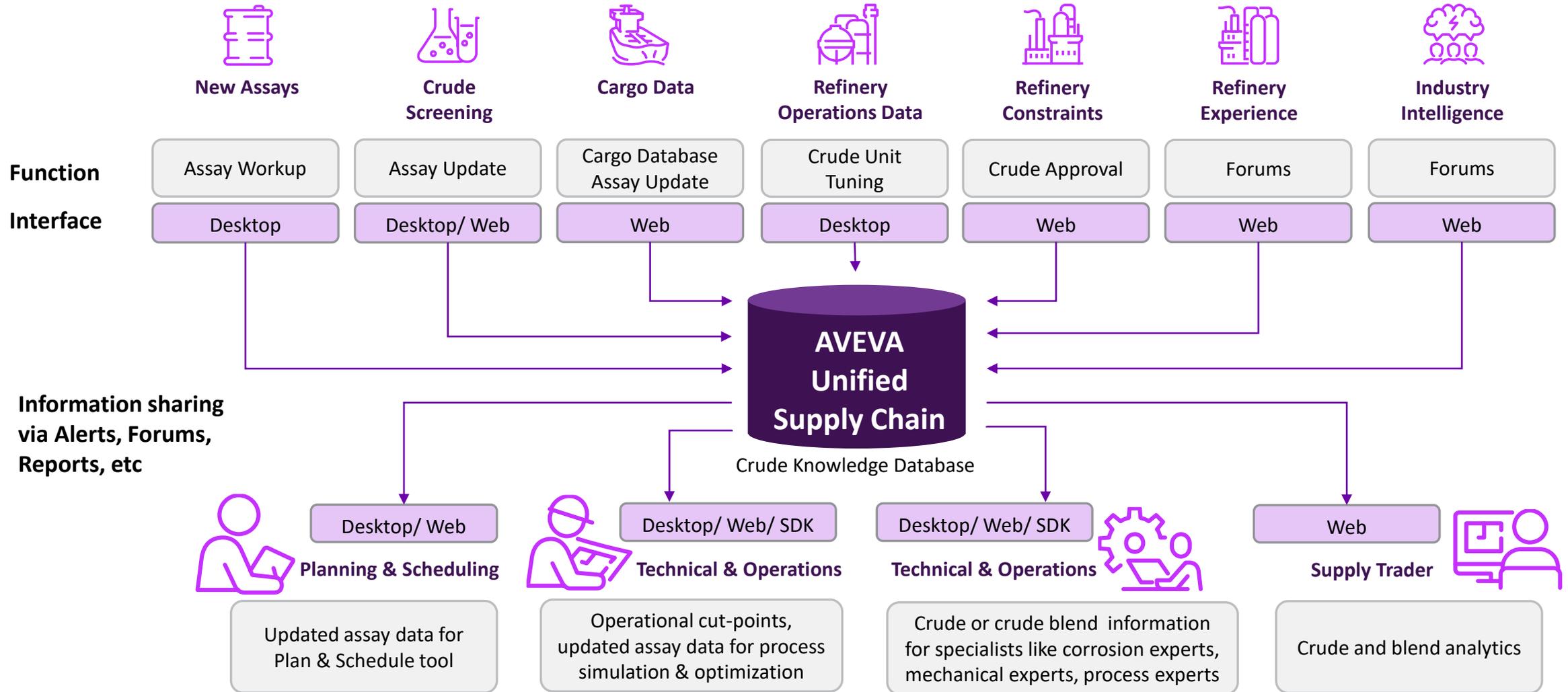


# New workflows – Example: Operations & Optimization

Closing the gap between model-based planning & scheduling and real time-based operations



# New workflows – Example: Crude Management



# BP – Oil & Gas Downstream

## Business revolution with AVEVA's solution in the cloud

- **Goals**
  - Simplify and standardize Oil & Gas downstream supply chain management
  - Enhance data management and transparency to improve decision-making
  - Reduce IT cost of ownership and increase agility
- **Challenges**
  - Lack of transparency and duplication of efforts across the supply chain
  - Inability to make quick decisions that could benefit the business
  - Disconnected processes and tools — multiple local planning solutions
- **Results**
  - Significant margin improvements through an improved refinery optimization process
  - More robust and lower risk plans — ability to run complex models that weren't possible before
  - Earlier decisions and communications on feedstock purchasing and planning operations
  - Standardization of data and better transparency: all teams and different sites are using the most up-to-date information, sharing best practices for modelling, analyses, and business processes.
  - BP is no longer limited by technology, but rather empowered by it

“ If you could do in minutes what previously took a day, what would you do? AVEVA's technology in the cloud is creating time, and BP's responsibility is what to do with the time saved. This is revolutionary to our business.”

Claire Dickson, CIO of Downstream



Earlier decisions

**2 days → 2 hours**  
on planning & crude purchase



Improved calculation speed  
**7 hours → 3 min**  
to run planning model



Transparency & collaboration  
**Instant sharing**  
of plans across enterprise

# ADNOC – Multiple companies on One Enterprise Platform to Achieve Max Profit

## Smarter and faster decision-making through digital command centre

- **Challenges**

- Long cycle to produce production plans, inconsistency in reporting, location performance and discrepancy in transfer measurement between plants
- Reduce “value leaks” and improve enterprise visibility on operations, equipment, energy usage, and production information

- **Solution**

- Panorama Digital Command Center: single source of accurate information across ADNOC’s value chain, powered by AVEVA leading technology
- Spiral Unified Supply Chain Management model of all ADNOC subsidiaries to enable enterprise optimization across the entire value chain
- Feedstock characterization, production planning with integrated analytics and supply and distribution network optimization

- **Results**

- Panorama provides access information from one central location, enabling a “single version of the truth” via dashboards viewable from Pods and the 150ft x 10ft video wall centerpiece
- Enterprise value chain optimization enabling collaboration and agile strategic decision making
- \$60-100 Million benefits in optimization in a single run of the integrated production planning model

Source:

AVEVA’s Unified Event 2018 Presentation / ADNOC customer success story on [AVEVA’s website](#)

“ADNOC’s Integrated Production Planning model allows to run techno-economic optimization scenarios that better support strategic decision-making processes and to further identify internal/ external potential market opportunities for ADNOC.”



**\$60 – 100MM**

In optimization benefits for a single run of the model

# Uncover Profitable Pathways to Net Zero

AVEVA Value Chain Optimization Sustainability and Energy Transition use cases are already helping customers in their Net Zero journeys

**Carbon Chain Optimization solution helps prioritize activities and initiatives and sets the course**

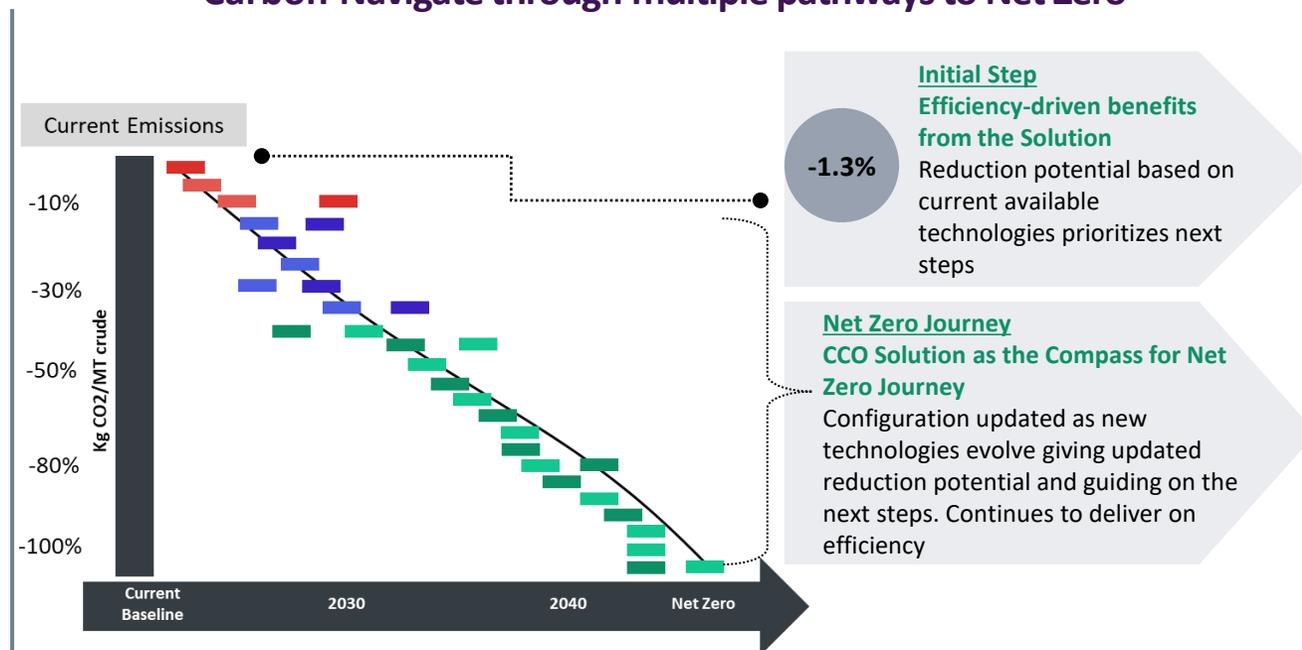
**Carbon Aware Planning**  
Economic investments and operating plans considering scope 1,2 and 3 emissions



**Process Digital Twin Based Energy & Emissions Management**  
Calculate energy and emission reduction potential

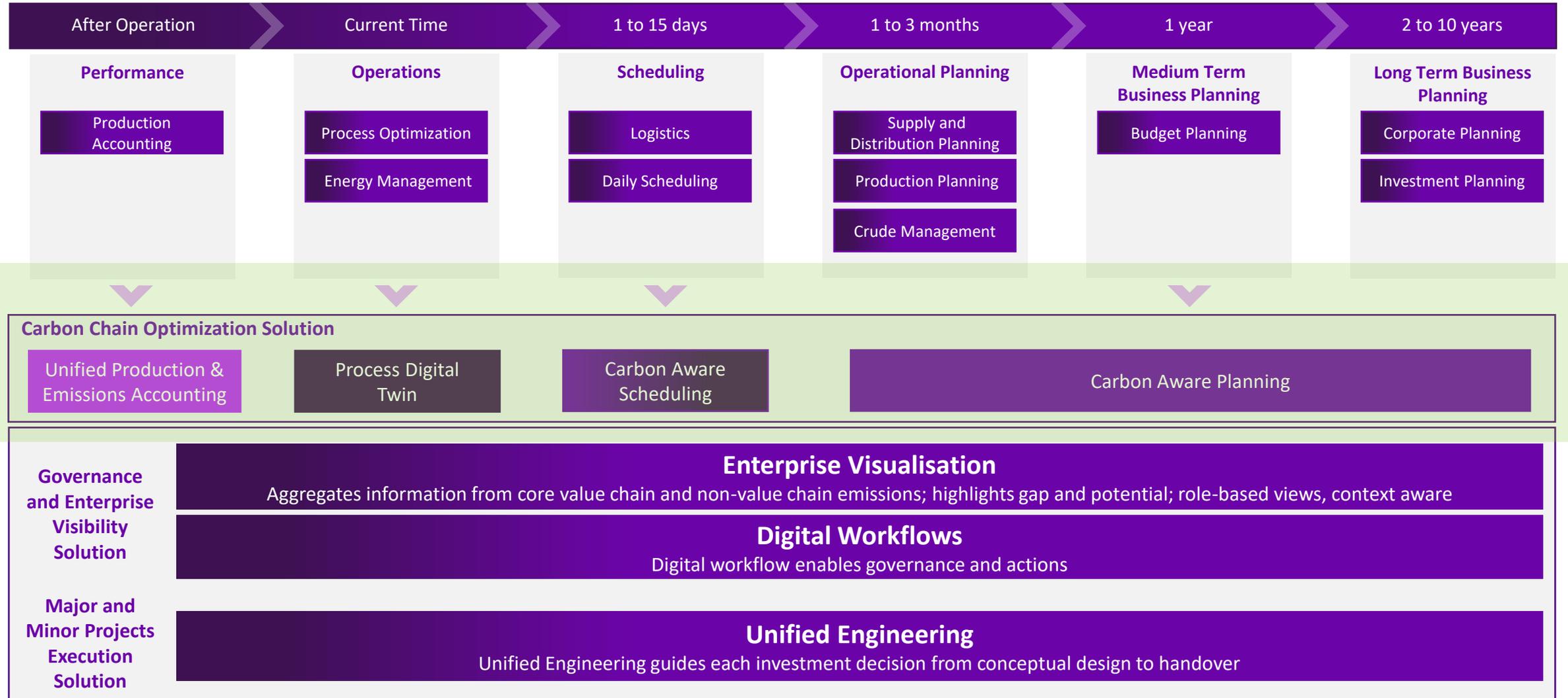
**Unified Production & Emissions Accounting**  
Align production and emissions accounting to baseline and track results into your Sustainability Reporting

**Carbon Navigate through multiple pathways to Net Zero**



**Solution enables PDCA cycles (plan-do-check-act):**  
Generating Plan and Targets  
Monitoring & Gap Analysis  
Prioritize & Act

# AVEVA's Net Zero Framework



#### CUSTOMER CASE STUDY

## bp sets up commercial CO<sub>2</sub> emission modeling for refinery operations using AVEVA supply chain optimization

bp - [www.bp.com](http://www.bp.com)  
Oil and Gas

### Goals

- Leverage advanced cloud computing and automation for a standardized approach across refinery operations, to deploy models faster and sustainably
- Introduce the ability to model CO<sub>2</sub> emissions within each bp-operated refinery to provide new insights to track and manage CO<sub>2</sub> emissions

### Challenges

- Providing a single, global tool and data set to align heritage work practices and provide improved planning performance with sharing of expertise and visibility of results across the refineries
- Standardizing modeling of CO<sub>2</sub> emissions globally across the network of bp-operated refineries

### Solution

- AVEVA™ Unified Supply Chain

### Results

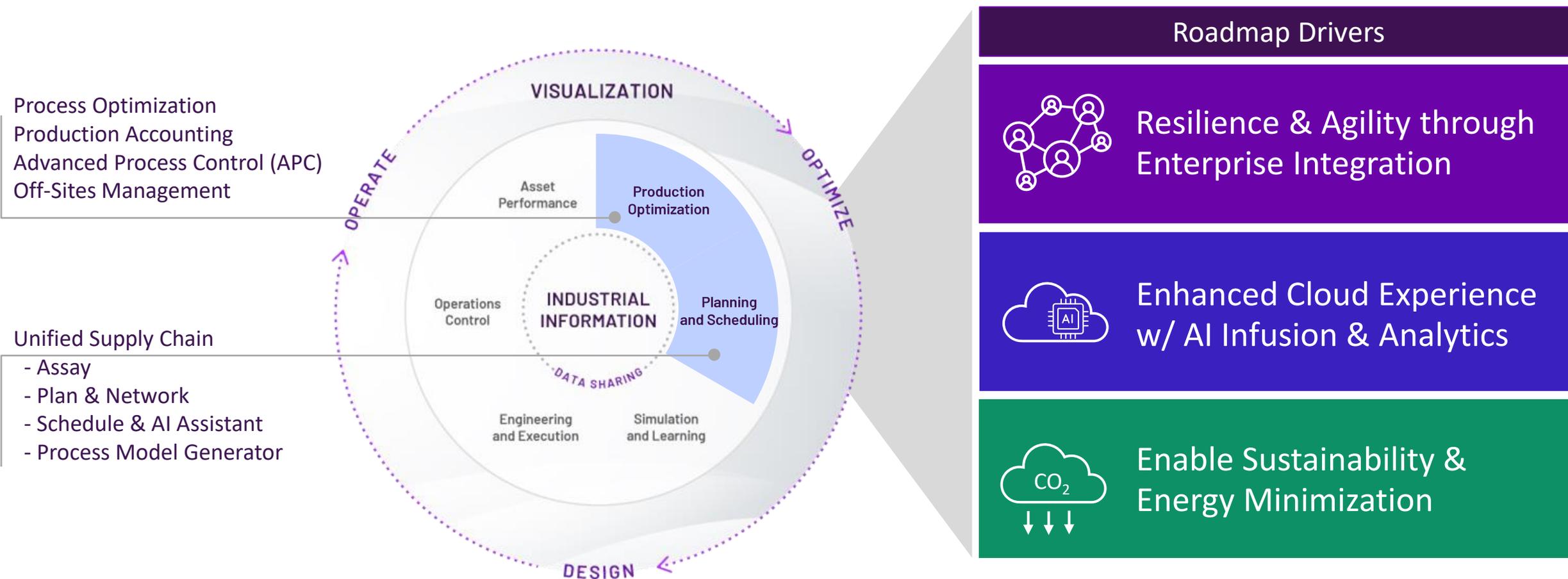
- bp's refineries have implemented an improved and easy-to-use planning tool, with the capability to model many different scenarios and return results at pace
- Simplified decision-making that can be performed faster using one optimization tool, delivering competitive advantage
- Margin improvements through improved decision-making capabilities
- Improved CO<sub>2</sub> emissions modeling capabilities that can be used to plan, test and evaluate strategies for carbon reduction

Case study published May 2022

[www.aveva.com](http://www.aveva.com)

# Optimize your value chain to capture market opportunities

Unified system to enable enterprise agility and collaboration across supply chain & operations



# AVEVA Value Chain Optimization Roadmap

Value Chain Optimization

## Planning & Scheduling

### Unified Supply Chain on AVEVA Connect

- Speed Improvements to Calculation Hub
- Schedule Multi-Product Blending improvements

- Transport Link Groups MIP Constraints in USC: Network
- Export from Pipeline in USC Schedule

Regular enhancements to USC workflows incorporating suggestions from customer usage and feedback

### AVEVA Connect Capabilities

Leveraging the benefits of AVEVA's industrial cloud platform including collaboration, SSO, certified security

- USC Desktop as a Service
- Account Usage monitoring

Start of alignment to Connect Licensing for USC

Start of alignment to Connect Account Management for USC

Auto-scaling Calculation Hub

### Unified Supply Chain Next Gen

Evolution of USC towards unlocking new enterprise capabilities and unified workflows

Development towards Programmatic server-side results (Data Out)

- Enterprise reporting
- Development towards Programmatic server-side interface (Data In)

Web Service Analytics

### AI Assistant

Transformational workflows using rapid schedule generation

- Crude and Primary Distillation generation enhancements
- Advance visualization of schedules

Product blending generation

Multi-blending and lifting generation

Secondary unit generation

## Production Optimization

### AVEVA Process Optimization (ROMEo)

Multi-year modernization and componentization program to unlock new ways of interacting with the platform and enable continuous delivery

- Restructuring of the real-time system and external data interface
- Rolling reactor model changes made in the last year
- New LNG production
- Improved FCC model for dual riser configurations

- User Interface, Excel Add-In, database management and integration enhancements
- Auto model tuning with diagnostics
- Improved reactor models for easy LP configuration and generation

### Advanced Process Control (APC)

Increased automation to ease control model setup and maintenance

- Closed-loop model adaptation
- Extensions to web monitoring tool

- OPC UA communications
- APC and APO integration (communications)
- Hotfixes to 2022 version

- Extensions to closed-loop model adaptation
- Enhancements to web interface

### AVEVA Production Accounting

Enhance ability to material accounting of raw material, inventory, and products directly from AVEVA's cloud platform

First version of Production Accounting desktop client as SaaS launched from AVEVA Connect tile using CHP lift-and-shift technology with access to PI and SQL DB

- Charting capability enhancements
- Gross Error report
- Statistical based diagnostics of the reconciled results
- Cloud SaaS integration enhancements

- SimsciThermo integration
- Unit-wise yield report generation
- Add standard equipment objects
- Product-wise material balance report

### AVEVA Off-Sites Management

Enhancements to accurate, reliable, and accessible inventory and movement information, movement automation, and off-line/on-line multi-blend optimization

- Bio component tracking
- Support of Windows Server 2022
- New JAVA version support

- OSI PI interface and lab sample management extensions
- Integrated document management system
- Latest EPA42 emission monitoring standard
- AMADAS update

AVEVA

H2 2022

H1 2023

H2 2023

H1 2024

Quarterly Functional Releases

Rapid Continuous Functional Releases

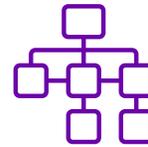
Calendar Dates Subject to Change



*Effective economic optimization  
of hydrocarbon value chain can  
boost profitability by  
**\$50 to 300 million**  
per year for a typical  
oil refinery*

# AVEVA's Business Value

## Value Chain Optimization



Business process  
improvement



Break down  
silos



Better decision  
making



Increase revenue  
and margin

While Helping to Achieve Sustainability  
Objectives

**AVEVA**<sup>™</sup>



## Thank You

- Contact for more information

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# Questions?

Please wait for the microphone.  
State your name and company.



# Please remember to...

Navigate to this session in the mobile app to complete the survey.



# Thank you!

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#### ABOUT AVEVA

AVEVA is a global leader in industrial software, sparking ingenuity to drive responsible use of the world's resources. The company's secure industrial cloud platform and applications enable businesses to harness the power of their information and improve collaboration with customers, suppliers and partners.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world's most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. With operations around the globe, we are headquartered in Cambridge, UK and listed on the London Stock Exchange's FTSE 100.

Learn more at [www.aveva.com](https://www.aveva.com)