KOTUG
OPTIPORT

Next-Level Intelligence for
Next-Gen Port Operations

Optimize.
Standardize.
Save.

DESTINATION
Container Berth
ETA: **13:45** (**+5'**)

REMARK
+5' delay

ROUTE
ROUTE SELECTED:
Optimal

FUEL CONSUMPTION
185 liters/hou
LIVE:

160 liters
PLAN

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BY

K
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KOTUG

A LEGACY OF MARITIME EXCELLENCE

From family roots to global innovation in towage and marine services

Founded in 1988, building on over a century of family maritime tradition (since 1911)

Headquartered in Rotterdam, with operations across all continents

Fleet of 70+ vessels, including the patented **Rotortug®** technology

Privately owned, driven by innovation, safety, and sustainable growth

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ONE WRONG DECISION CAN LEAD TO HIGHER FUEL COSTS AND UNNECESSARY DELAYS.

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DISPATCHERS UNDER PRESSURE

Reactive problem-solving can lead to wrong outcomes in the long run.

Tight schedule, unforseen delays

Has to save fuel and time simultaneously

Different tugs with different roles/strength

Never knows what's going to happen next

Always focused on fixing disruptions

"Make it happen" mentality instead of optimal planning

Decisions based on experience and gut feeling, not data

Complex trade-offs (speed vs. costs, waiting vs. sailing)

That one expensive decision that ruins the whole day.
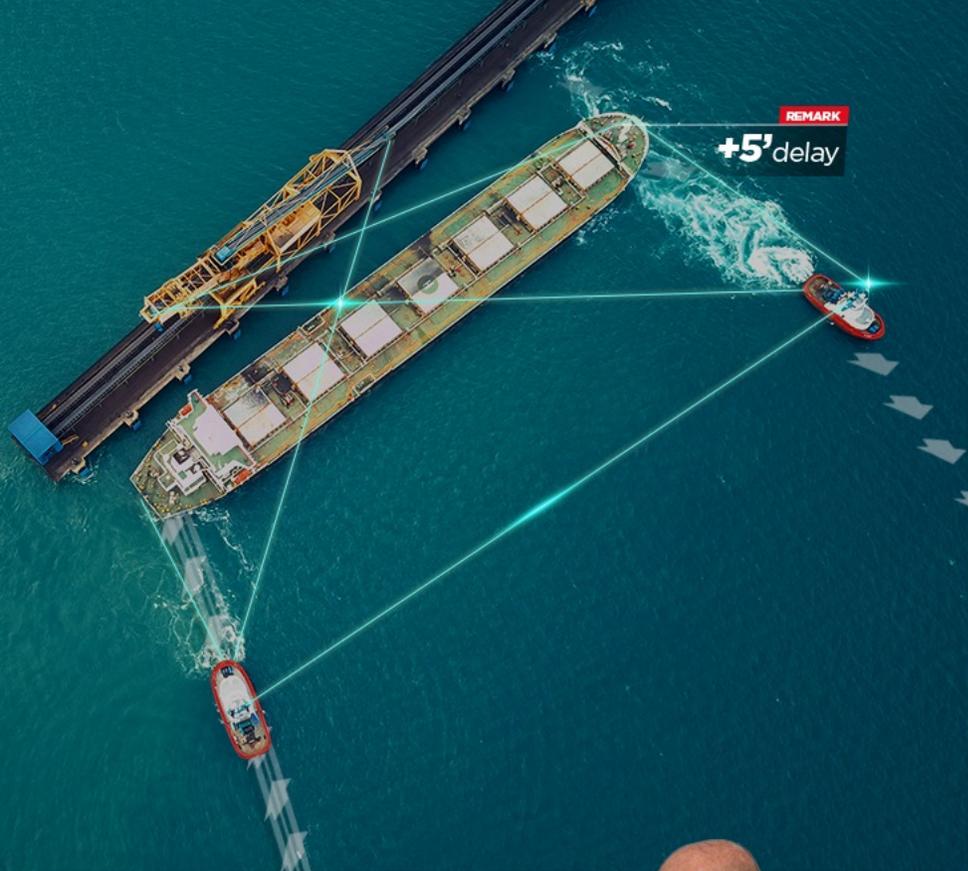
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LOSING AN EXPERIENCED SCHEDULER...

"My biggest fear is that a scheduler leaves, because it takes me 1-1.5 year to train a new one and at that time the operations are at risk".

CEO of a tug company

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YOU NEED TO MANAGE AND OPTIMIZE

OptiPort is a reliable partner for confident decision-making.

Experience helps you react, but only when you are ahead of your schedule can you proactively optimize.
That is the only way to avoid mistakes and save costs.

Yet, with so many factors to connect and consider:

| REST LOCATION | TUG # & PROPERTIES | FUEL CONSUMPTION | LABOR RULES | ECO SPEEDS |

THE QUESTION:

HOW CAN YOU MANAGE AND OPTIMIZE AT THE SAME TIME?

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IMAGINE MANAGING AND OPTIMIZING YOUR FLEET BY KNOWING WHAT'S GOING TO HAPPEN IN THE FUTURE!

AND LOSING AN EXPERIENCED SCHEDULER WOULDN'T CHANGE THAT!

ROUTE
ROUTE SELECTED: Optimal

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STOP IMAGINING!

OPTIPORT

The world's first AI workboat

dispatch application

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HOW OPTIPORT WORKS

Digital Twin of your operation

OptiPort is an all-in-one platform that enables the optimal use of your existing fleet.

It creates a perfect digital replica of your port – including vessels, crew, tides, environmental factors, regulations, etc...

Arrival and departure plans are enriched with live data from the ships and updated frequently.

—— With AI, this digital twin delivers: ——

Smarter decisions

Simulations of fleet planning in the future

Detailed reports of the past

Optimization powered by experience and real data.

YOUR HARBOR

OPTIPORT

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THE DATA OPTIPORT COLLECTS...

Combination of Semi Static and Highly Dynamic Data

SEMI STATIC DATA

FLEET INFO

PORT INFRASTRUCTURE INFO

CREW INFO

BUSINESS RULES

NAUTICAL INFO

HIGHLY DYNAMIC DATA

AIS DATA

TIDAL DATA

JOB RELATED DATA

WEATHER

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...AND HOW WE USE IT!

Our circle of optimization

JOB STATUS CHANGES

CHECK AIS POSITIONS

CHECK OTHER VARIABLES

FORECAST NUMBER OF TUGS

CALCULATE AND PRESENT OPTIMAL SCHEDULE

CALCULATE (DE-) MOBILIZATION AND JOB DURATION

FORECAST ROUTE TO BE SAILED

FORECAST (DIS-) CONNECTION POINT

SEMI STATIC DATA

FLEET INFO

PORT INFRASTRUCTURE INFO

CREW INFO

BUSINESS RULES

NAUTICAL INFO

HIGHLY DYNAMIC DATA

AIS DATA

TIDAL DATA

JOB RELATED DATA

WEATHER

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FROM DATA TO FEATURES

AI BASED FORECASTING

Number of tugs ● Dynamic pickup & drop off locations ● Voyage and job durations

PLANNING SUPPORT

Automated job entry ● Automated start/stop identification ● Notifications for start/stop and tug speeds ● Speed advice

ANALYTICS

Independent AIS based event monitoring

COMMERCIAL

Priority towage & delay reduction ● Reduced job outsourcing ● Tracking & virtual dispatching of competitor tugs

INTEGRATION & CONNECTIVITY

API available with Helm CONNECT, TUGVISION, and any ERP Platform ● Integrations possible with every 3rd party application ● Tailor made importers

CREW PLANNING

Working & Rest hours, crew changes, time and locations

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# COMBINING THE DATA FROM THE PAST AND THE FUTURE

Optimize your fleet and leave no question unanswered

OptiPort combines powerful reporting and simulation tools. Independent **event reporting, fuel benchmarking, time analysis and tug performance data** provide a detailed view of the past – from live tracking and voyage history to the most visited locations and handled vessels.

At the same time, OptiPort acts as a simulation tool. By changing variables and parameters, you can test future scenarios and see the impact before they happen.

This parallel view into history and possible futures empowers you to make the best decisions in the present.

TODAY

PAST

FUTURE

Reporting

Decision making

Simulations
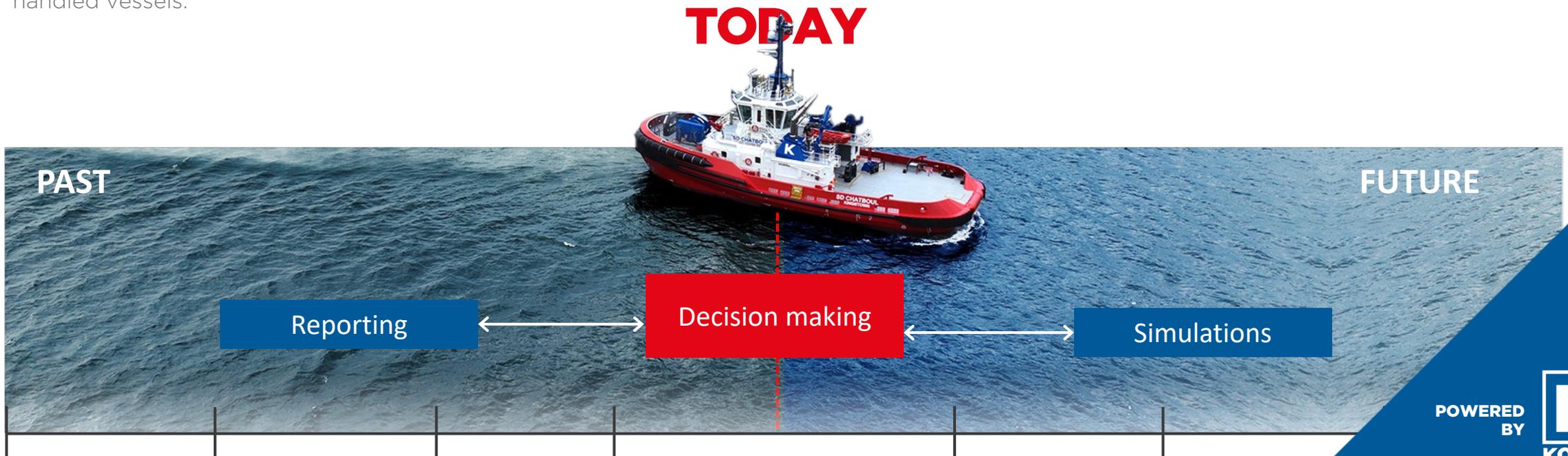
WHY WE LOOK INTO THE PAST - REPORTING

You know exactly what happend – when, where and by whom

JOBS

- Independent job lists
- From & to locations plus travelled distances
- Start & stop times
- Voyage and job durations

COMMERCIAL

- Marketshares per port
- Competitor performance

SPEEDS & OTHER

- Tug speeds during mobilizations and jobs
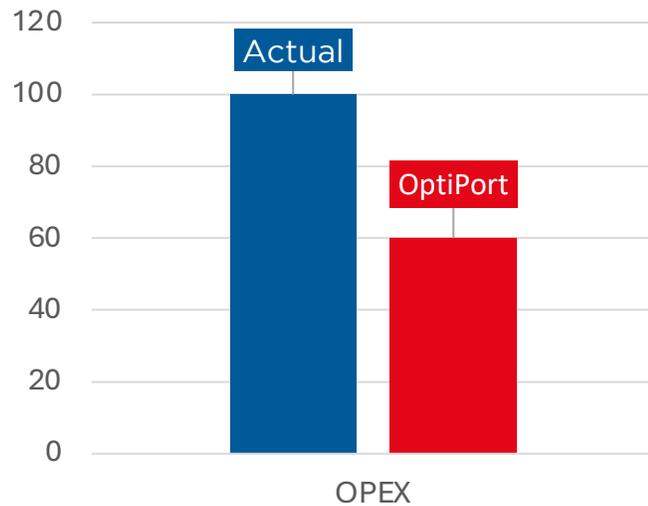- Tug timeline playback
- Voyage playback

BENCHMARKS

- Activity analysis
- Speed Comparison with Competitors
- Best & worst performing tugs (speed)
- Fuel benchmarking

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HOW WE LOOK INTO THE FUTURE – SIMULATIONS AND DIGITAL TWINS

OptiPort transforms schedules into powerful simulations. By changing variables and parameters, you can run different scenarios and test their impact on fleet performance.

ADDING TUG TYPE X VS. TYPE Y TO REDUCE DELAYS

COMPARING CREW CHANGE LOCATIONS TO MINIMIZE COSTS

TESTING THE EFFECT OF REMOVING ONE TUG FROM SERVICE

ASSESSING THE IMPACT OF TUG MAINTENANCE ON THE OPERATIONAL SCHEDULE

The result:

Actionable insights into efficiency, costs and service levels

TODAY

THE FUTURE

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WHAT WE SEE IN THE PRESENT-FINANCIAL BENEFITS

Value on every level

OptiPort helps reduce operational expenses by up to **40**%. By optimizing fleet deployment and minimizing outsourcing, it lowers overtime and fuel costs while standardizing planning.

Actual / **OptiPort**

| 120 |
| 100 |
| 80 |
| 60 |
| 40 |
| 20 |
| 0 |

OPEX

DESTINATION
Container Berth
ETA: **13:45** (**+5'**)

REMARK
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The result:

SUSTAINABLE SAVINGS THAT DIRECTLY STRENGTHEN YOUR COMPETITIVE POSITION.

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OPERATIONAL BENEFITS

Value on every level

OptiPort increases efficiency through proactive planning, lower downtime and faster turnaround times. By generating the most optimal schedule, it ensures that every vessel is used at its best capacity.

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ENVIROMENTAL BENEFITS

Value on every level

OptiPort enables greener operations by reducing fuel consumption and emissions such as CO_2, NOx and PM_{10}. Smarter dispatching and speed management ensure vessels sail at the right pace, avoid unnecessary distances and are deployed only when truly needed.

The result is optimized fleet usage with a smaller environmental footprint.

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CREW RELATED BENEFITS

Value on every level

OptiPort reduces stress for dispatchers by providing fact-based schedules and clear guidance. With less doubt and fewer discussions around decisions, operators face less time pressure and can focus on the quality of the job.

This not only improves safety and transparency on shore, but also onboard: crews work under less pressure, no longer forced to rush because schedules are delayed. The result is a safer, calmer working environment for everyone.

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HOW COULD IT WORK IN THE REAL WORLD?

The OptiPort Vancouver Harbor Business Case

OPTIPORT BUSINESS CASE: VANCOUVER

How OptiPort could improve tug operations in a tidal environment

VANCOUVER HARBOR SPECS:
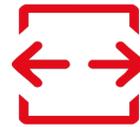
WIDE AREA

STRONGLY INFLUENCED BY CURRENTS AND TIDES

HANDLING ~145 MILLION T OF CARGO ANNUALLY

OptiPort could **unlock significant fuel savings and improving benefits** by optimizing crew changes and waiting locations, advising on tidal windows and maintenance periods, and scheduling mobilizations that move with the current.

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OPTIPORT BUSINESS CASE: OPERATIONAL EFFICIENCY TURNED INTO SAVINGS

OptiPort unlocks substantial financial and operational benefits every month

SUB-OUTS

OptiPort could reduce unnecessary sub-outs close to zero. Even with only two avoided sub-outs per month, this would already translate into significant savings, as each sub-out typically results in revenue losses of more than USD 7,000.

FUEL SAVING

In the two-week analysis period, fuel overconsumption was identified at 88%. Even if only half of this potential were realized, the savings would amount to around 60,000 liters of fuel per month for the six tugs analyzed.

CREW UTILIZATION

With crew costs estimated at USD 400 per hour, a four-hour shift costs USD 1,600. OptiPort could help prevent at least five unnecessary crew shifts per month, adding up to savings of around USD 8,000 monthly.

POSSIBLE MONTHLY SAVINGS IN THE END:

50% overconsumption savings

The avoidance of **2 subouts/** month

Improved crew utilization

```
  7,000 $    *2
+ 60.000 $   0.75 $/L
+  8,000 $
```

69,000/ $ month

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A PLATFORM FOR DAILY WORK AND DAILY SAVINGS

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INSIDE THE OPTIPORT PLATFORM – TUG DISPATCH OPTIMIZATION

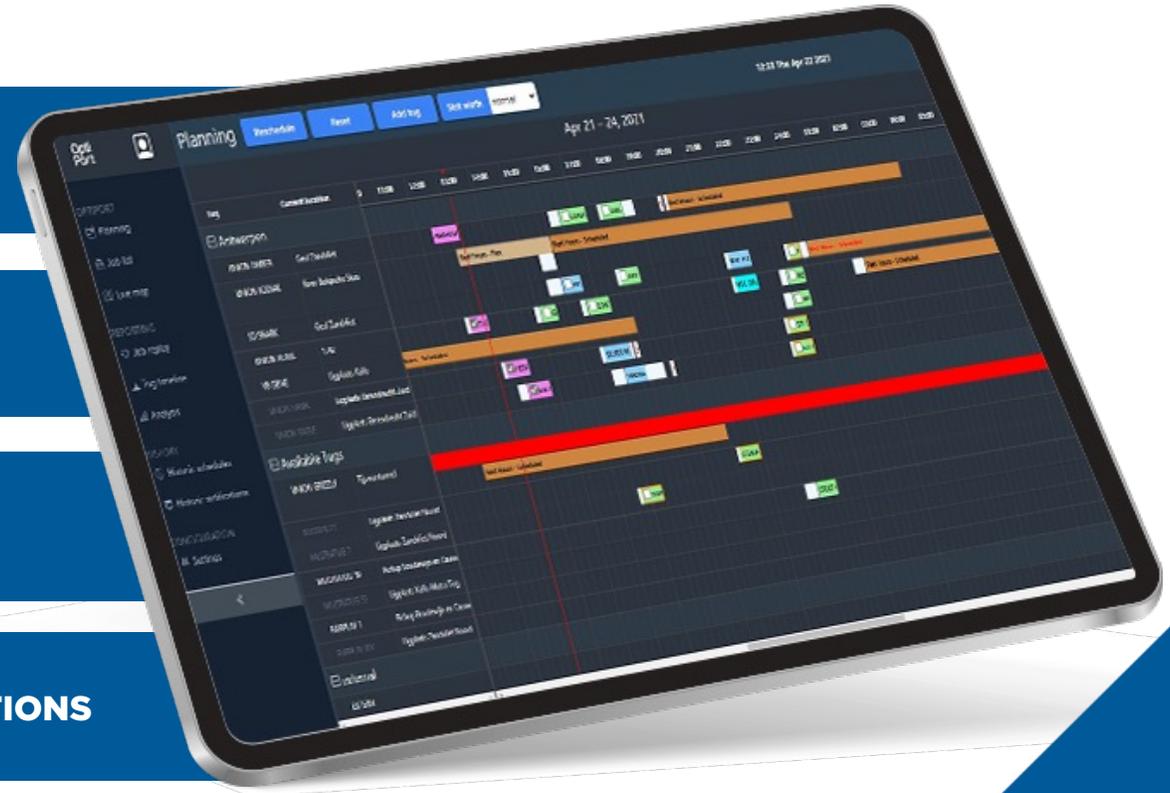Full Schedule at a Glance

FULLY AUTOMATED SCHEDULE OPTIMIZATION

MOST EFFICIENT USE OF YOUR FLEET

BASED ON AI AND MACHINE LEARNING

PORT AND OPERATIONS SPECIFIC CONFIGURATIONS

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INSIDE THE OPTIPORT PLATFORM – DYNAMIC PORT MAP

Direct and easy insights

GET INSIGHT IN ACTUAL SITUATION IN YOUR PORT

SEARCH FUNCTIONS FOR TUGS, VESSELS AND BERTHS

VARIOUS MAP BACKGROUNDS

POSSIBILITY TO ADD GEOFENCES WITH NOTIFICATIONS

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INSIDE THE OPTIPORT PLATFORM - TUG PERFORMANCE ANALYSIS

Benchmark yourself against your competitors

FULL PERFORMANCE TRANSPARENCY (INCLUDING POWER BI REPORTING)

COMPLETE COMPETITOR BENCHMARK

(EXTERNAL) SHARABLE TUG REPLAY AND VESSEL REPLAY

SNAPSHOTS OF EVERY SCHEDULE PRODUCED

FUEL REDUCTION POTENTIAL AND EMISSION REPORTING

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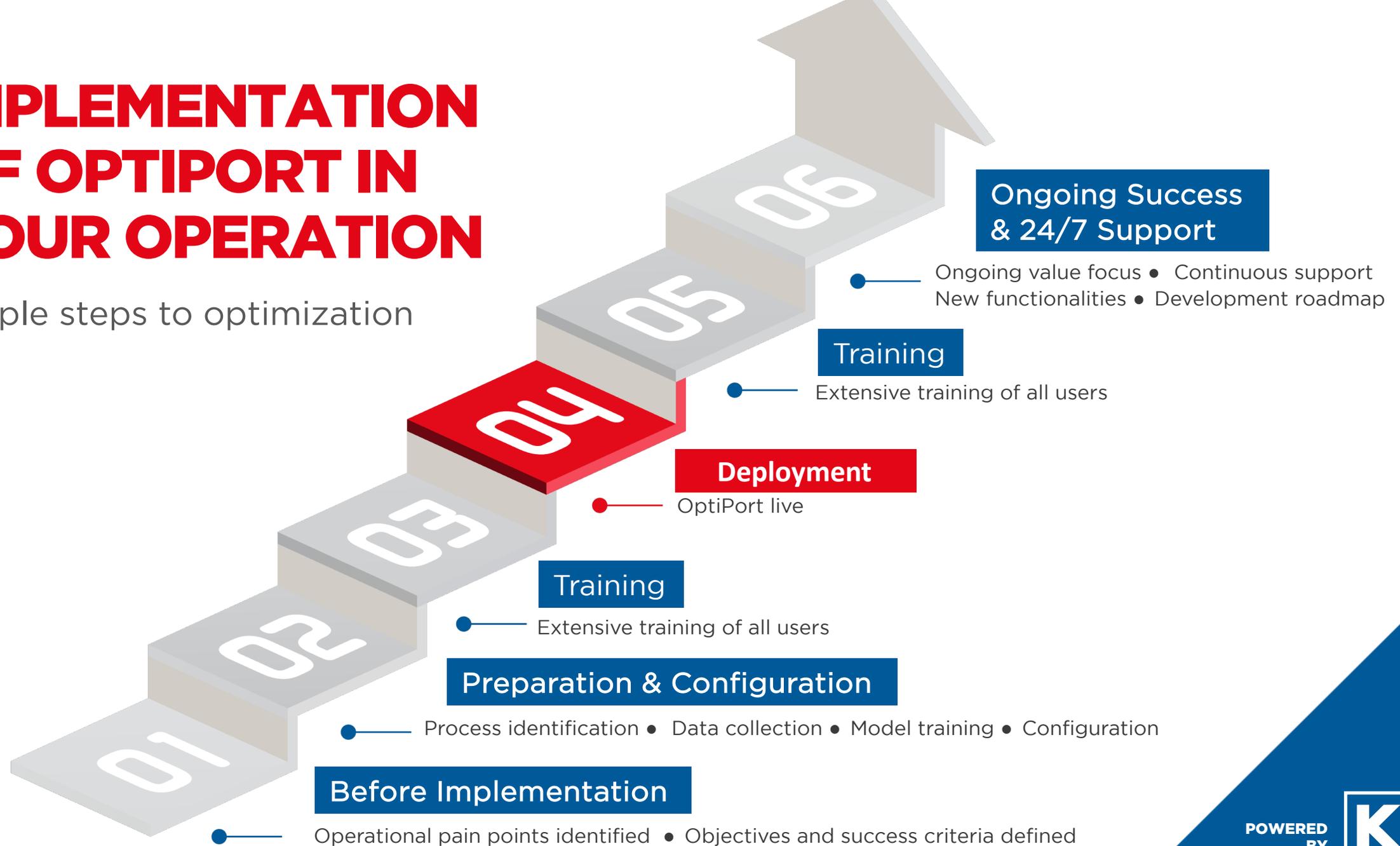# WOULD YOU LIKE TO TAKE A LOOK INTO THE FUTURE?

FOLLOW THESE SIMPLE STEPS

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SUMMARY: OPTIPORT EFFECT ON YOUR ORGANIZATION

Experience the effect shortly after implementation

OptiPort Integration

	BEFORE OPTIMIZATION	AFTER OPTIMIZATION
Workload	Work is divided evenly, with larger tugs on large vessels and smaller tugs on small jobs, often in sequence.	Cheaper tugs take on more and longer jobs, while expensive tugs handle fewer and shorter ones.
Tug Speed	Speed profiles are scattered – departing late or arriving early is left to the tug master.	OptiPort enforces economical speeds; faster sailing only when it avoids delays, sub-outs or overtime.
Planning Approach	Planners set job start times, but tug masters decide when to leave.	Scheduling is based on the tug's actual position, including speed advice.
Decision Making	Decisions rely on experience, gut feeling and unwritten rules, leading to wide variations.	Fact-based planning with consistent responses in comparable situations.

THANK YOU

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13.0 t

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