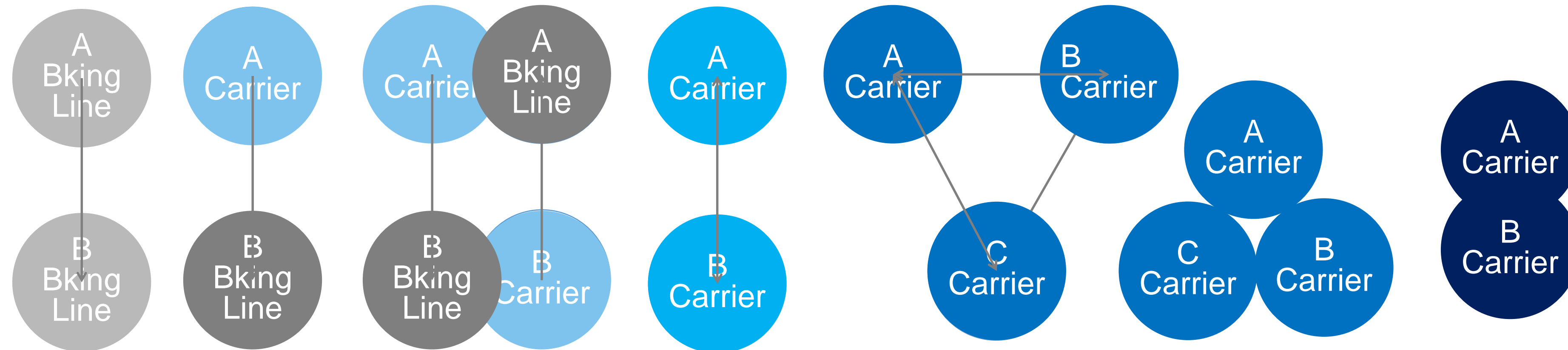
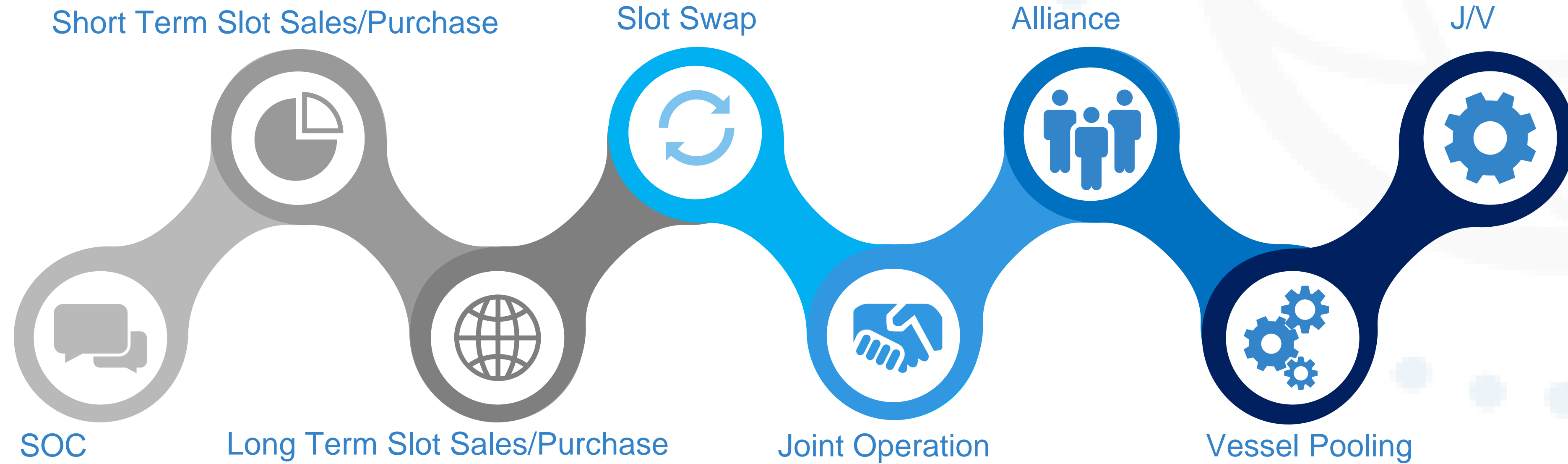
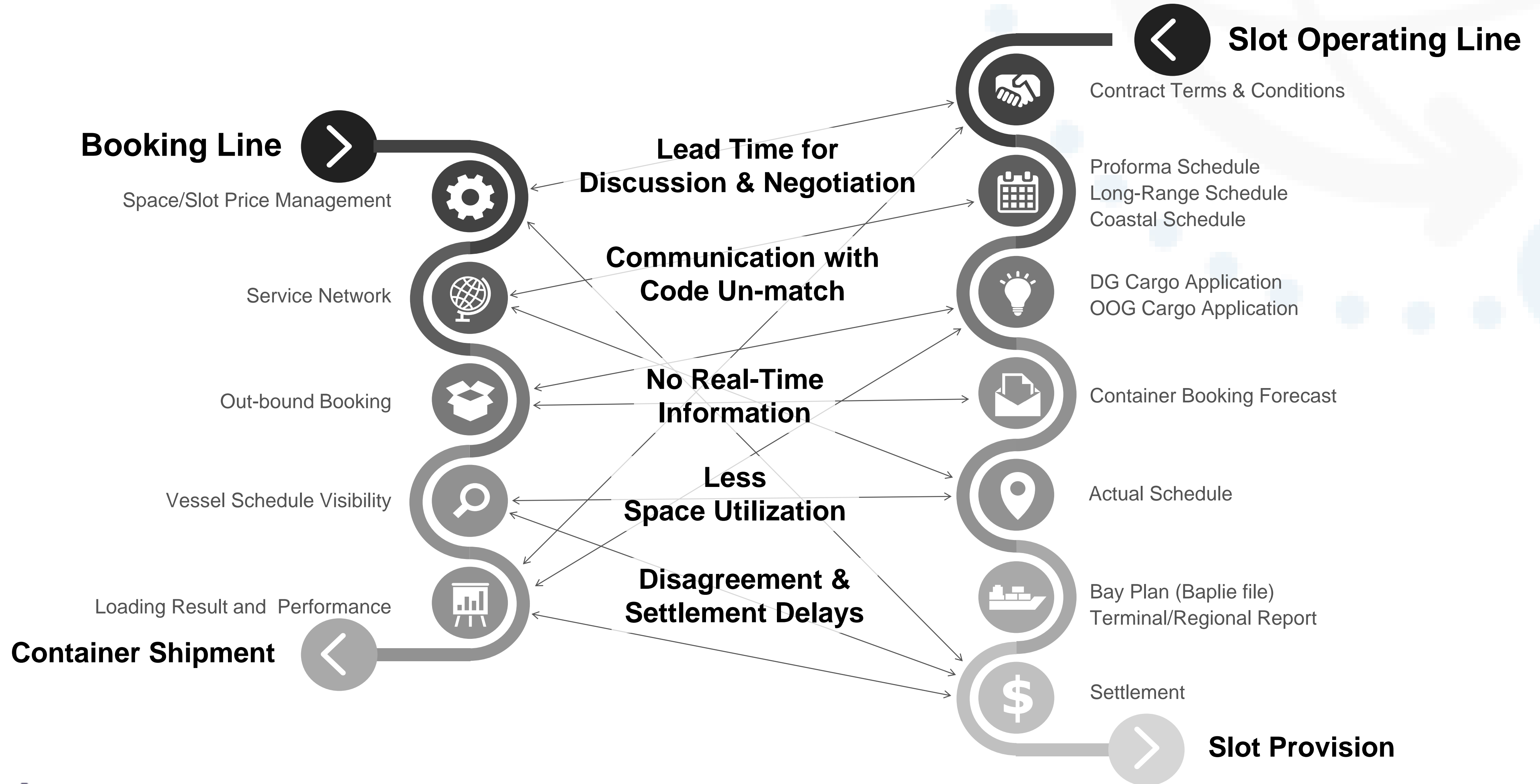


Varying Degrees of Collaboration between Container Liners



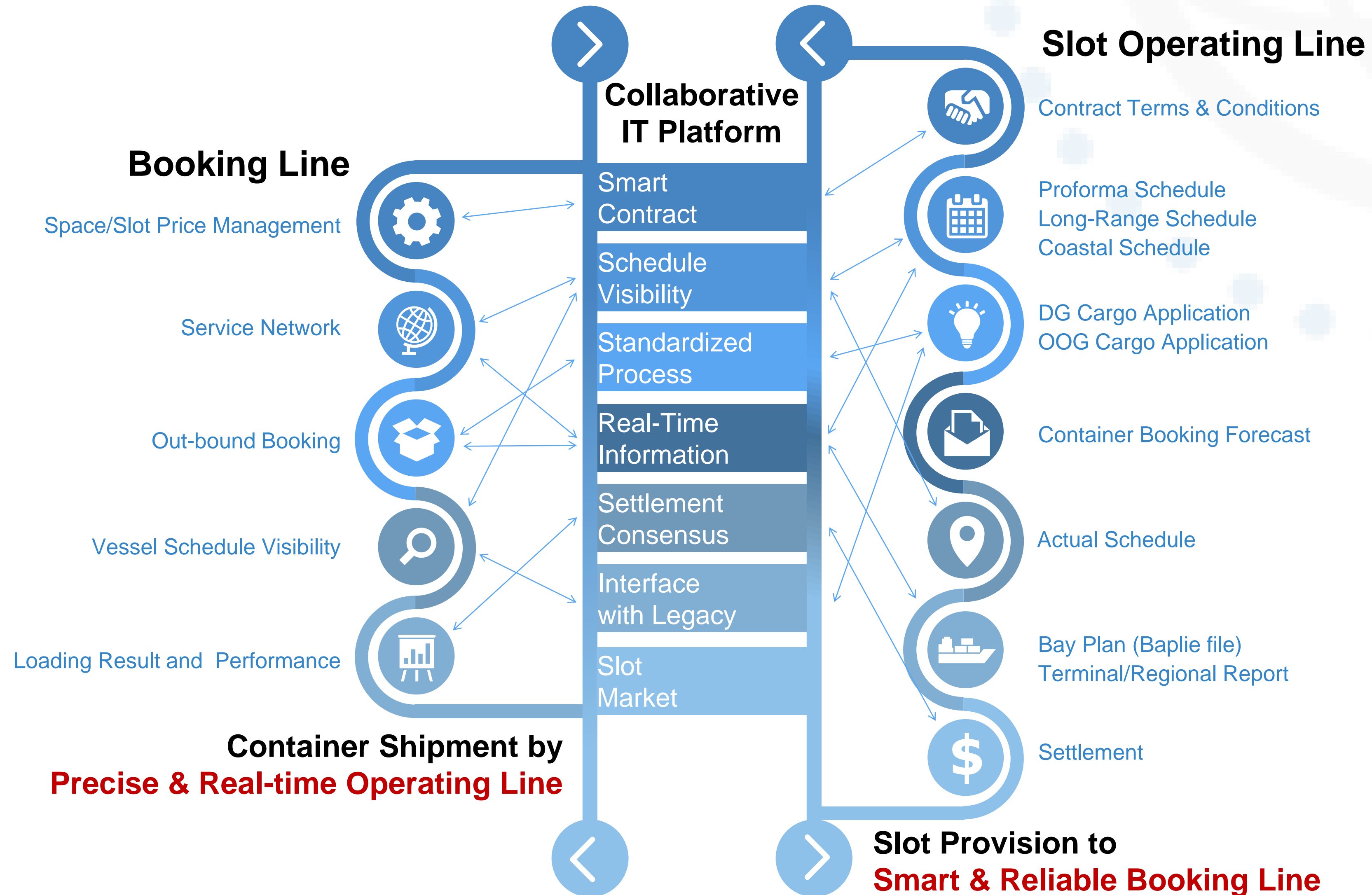
Collaboration Pains

Pain points arising from multi-communications threads & duplicated functions

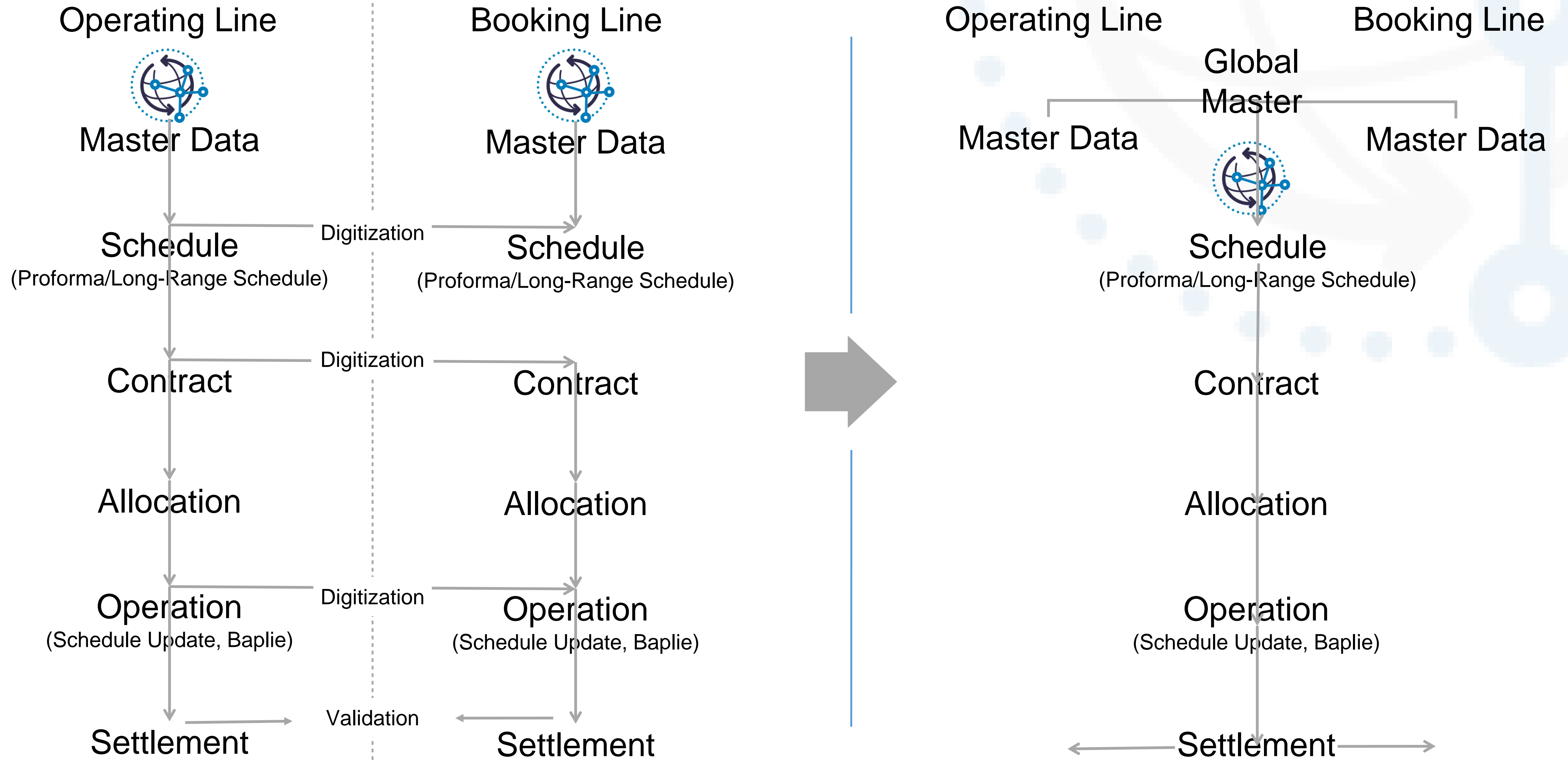


A Cooperative & Collaborative IT Platform

With full integrated end to end cooperation process between container liners



Joint Data Ownership & Sharing of Information



The Value Unit Exchanged via CARA 2.0

CARA will continue to provide more collaboration between partner lines

CARA2.0

Information	Vessel Schedule	Cargo Application	Vessel Operation	Settlement	Collaboration
User Information	Proforma Schedule	DG Application	Baplie File	Smart Contract	Mobile M&R
Vessel Particular	Long-Range Schedule	OOG Application	Terminal Dep. Report	Allocation/Slot Price	3rd Party Billing
Vessel Code	Coastal Schedule	Break Bulk Application	Regional Dep. Report	Space Management	Block Stowage
Port Code	Common Voyage	Special Stowage App.	On-time Performance	Target Voyage	Load Board
Terminal Code	Actual Schedule	COD Application	Terminal Productivity	Settlement Report	Space E-comm
Container Type/Size	Proforma Simulation	Special Cargo Manifest	Collaborative Berth Plan	Handling Invoice	
Account Code	Schedule Simulation	Equipment	Advanced Stowage Viewer		
Account Information	Dynamic Schedule	Seg. check baplie	CBF with CLL		
IMDG Code			VGM		
Special Cargo Policy	Rehandling Code		Port Charge		
Non Working Holiday	Special App Code		Fleet Chartering		
Block Stowage Code	Schedule Delay Code		Stowage Planning		

- CARA API
- EDI / Interface
- Code Mapping



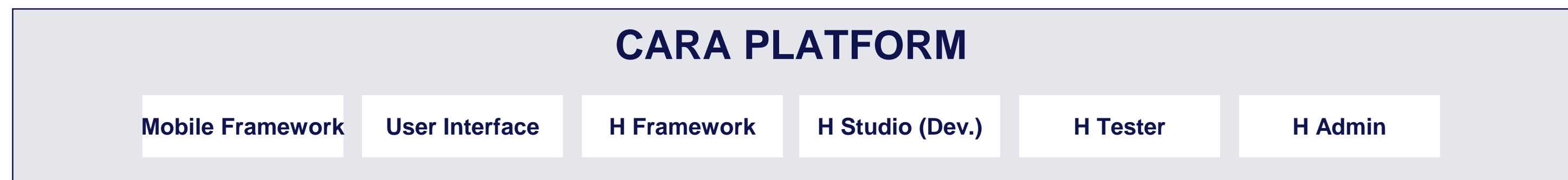
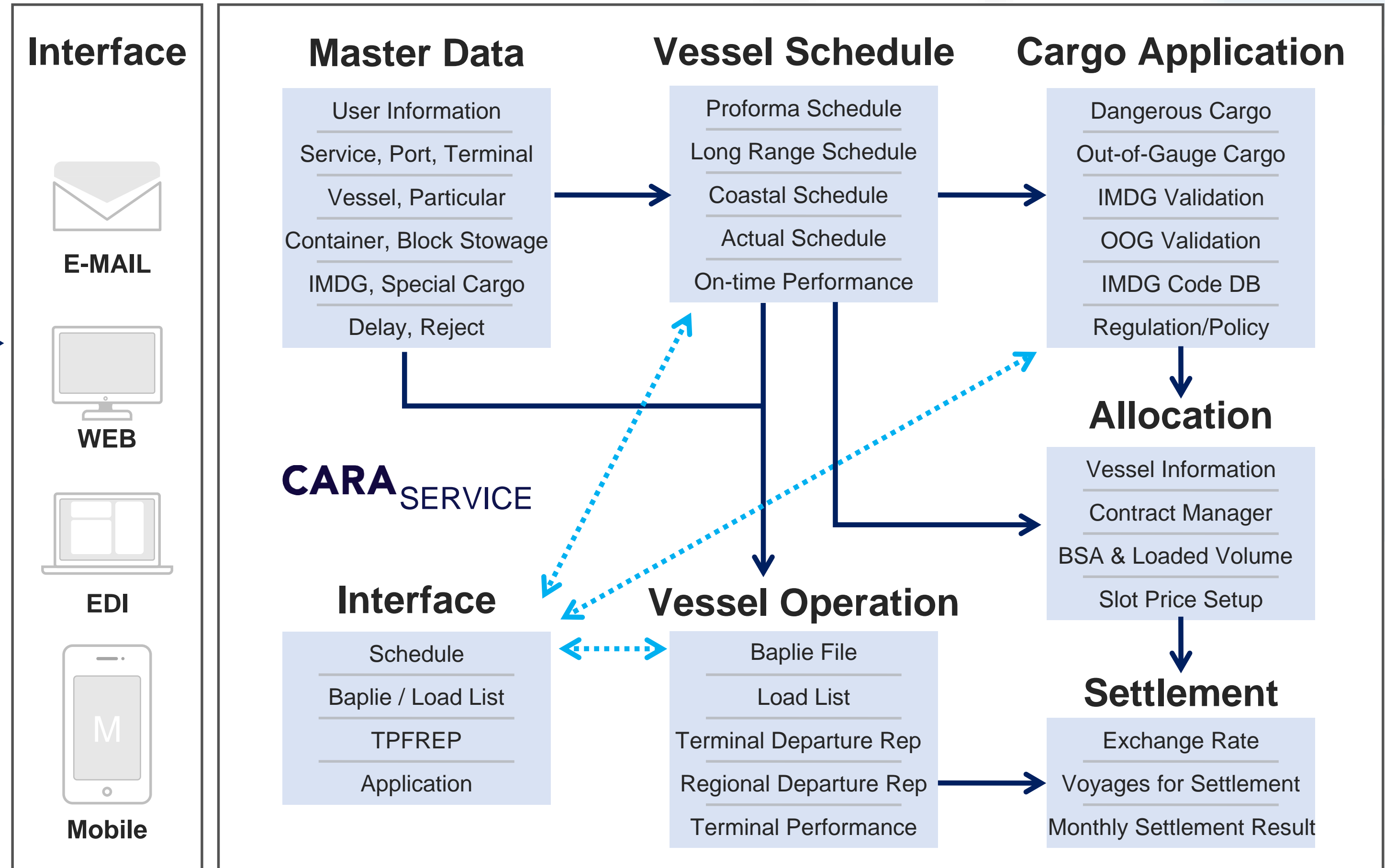
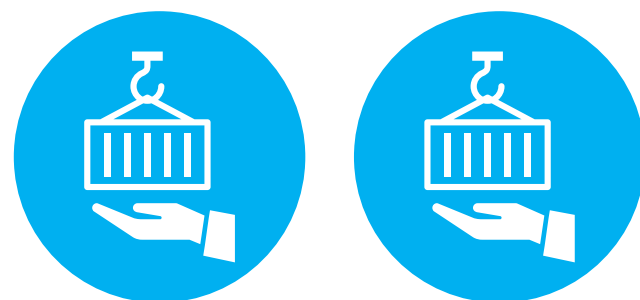
Key Process & Architecture

Platform service enables seamless collaboration between partner lines.

CARRIERS

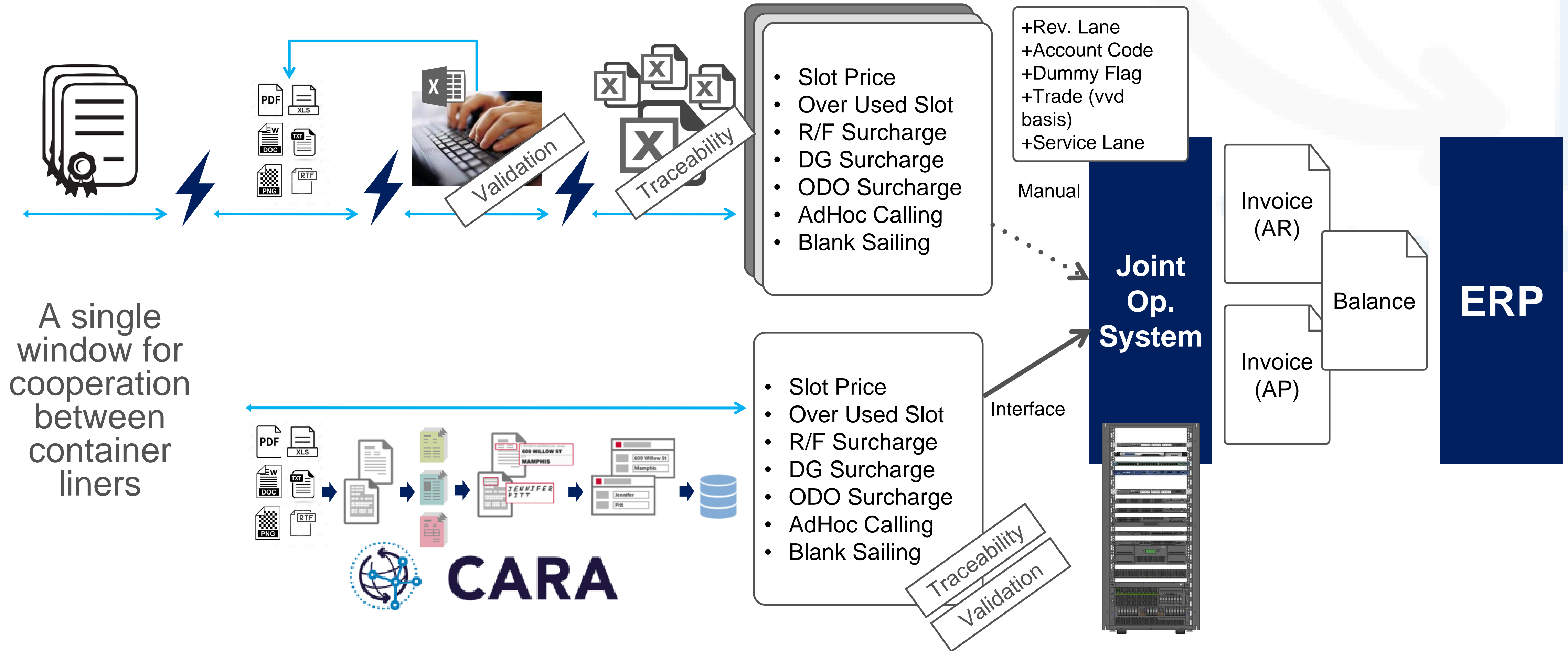


TERMINALS



One-stop and Smooth Process from Contract to Settlement

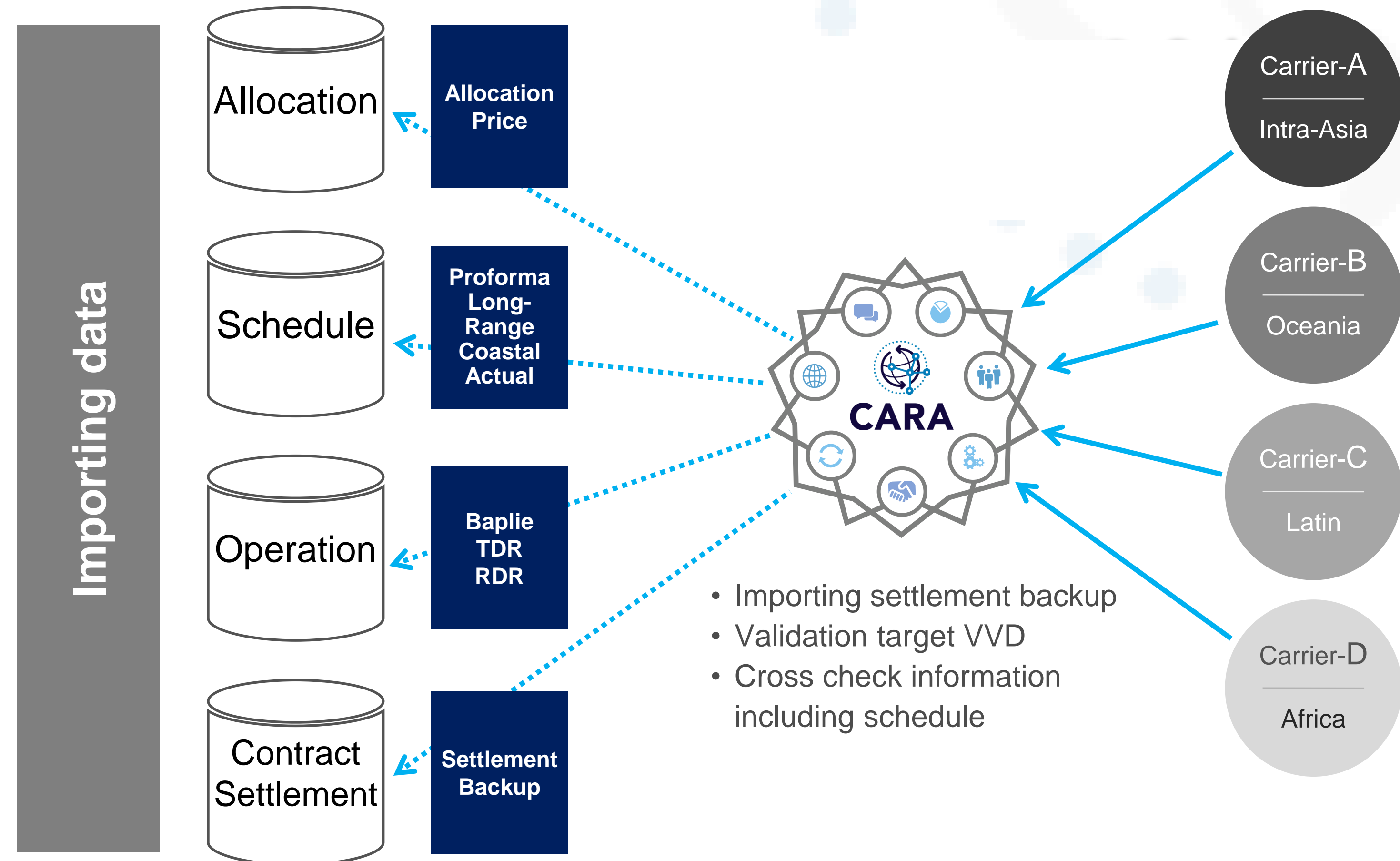
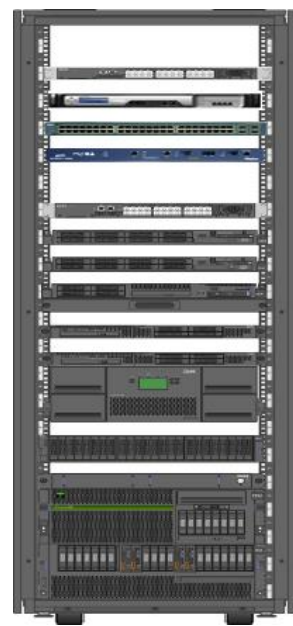
Simplified process and supportive features in CARA enable reduced manual works and traceability/validation in one place



Interface with Liner Legacy System

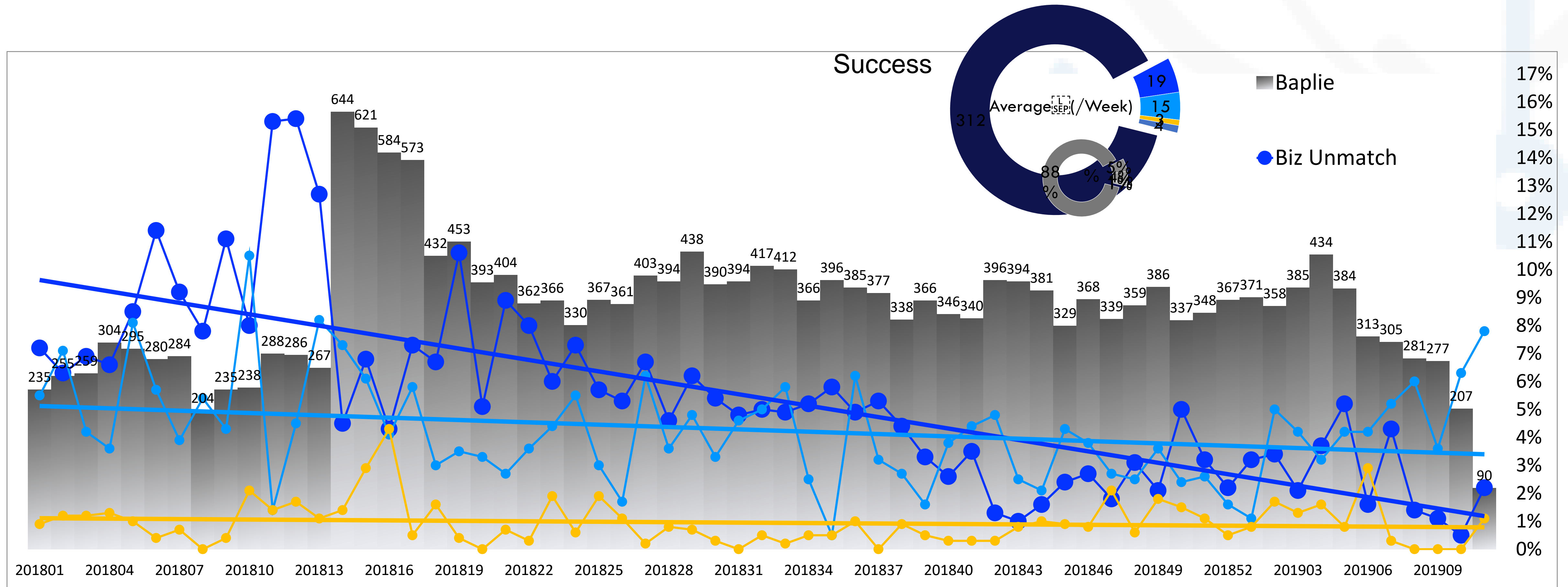
Seamless interface with scheduling, slot allocation settlement module for efficient operation and improved accounting data with partner lines

System connection between partners & liner's legacy system modules via CARA

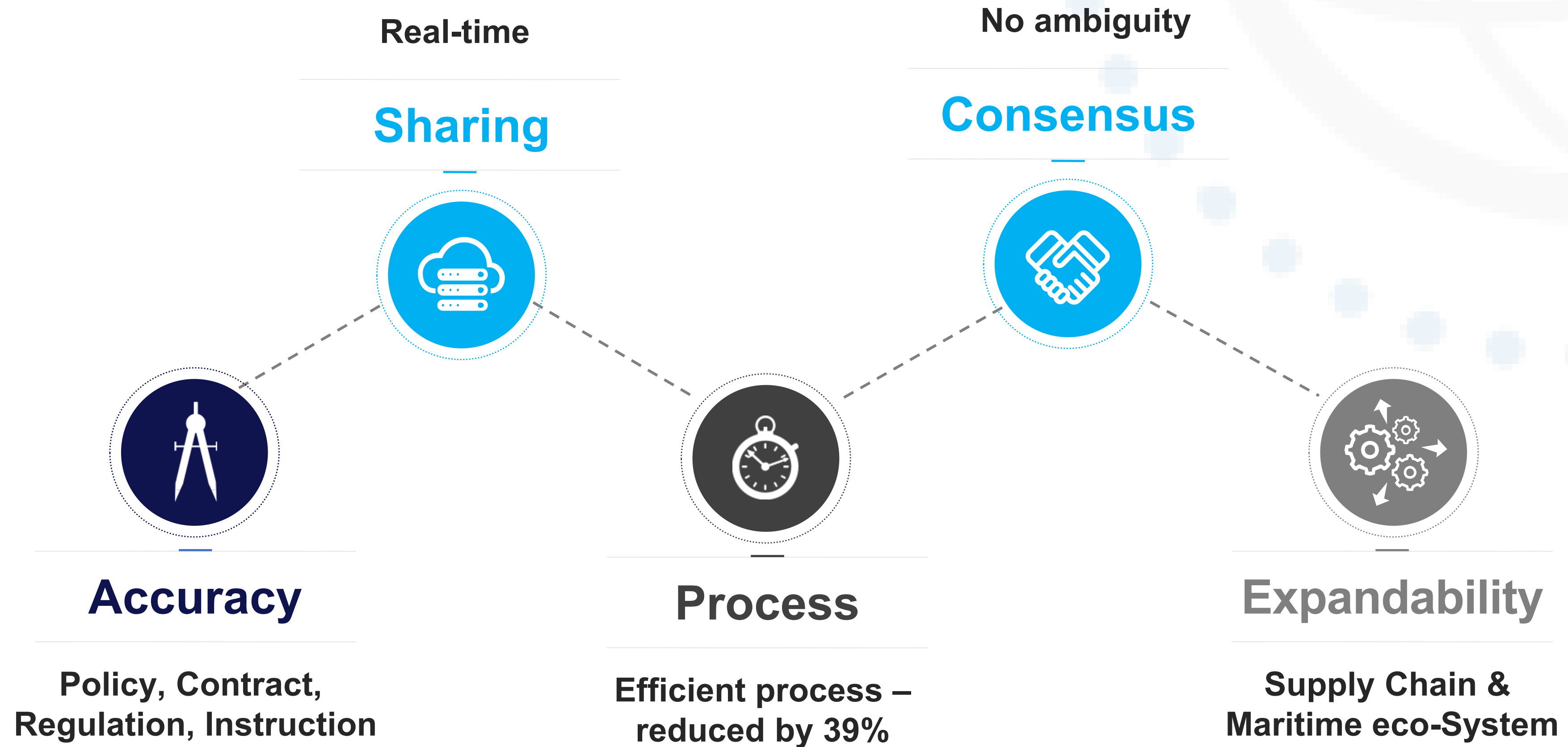


Handling Baplie Files

Keep improving the accuracy of baplie file through compounded code conversion rules.
 Baplie Handling (2018~): The ratio of success is being increased to 91.7% in 2019

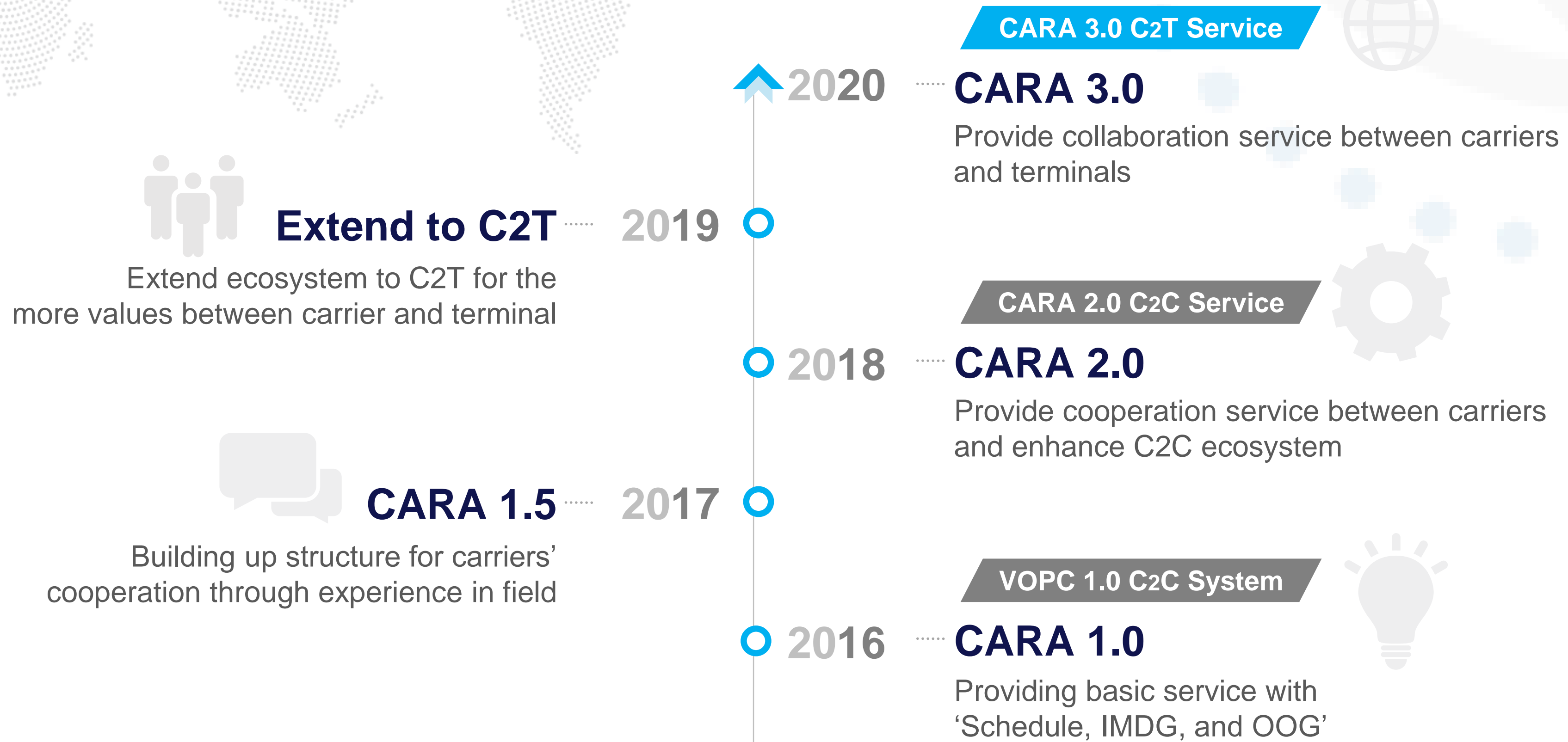


Benefits of Carrier Orchestra



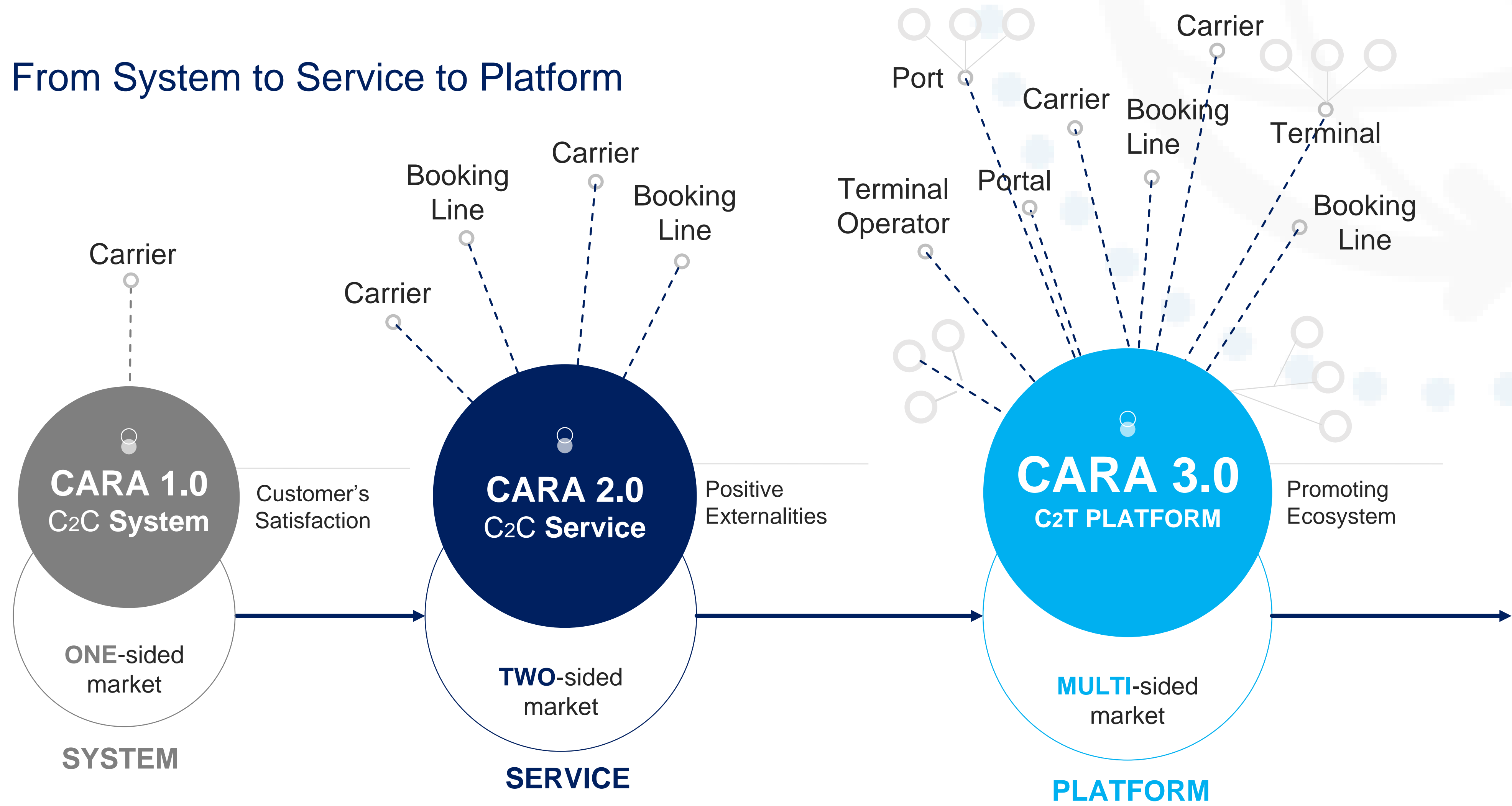
CARA X

More Collaboration in Container Shipping



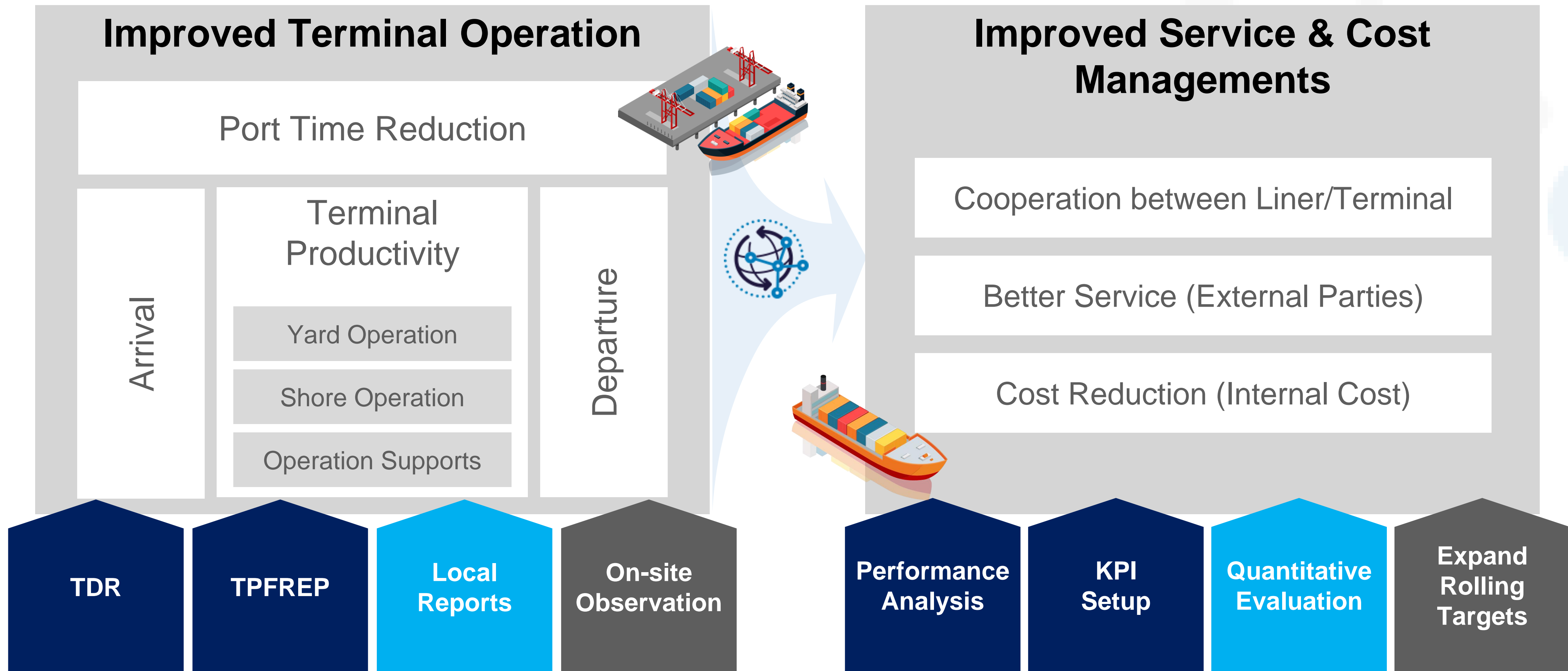
Degrees of Collaboration

From System to Service to Platform



Approach to Terminal Productivity

Initiatives for better operation as well as cost reduction through deeper understanding and cooperation with terminal operation. CARA can support the liner's initiative via value creation.



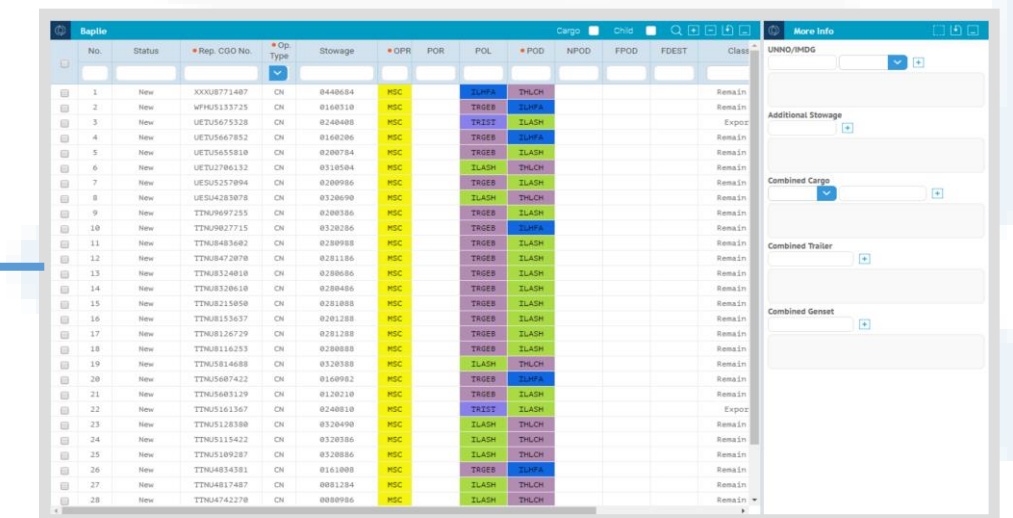
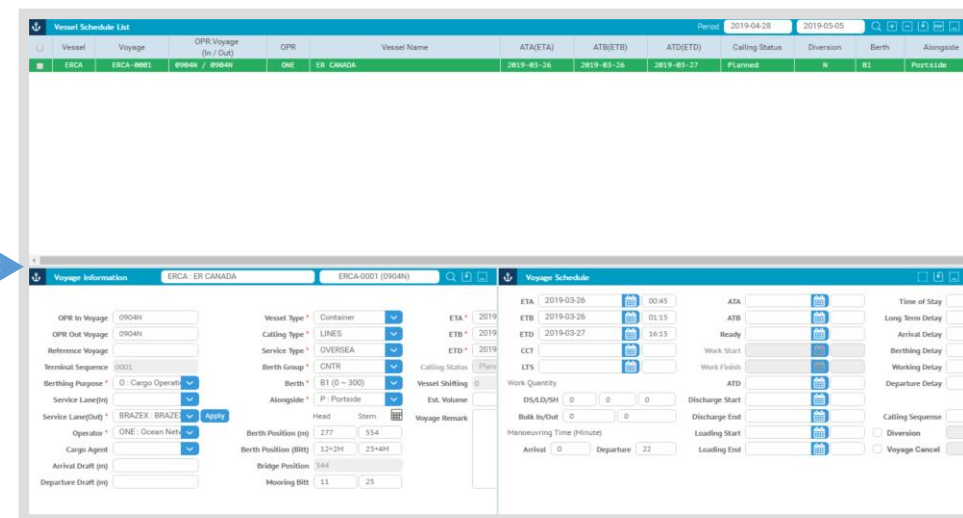
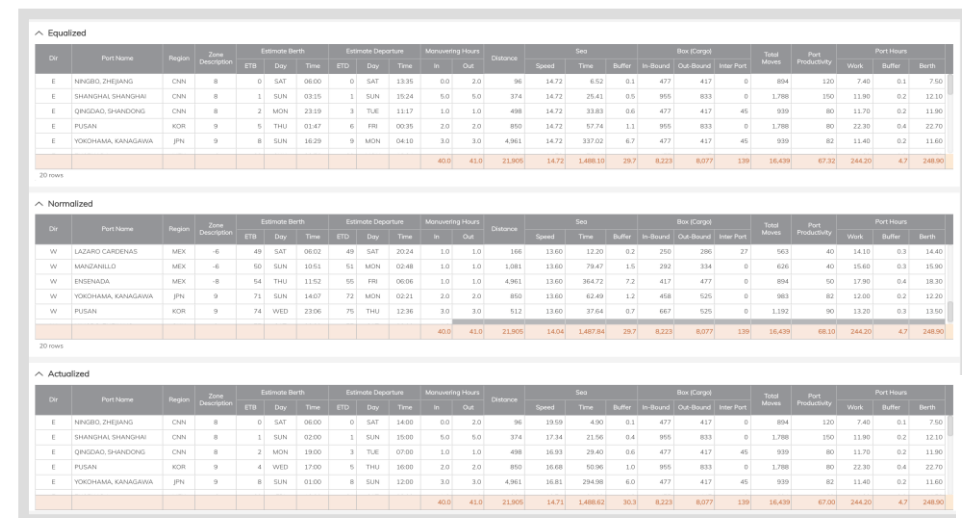
Target Solutions

Through the planned functionalities in CARA these synergetic features to be realized in 2019.

Dynamic Schedule Management

Collaborative Berth Planning

Advanced Stowage Viewer+

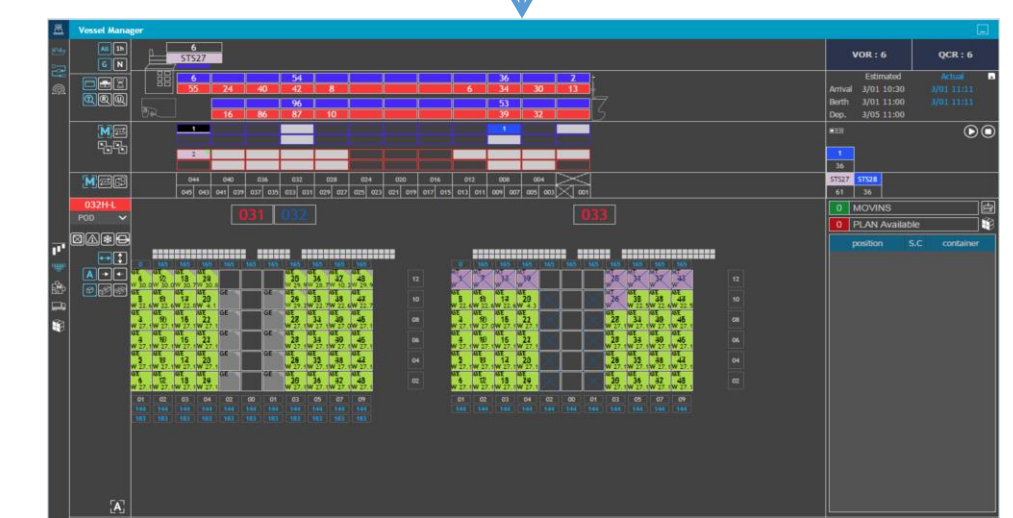
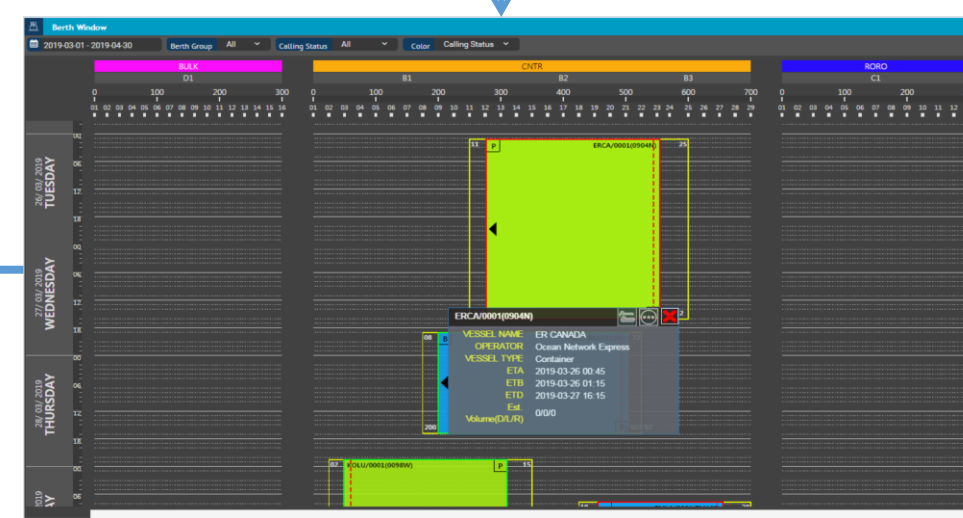
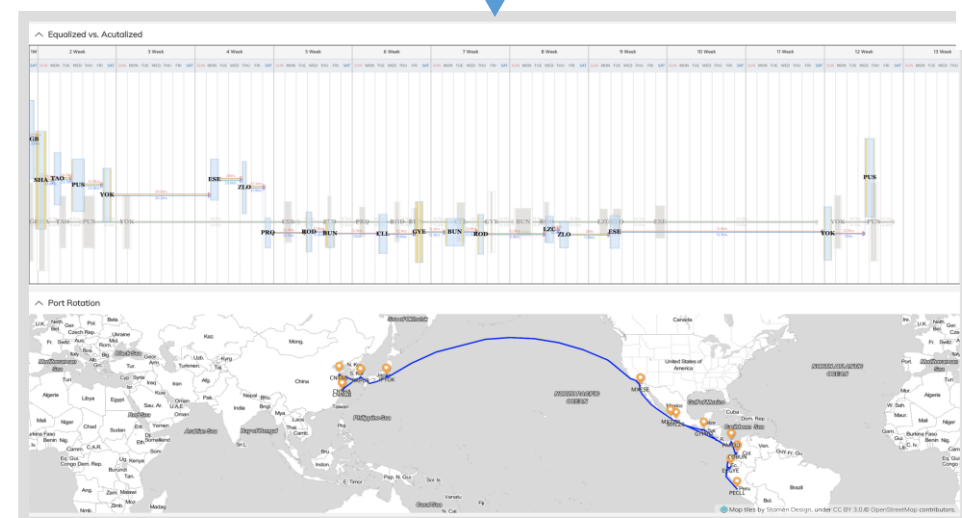


In/Out-bound Cargo Data

Proforma Schedule
Long Range Schedule
Coastal Schedule

Working Plan
Actual Schedule

Simulation
(Berth Plan
Gang Operation)

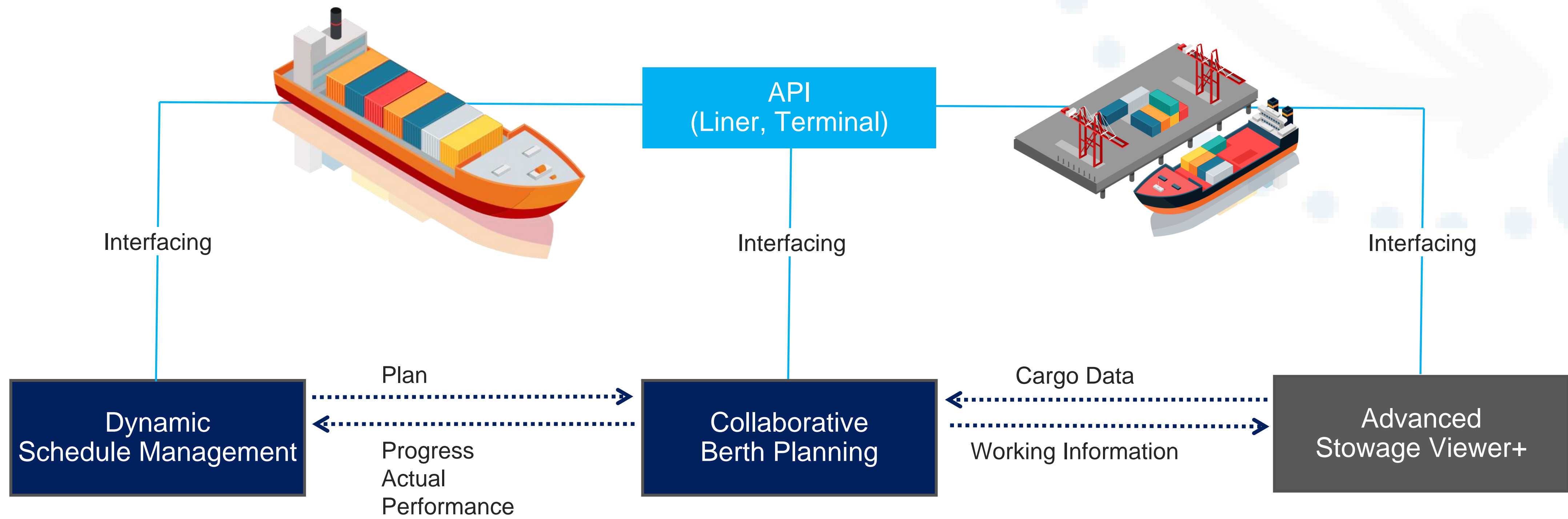


Liner Solutions

Terminal Solutions

Target Solutions

Collaborative berth planning connected with dynamic schedule management & advanced stowage viewer



Liner View

Current Performance via TPFREP

^ Vessel Info

Arrival Berth: 2019-07-28 07:40 | Departure Berth: 2019-07-29 09:55

^ Working Hour

ATD-ATB(Unberth-Berth): 026:15

Net Working Hours: 025:42 | Last Crane Complete-First Crane Commence

Gross Working Hours: 026:15 | Net Working Hours: 025:42 | Lost Time by Crane: 000:00 | Sum of all crane lost time

Gross Crane Hours: 129:07 | Net Crane Hours: 129:07 | Sum of all crane working hours | Sum of all crane working hours - Sum of all crane lost time

^ Handling Moves

Handling Hatch Cover: 45 | Gear Box: 0 | Total Handling Moves: 3,674

^ Productivity

Terminal: Total Handling Moves / Gross Working Hours | Per Crane: Total Handling Moves / Gross Crane Hours

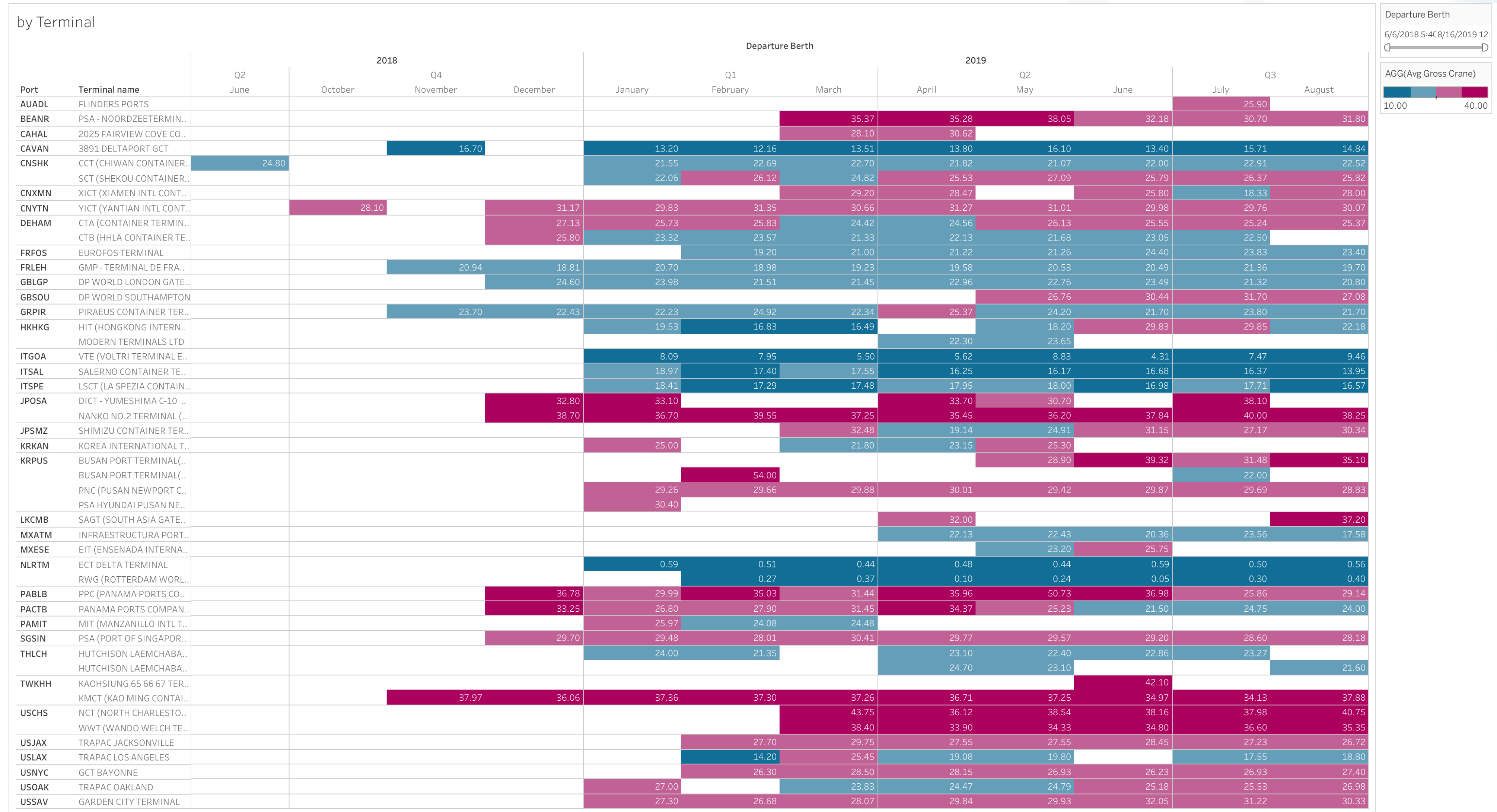
^ Crane Info

Terminal Working Time: 2019-07-28 08:11 | 2019-07-29 09:53 | Total Handling Moves / Net Working Hours

Number of Used Crane: 6 | Average Num: Total Handling Moves / Net Crane Hours

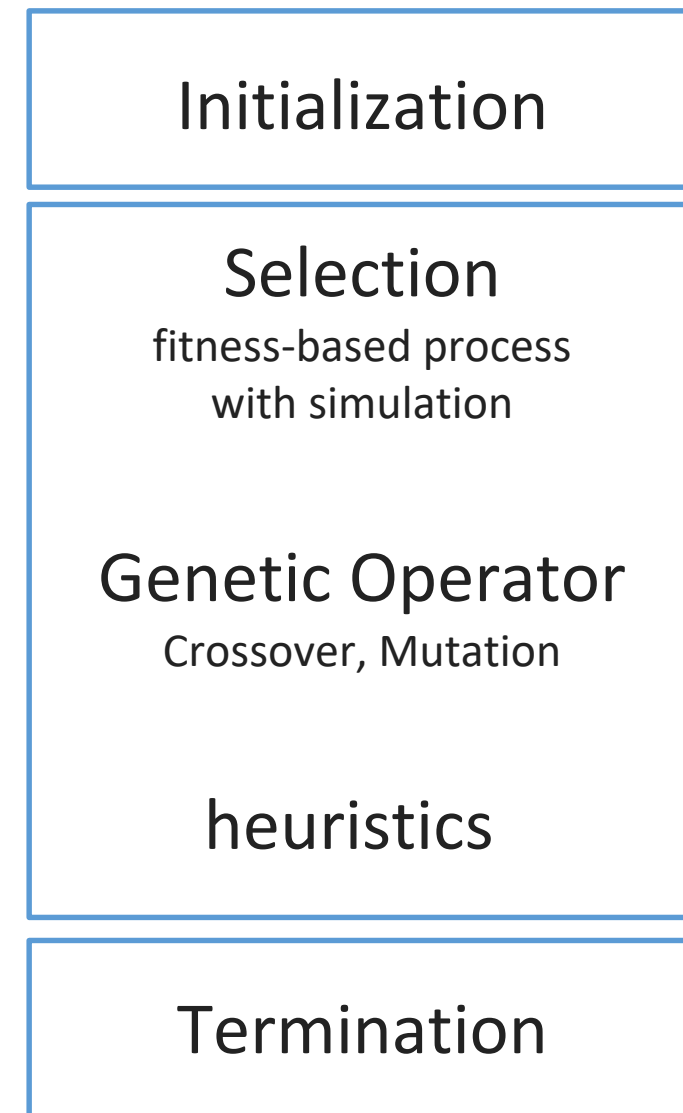
No.	Crane No.	Work Commence	Work Completed	Working Time	Delay Time	Crane Total Move
		G/C work hour Min commence	G/C work hour Max complete	2019-07-28 21:57	012:47	Gross Crane Hours / Net Working Hours
				2019-07-29 03:35	018:30	
3	PQC710	2019-07-28 08:11	2019-07-29 06:58	022:47		629
4	PQC711	2019-07-28 08:30	2019-07-29 09:06	024:36		740

Receiving TPFREP from Terminals

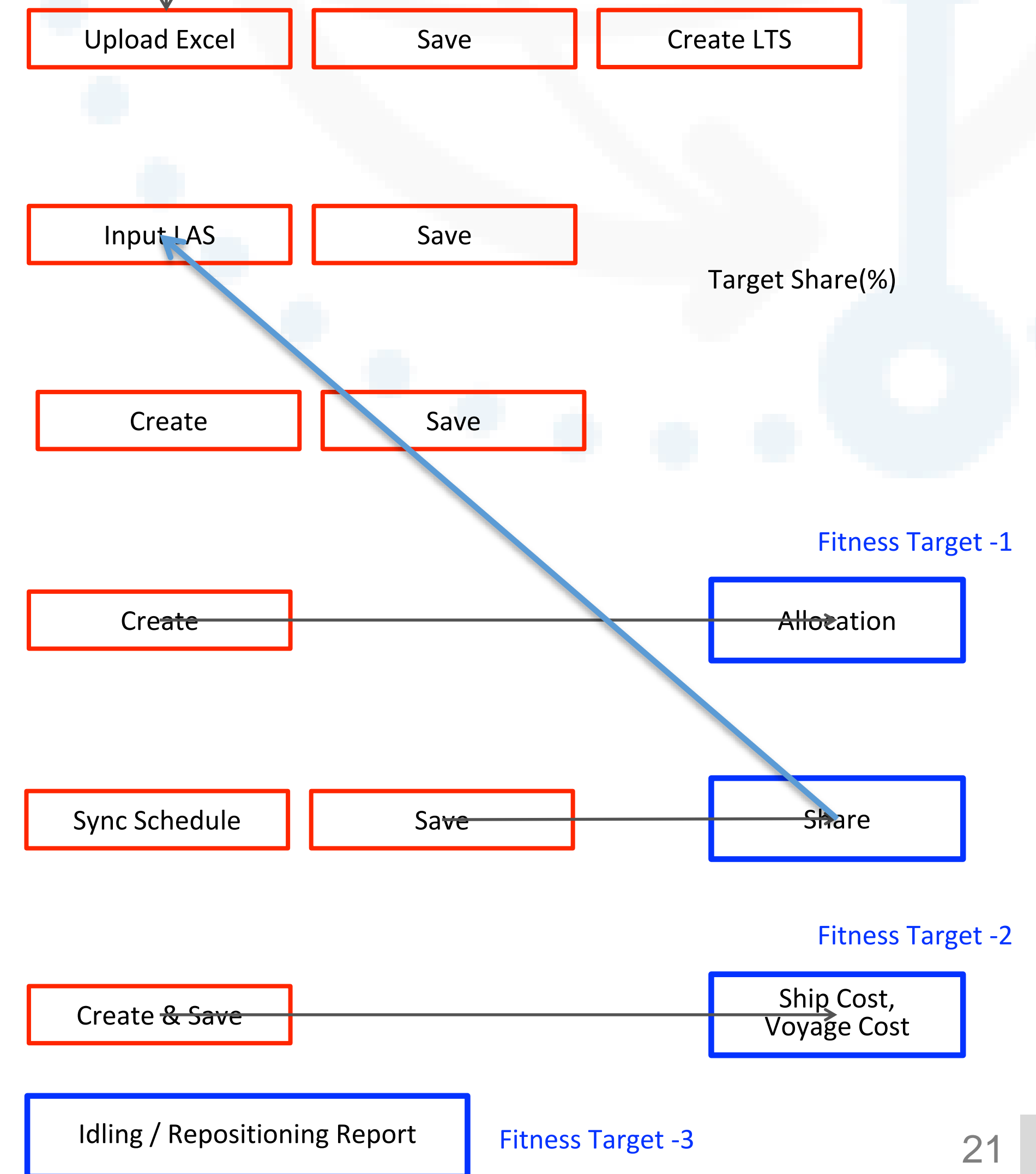
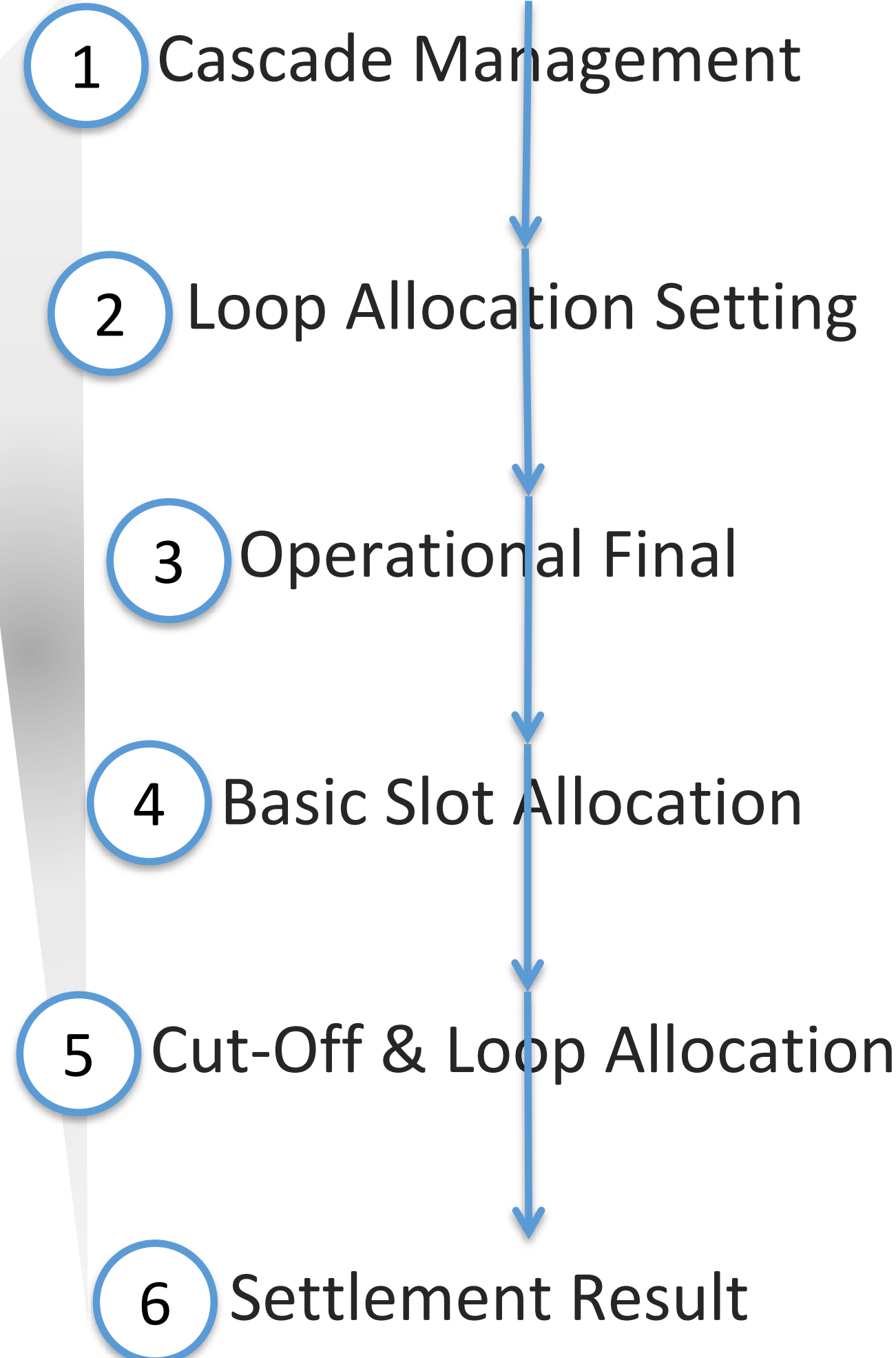
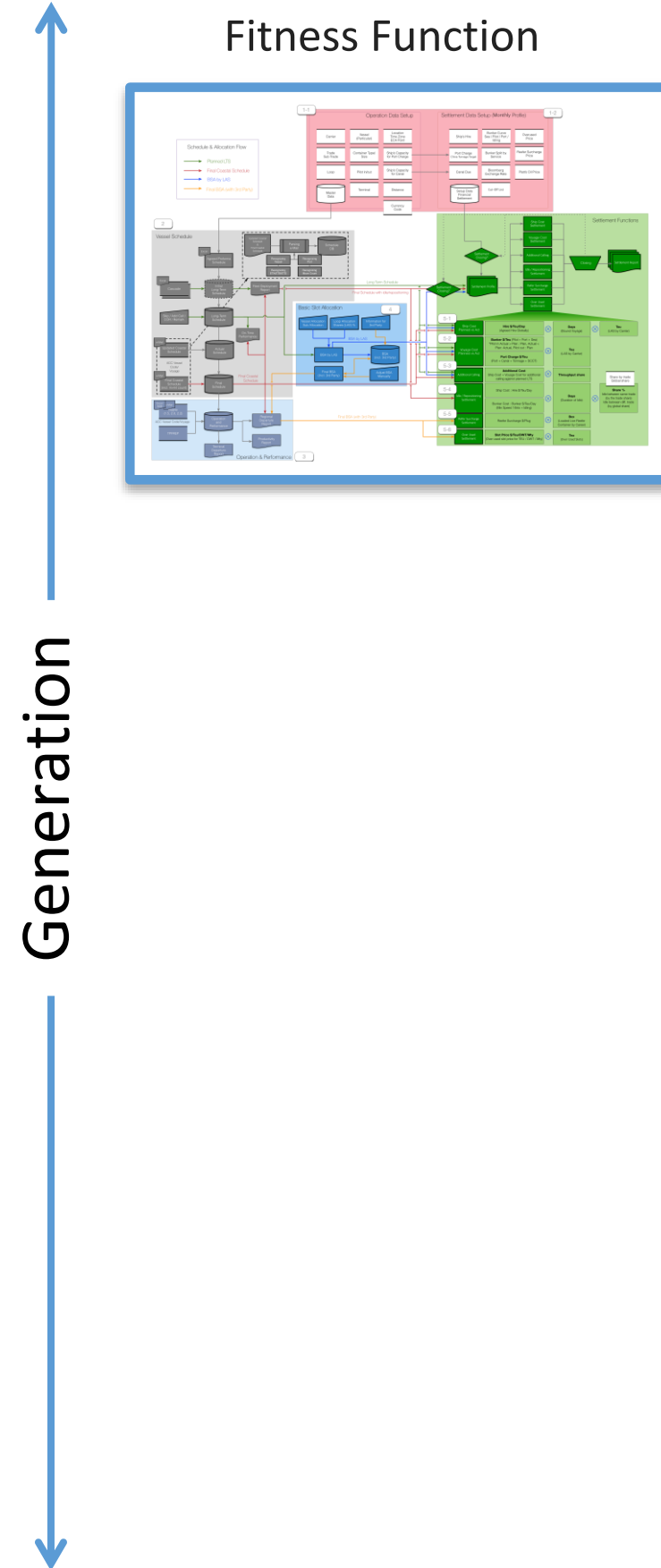


Cascade Management – Setting Up Cascading Plan

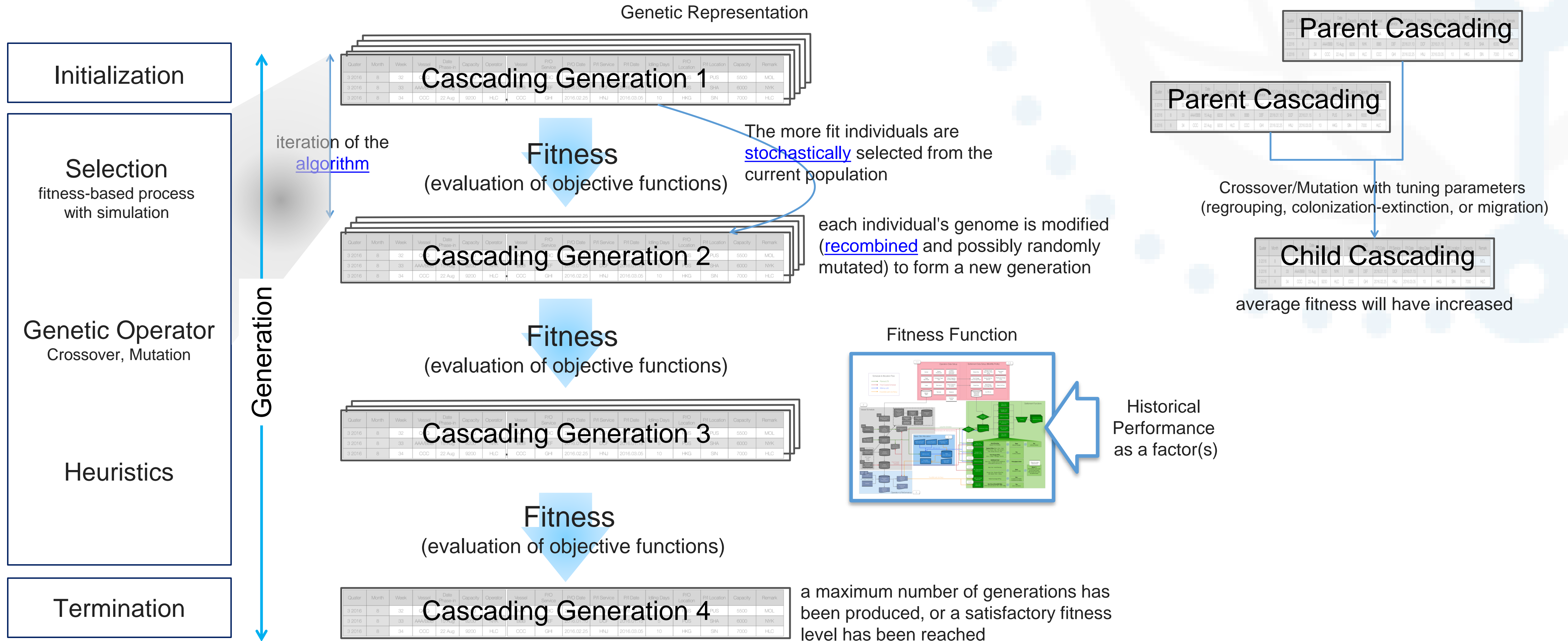
Quarter	Month	Week	Vessel	Capacity	Operator	Vessel	P/O Service	P/O Date	P/O Service	P/O Date	Idling Days	P/O Location	Capacity	Remark
Q3 2016	8	32	OOO									PUS	5500	MOL
Q3 2016	8	33	AAA/BBB									SHA	8000	NKK
Q3 2016	8	34	OOO	22 Aug	8000	HLC	OOO	GH	2016.02.25	HNU	2016.03.05	HKG	8000	HLC



- A solution is found that satisfies minimum criteria
- Fixed number of generations reached
- Allocated budget (computation time/money) reached
- The highest ranking solution's fitness is reaching or has reached a plateau such that successive iterations no longer produce better results
- Manual inspection
- Combinations of the above

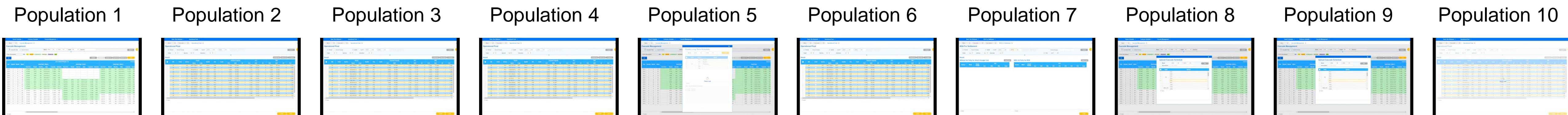
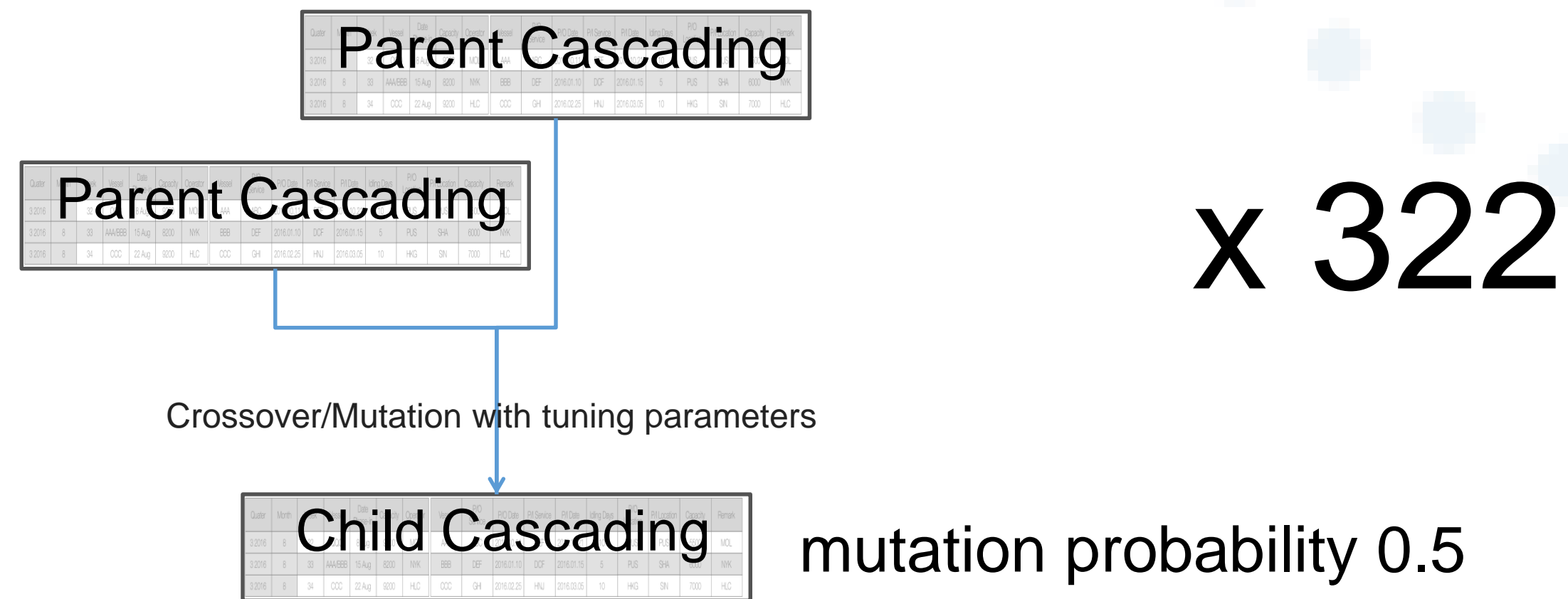


Cascade Management – Optimization with Genetic Algorithm



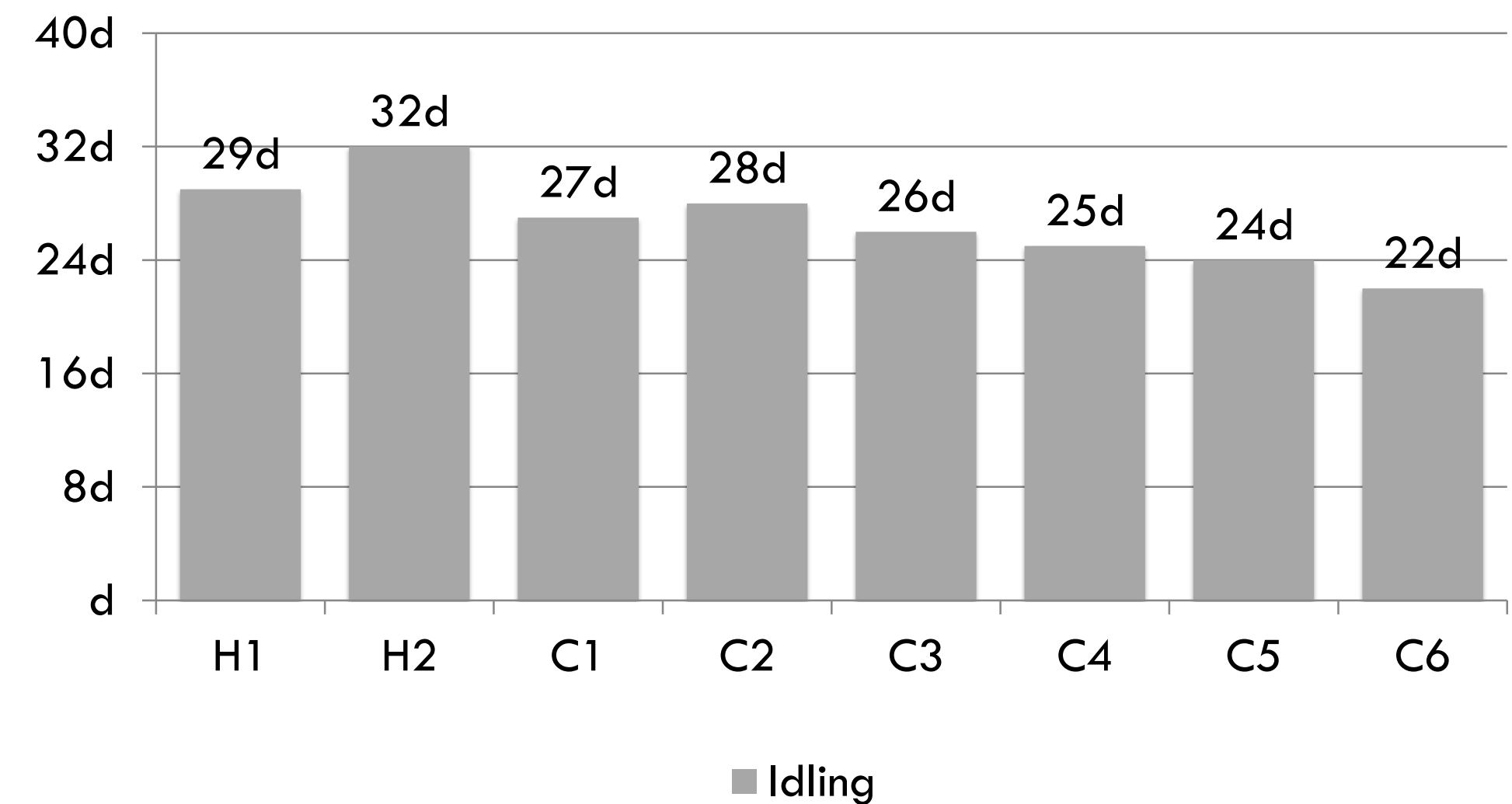
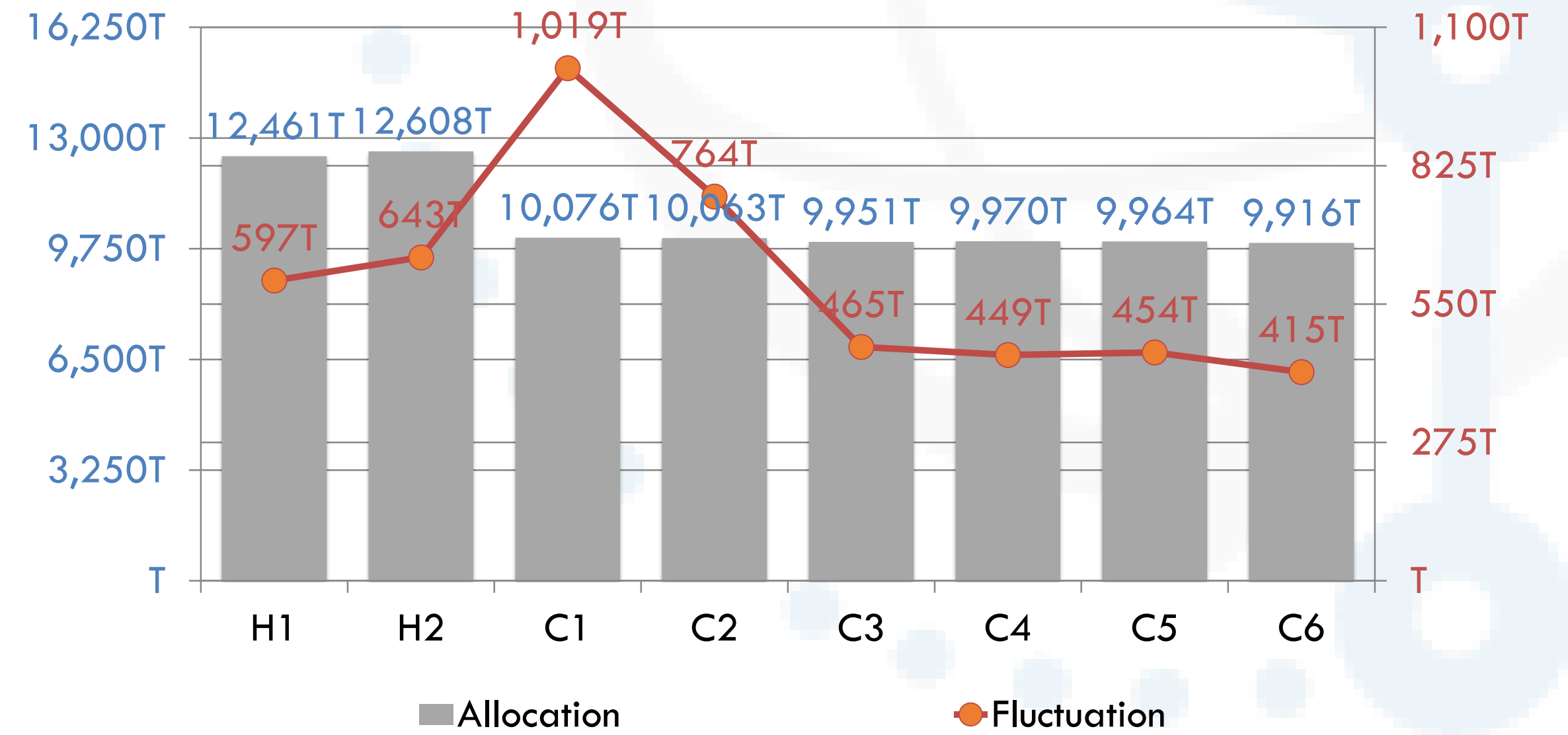
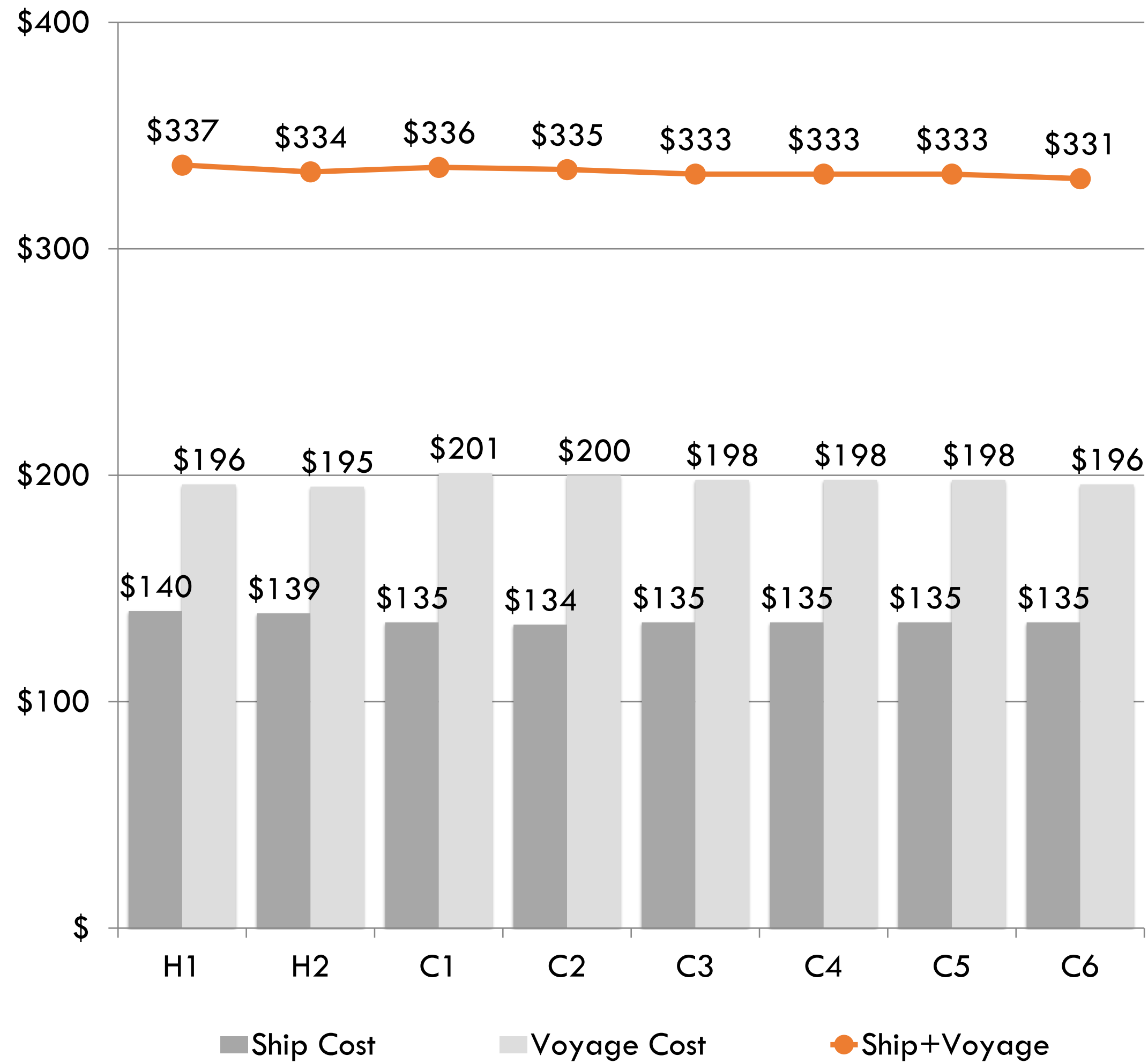
Simulation Run – 10 populations x 322 Generations

Generation 1



Generation 2

Simulation Run – Evaluation of Optimisation Outcome



CyberLogitec  CARA

www.cyberlogitec.com

Thank you

