



LIVORNO PORT AUTHORITY

# Livorno's "Europa Platform" Project

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# Livorno - market situation

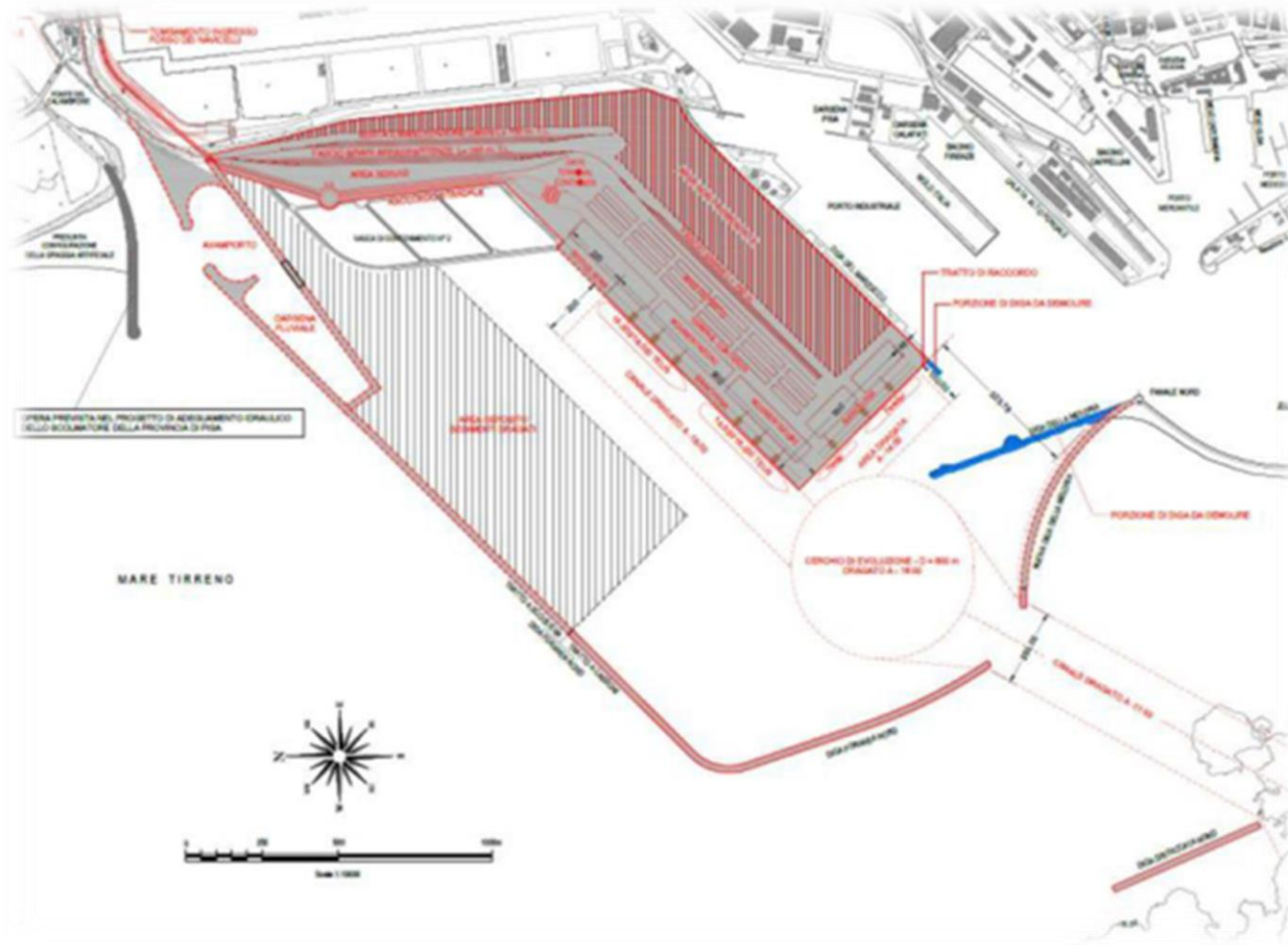
- Italian container demand has show limited growth – as a result of economic stagnation
- Development of transit flows to the north from Italian port remain unfulfilled
- Significant investment is underway / planned in regional container ports
- A ship size revolution is underway – much larger vessels will dominate the Asia-Europe trades
- These vessels require high capacity terminals with deep water and long quays designed for large consignment sizes
- Regional ports are delivering this capability – in order to stay in the market
- Livorno is not correctly formatted to meet anticipated demand
- If required capacity is *not* provided Livorno will be marginalised – handling small niche container demand
- Development is essential if Livorno is to maximise its future market role
- Decline is the only alternative

# Contents

- Historical container volumes for the region
- Development of Livorno's container traffic market to 2035
- Container shipping trends and implications for Livorno
- Livorno's competitive position
- Road and rail networks
- Built-up cost analyses
- Livorno's forecasts to 2035 - local, transit and transshipment
- Livorno Gap Analysis
- Conclusions



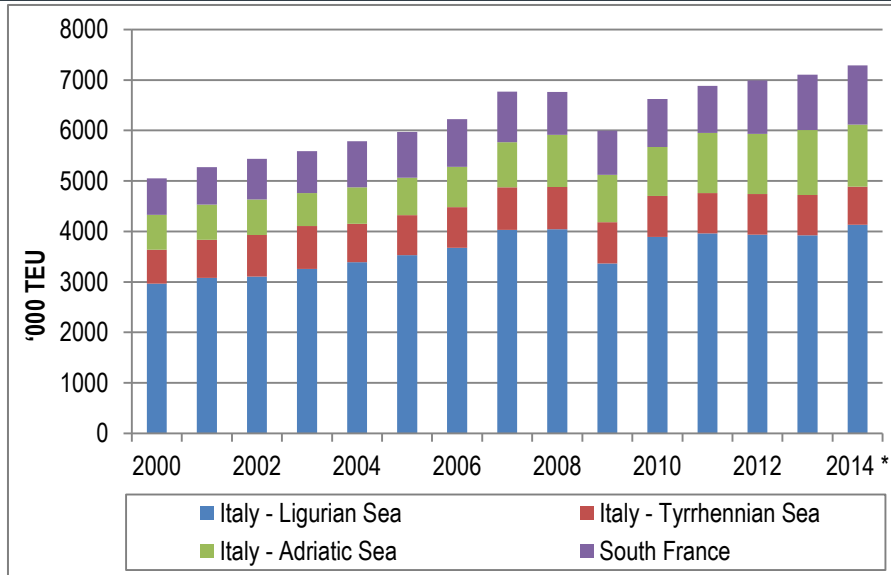
# Proposed Port Layout



Scope to handle the largest vessels:

Depth: 16.0m (18.0m);  
Length: 1,450m;  
Area: 42.0ha;  
STS: 3xpp ; 8xspp;  
Capacity: 1.5m TEU/a.

# Historical Regional Port Demand



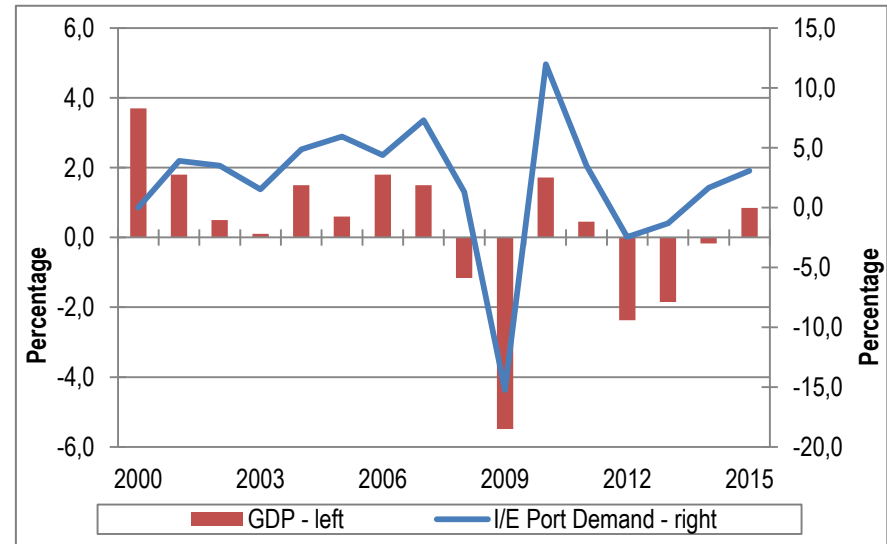
- Total regional hinterland demand reached 7.3m TEU IN 2014.
- Volumes include Italian ports on Ligurian Sea, Tyrrhenian Sea, Adriatic Sea and South France.
- Current Livorno volumes are 7.9% of the regional total with 0.58m TEU in 2014.
- Just over 10% of this Livorno cargo included is transshipment cargo.
- This is less than the highs experienced of 0.78m TEU prior to the 2009 slump.

- Together the “Ligurian-Tyrrhenian Sea” ports represent just 2.3% of the central Mediterranean t/s volumes, the majority of which are handled in GTO, TTO and MXK.
- Livorno represents just 0.4% of this total.
- Provided necessary improvements are made to the facility Livorno can compete for local Livorno market and north Italian transit markets as well as some limited t/s and transit volumes to central Europe, i.e. Switzerland, Slovakia, Czech R., Austria, Hungary and South Germany.



# Italy: GDP and I/E Container Port Volumes

- There is a distinct relationship between GDP growth and local container port demand in Italy up to 2011.
- By 2012 there are first signs of breakdown in this relationship.
- Indications that Italy is moving towards an export driven economy.
- This is the pattern seen in Spain and offers some renewed port possibilities.



- It is reasonable to assume that the short-term forecasts to 2017 should be based on the Italian export demand.
- The balance of the forecast period returns to the normal GDP/trade growth relationship from 2018.
- A gradual economic and trade recovery is anticipated.

# GDP Growth and Multipliers for Italian Local Regional Forecast

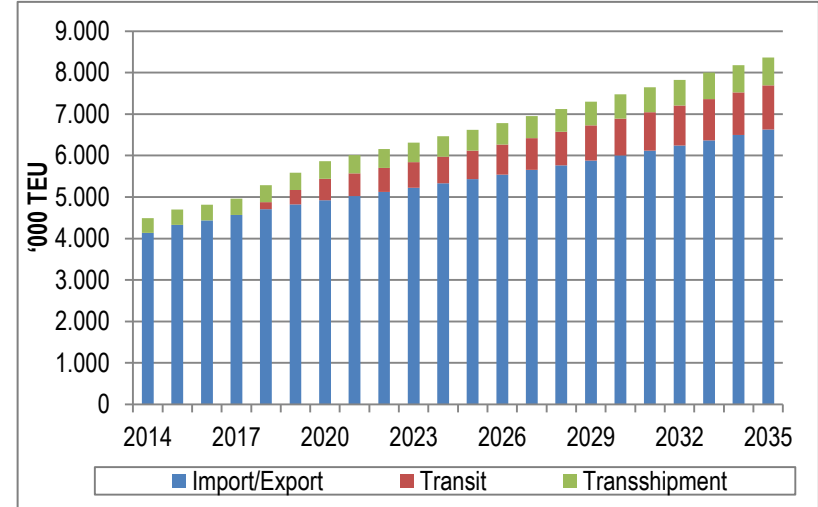
	2012	2013	2014	2015	2016	2017	2018	2019	2020-24	2025-2029	2030-2035
GDP % Growth	-2.37	-1.85	-0.32	0.54	1.20	1.15	1.10	1.05	1.00	1.50	2.00
Local % Growth	-1.34	0.81	2.58				2.73	2.38	2.00	1.33	1.00
% Export Growth	2.14	0.13	1.99	2.50	3.00	3.50					
Multiplier	3.18	-1.50	-0.83	4.65	2.50	3.04	3.00	2.50	2.00	2.00	2.00

NB: it is assumed that forecasts will be based on export figures for 2015-2017 and GDP growth for the balance of the period

Source: Ocean Shipping Consultants

- From 2000 to 2014 the GDP growth to trade growth ratio has been 1:4.16 ; 1:4.02 from 2000 to 2006.
- Ratio expected to bounce back to 1:3.00 y 2017/18 before returning to a more realistic 1:2.00 from 2020.
- These multipliers are used to derive the total “Ligurian-Tyrrhenian Sea port” regional, local demand volumes.

# Forecast Total Regional Sea Port Demand

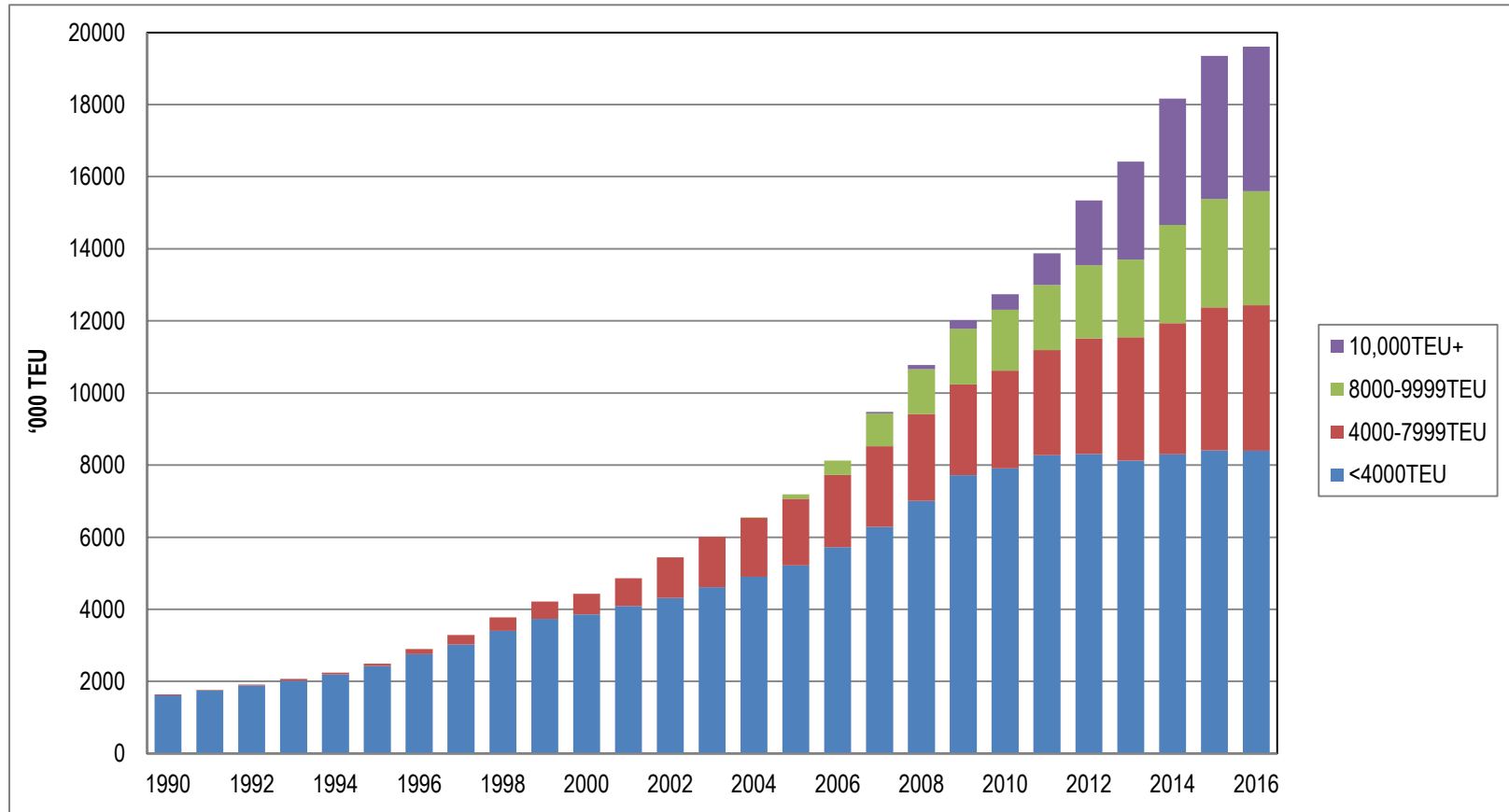


- Regional volumes are expected to increase from 4.49m TEU in 2014 to 5.68-6.21m TEU in 2020; 6.40-7.01m TEU in 2025 and 7.22-7.92m TEU in 2030.
- Even excluding the t/s volumes (which are by nature transient), it is clear that the region will be in need of more capacity from 2016-17.
- This needs to be of the correct type, i.e. deepwater.





# World Container Fleet Development



# Design Development of Large Containerships

- Fully cellular containership fleet expanded to >16m TEU.
- Focus remains on larger vessels – 8,000TEU+ sector up by 10.8%.
- Trend for bigger ships well established since 2004 – 18,000TEU+ ships in service.
- Almost all major lines committed to ULCS.



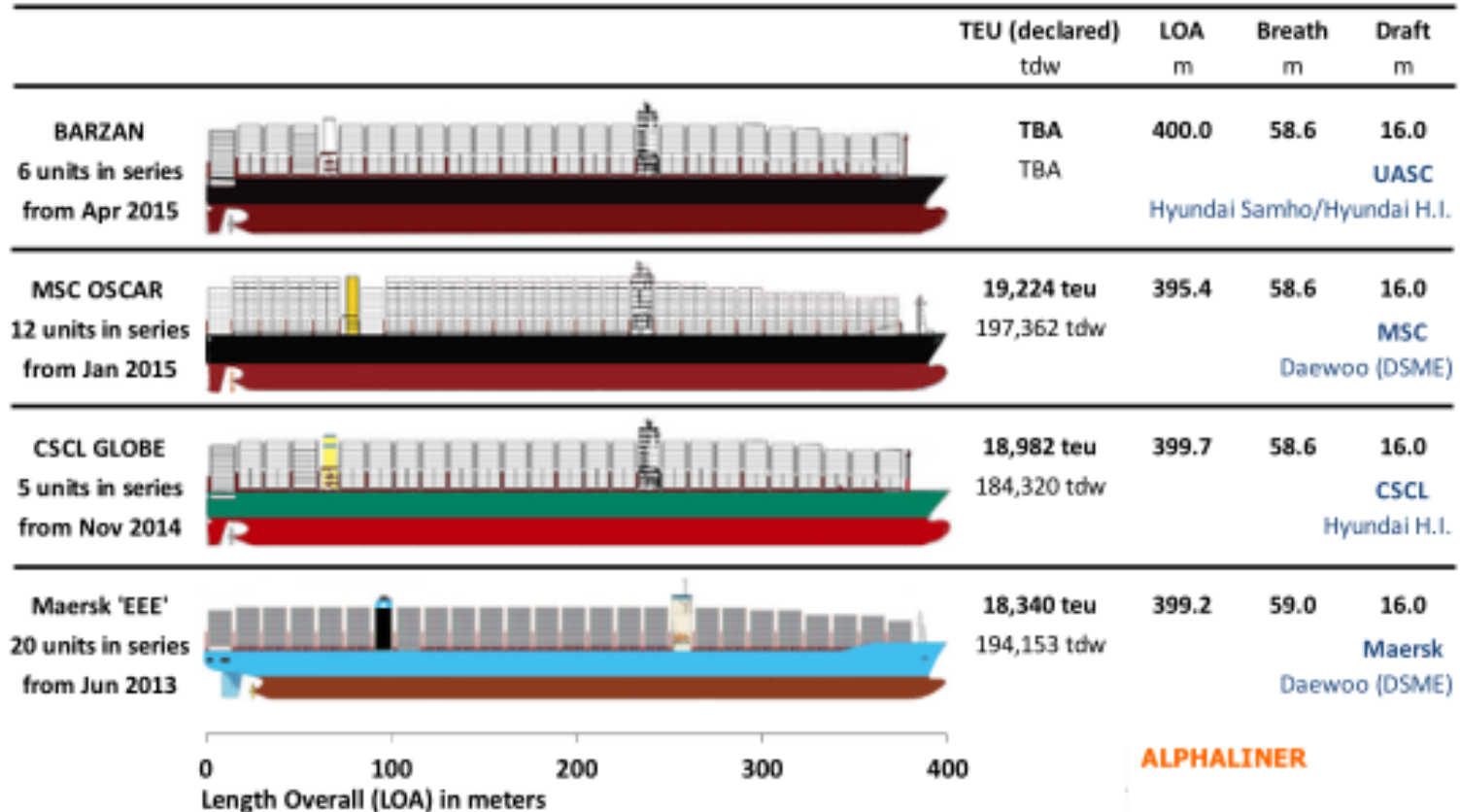
	TEUs	Length overall (m)	Beam (m)	Maximum draught* (m)	Noted Required berth depth (m)*
First generation: 1968	1,100				
Second generation: 1970-80	2-3,000	213	27.4	10.8	12.0
Panamax: 1980-90	3-4,500	294	32.0	12.2	12.8-13.0
Post-panamax: 1988-95	4-5,000	280-305	41.1	12.7	13.5-14.0
Fifth generation: 1996-2005	6,400-8,000	300-347	42.9	14.0-14.5	14.8-15.3
Super post-panamax: 1997->	8,000-11,400	320-380	43-47	14.5-15.0	15.3-15.8
Ultra large container ships: 2006->	14,500	380-400	56.4	15.5	16.4
New-panamax: 2010	12,500	366	49.0	15.2	16.1
Triple E-Class	18,270	400	59.0	15.5	16.4
CSCL 19,100 Class	19,100	400	58.6	15.5	16.4
MSC Oscar	19,244	400	59.0	15.5	16.4

- China Shipping and MSC confirmed current orders to be extended to 19-20,000TEU.
- Other lines to follow – Maersk Line, CMA CGM, UASC all committed to larger tonnage >20,000TEU.
- Ship cascading into secondary trade lanes will continue.

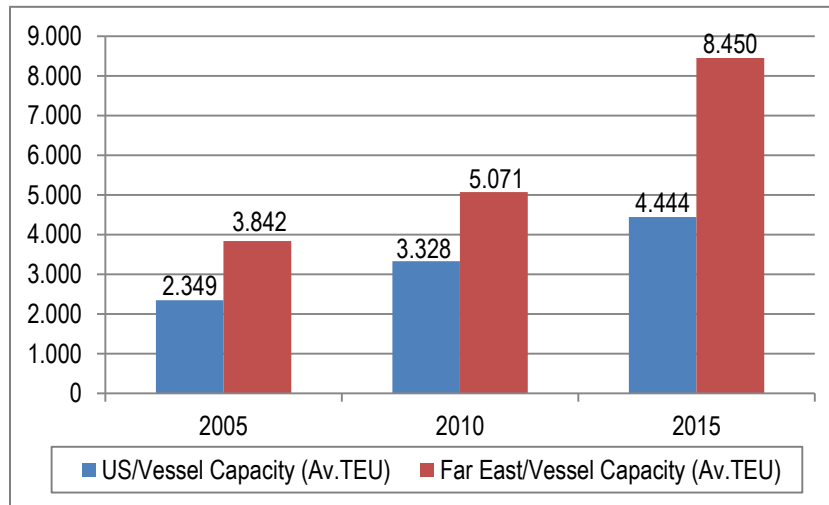
\* Maximum draught is rarely realised, even when vessels are fully laden, so required berth depth is less in practice.

Source: Ocean Shipping Consultants

# Ship Size Increases 2013/15



# USEC & Far East Trade Services calling at Livorno, Genoa and La Spezia Ports



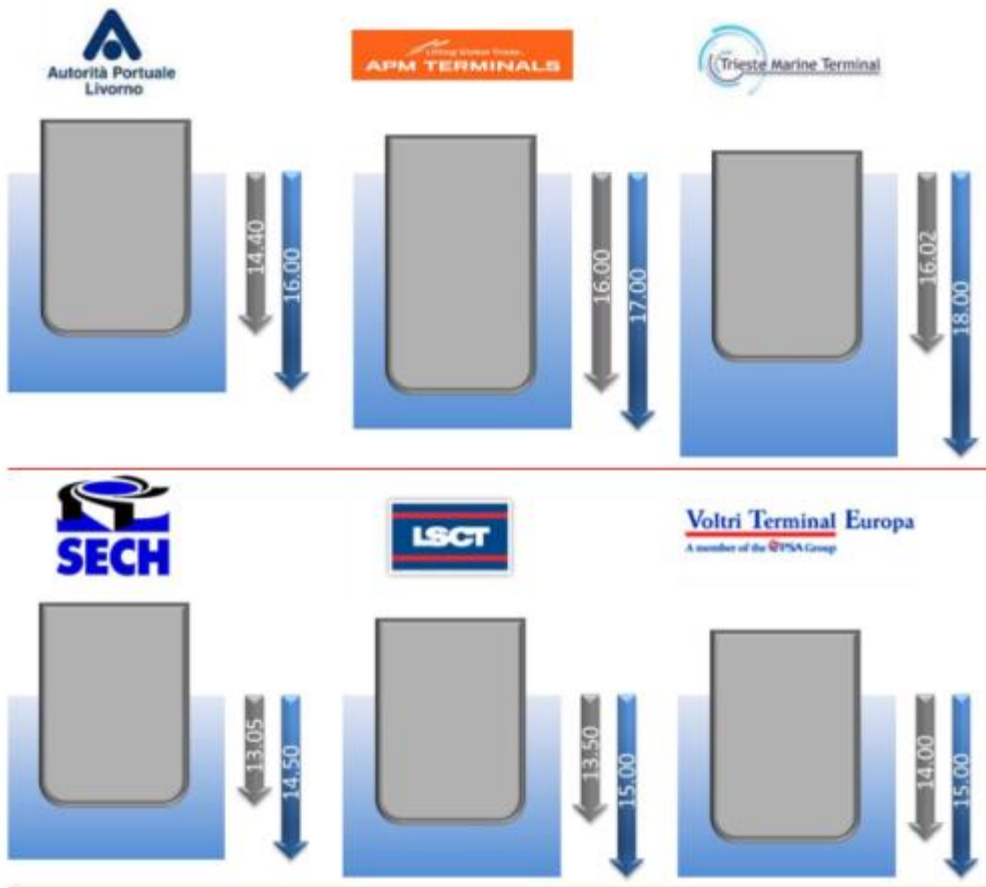
- Mainline vessels calling at ports in the region have been increasing gradually since 2005.
- Graph shows increases on USEC and FE trade lanes.
- Expectation therefore of a need for deepwater in the region to handle the largest available vessels (18,000teu+) especially on the Asia-Europe trade lane.
- Feeder vessels also increasing and expecting to continue to do so as a result of increased t/s volumes.

# Main Competitive Port System



- Main competition to the project comes from the two terminals in Genoa (SECH and Voltri) and La Spezia.
- In addition, the developing APMT facility in Vado Ligure will offer deeper water and potentially confirmed liner volumes.
- LSCT is looking to expand, but there is little room for expansion at either Genoa facility, hence the introduction of the Vado Ligure facility.
- Facilities in Venice, Marseille and Rome offer links to more diverse markets and are not able to handle large vessels.

# Comparative Water Depth (m) and Draft (m) of Major Livorno Port Competition



- It should be stressed that water depth is not the only factor that shipping lines look at when choosing terminals, but it is a key component for acceptance of ULCSs.
- Also relevant are length of berth; strength and size of quay; number and type of STS gantry cranes; hinterland connectivity and fixed terminal operators.
- It is important that LPA takes the opportunity to “future proof” the terminal against introduction of larger vessels by offering 18m depth.
- Current plan for 16m is ok for current vessel sizes calling in the region and for short-term.
- Vado Ligure (17m) and Trieste (18m) already offer greater depth and Livorno should at least be able to match the competition.

# Italian Freight Village System

- There are 23 freight villages to date the most significant portion of which are in the north of Italy / south to Rome and hence of use to Livorno for transit reach.
- Emphasis of Italian logistics system structure via freight villages.
- Location of freight villages chosen on basis of many factors but including the connections to major ports.
- Livorno is well placed for road/rail links to Bologna Int., as well as relatively strong connections to north Italy and central Italian markets.
- Very little rail movement of containers currently, but in the future there is a need to develop hinterland links to the north via train/intermodal.



# Road and Rail Network Accessibility

	Road accessibility		Rail accessibility	Connections with Freight villages
	Towards NORTH	Towards SOUTH		
Port of Livorno	Good	Inadequate	Adequate	Good
Port of Genoa	Adequate	Inadequate	Adequate	Good
Port of La Spezia	Good	Inadequate	Adequate	Good
Port of Venice	Good	Adequate	Good	Good
Port of Civitavecchia	Adequate	Good	Adequate	Adequate

Source: Livorno Port Authority





# Maximum Size of Vessels Accommodated

Terminal	Depth (m)	Max.Capacity (TEU)	Required-USEC		Required-FE	
			Current	Current	Future	Future
Europa Platform	16.0 (18.0)	12,500 (18,400)	4,500	8,500	8,500	18,400
Darsena Toscana	11.8	3,000	4,500	8,500	8,500	18,400
Vado Ligure	17	18,400	4,500	8,500	8,500	18,400
VTE	15	8,000	4,500	8,500	8,500	18,400
SECH	14.5	6,400	4,500	8,500	8,500	18,400
LSCT	14	5,000	4,500	8,500	8,500	18,400
Trieste	18	18,400	4,500	8,500	8,500	18,400
Fos	15	8,000	4,500	8,500	8,500	18,400
Salerno	9.7	2,500	4,500	8,500	8,500	18,400
Civitavecchio	14	5,000	4,500	8,500	8,500	18,400

Source: Ocean Shipping Consultants

# Direct Cost Options ex Far East

	Milan	Bologna	Padua	Rome	Turin	Parma	Munich	Basle	Vienna	Budapest
Europa Platform	1759.34	1345.78	1751.88	1856.12	1941.47	1368.54	3160.55	2900.08	3703.19	3485.36
Vado Ligure	1214.65	1811.40	2045.37	2558.34	1325.57	1458.48	2924.24	2437.41	3761.26	4113.00
VTE	1278.60	1875.36	2109.33	2622.29	1389.52	1522.43	2988.19	2501.36	3825.21	4176.96
SECH	1261.50	1858.26	2092.23	2605.19	1372.42	1505.33	2971.09	2484.26	3808.11	4159.86
LSCT	1608.79	1586.15	1990.55	2341.73	1792.89	1212.14	3032.03	2799.47	3742.69	4097.34
Trieste	2221.28	1754.71	1352.20	3135.12	2616.42	1992.52	2467.58	3227.27	2414.86	2659.83
Fos	2769.77	3259.69	3682.63	3759.31	2301.55	2968.22	4050.01	3197.68	4246.52	4530.25
Salerno	3904.15	3413.20	3802.78	2075.62	4025.08	3541.36	4301.44	4283.81	4478.58	4759.97

Source: Ocean Shipping Consultants

- The ability to handle large vessels – especially on the main arterial trade lanes - will have a major bearing on the total built-up costs for inland destinations, nine out of ten of which are better served via a deepwater facility.
- The remaining cost distinction is mainly a result of the geographical position of the port related to the final inland destination.
- Trieste remains better placed to handle some of the more distant central European destinations whereas Vado Ligure and Europa Platform will be better placed to handle northern Italian cargo.
- In addition to costs, reliability, frequency and efficiency will all need to be discussed with shipping lines.

# Direct Cost Options to US east coast

	Milan	Bologna	Padua	Rome	Turin	Parma	Munich	Basle	Vienna	Budapest
Europa Platform	1605.98	1192.41	1598.52	1702.75	1788.10	1215.18	3007.18	2746.71	3549.82	3331.99
Vado Ligure	1057.86	1654.62	1888.58	2401.55	1168.78	1301.69	2767.45	2280.62	3604.47	3956.22
VTE	1057.86	1654.62	1888.58	2401.55	1168.78	1301.69	2767.45	2280.62	3604.47	3956.22
SECH	1040.76	1637.52	1871.48	2384.45	1151.68	1284.59	2750.35	2263.52	3587.37	3939.12
LSCT	1378.47	1355.82	1760.22	2111.41	1562.57	981.81	2801.70	2569.14	3512.36	3867.02
Trieste	2106.09	1639.51	1237.01	3019.93	2501.22	1877.33	2352.38	3112.08	2299.67	2544.63
Fos	2535.52	3025.44	3448.38	3525.06	2067.30	2733.97	3815.76	2963.43	4012.27	4296.00
Salerno	3698.89	3207.94	3597.52	1870.36	3819.82	3336.10	4096.18	4078.55	4273.32	4554.71

Source: Ocean Shipping Consultants

- For the USEC service it has been assumed that the largest vessels likely to be deployed are 8,500TEU capacity which negates the ULCS advantage of deepwater ports.
- There is thus a much larger split in terms of the relative built-up costs than is envisaged on the Far East trade where the ship size revolution effect has progressed much further.

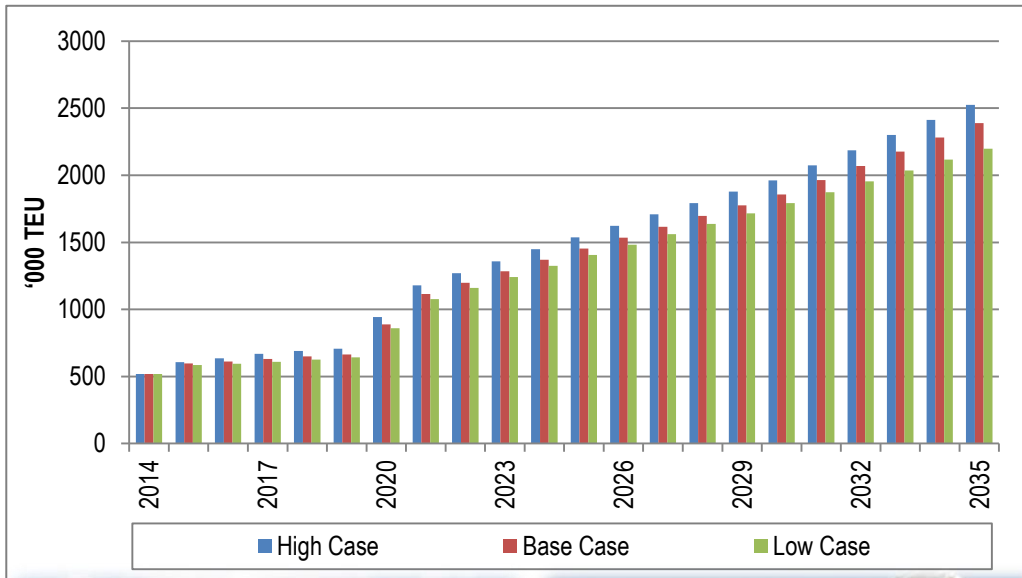
# Livorno Europa Platform SWOT Analysis

Strengths	Weaknesses	Opportunities	Threats
Planned relatively deepwater in the near term	Shallower water than Vado Ligure and Trieste	Improve customs clearance times	Failure to improve water depth to 18.0m will lose competitive advantage to Vado Ligure and Trieste
Good potential for transit markets	Productivity levels lower than t/s hubs	Potential to attract major lines with larger vessels - 18,000TEU possible	Accelerated development of Collata Bottolo
Significant local market in Liguria and north Italian regions	Need for deeper water alongside (especially from 2018)	Scope for dedicated/priority arrangements with major lines	Failure to deepen port would hit competitive position - loss of major opportunity
Ability to combine transit and import/export containers	Customs reputation not good but potentially better than Genoa	Scope to further boost productivity	
Reasonable cost structure		Scope to combine local and transit business	
Reasonable levels of productivity		Marginal potential for local transshipment	
Good rail connection direct to the port		Barge direct from terminal into hinterland	

Source: Ocean Shipping Consultants



# Livorno Port Demand Less Transshipment

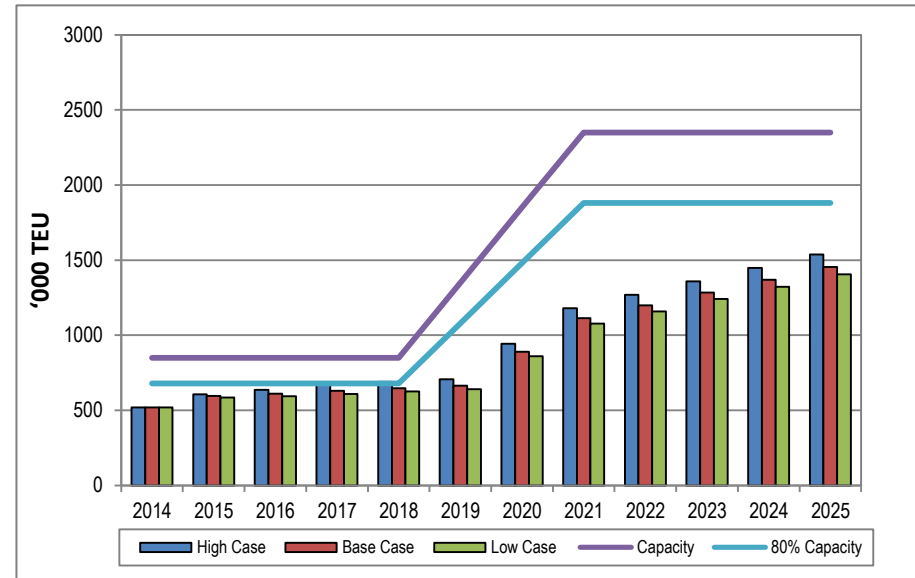


- Livorno f/c increase from 0.58m TEU in 2014 to 0.93-1.02m TEU in 2020; 1.49-1.63m TEU in 2025; 1.90-2.08m TEU in 2030 and 2.33-2.67m TEU in 2035.
- Conservative share of 13.8% of the local market has been assumed initially.
- Europa Platform operational from 2019.
- Transshipment is unreliable and so not shown in this graph.
- “Ramp up” from 2019-2021
- Share of local to increase to 23% in 2025; 25% in 2030 and 28% in 2035 based on deepwater advantage.
- Share of limited transit volumes to increase to 30% in 2025; 40% in 2030 and 50% in 2035.
- T/s to increase from 17% in 2021 to 20% in 2035.

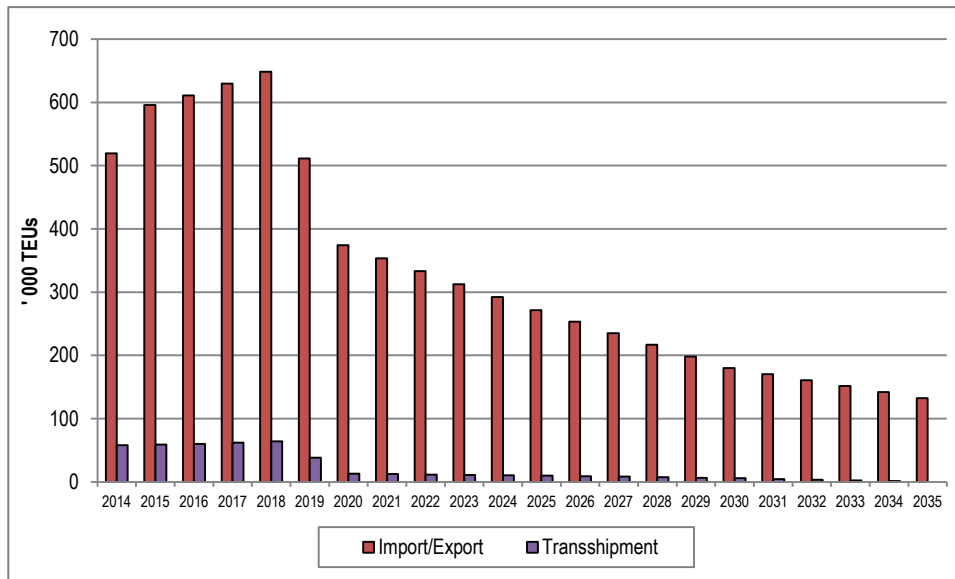


# Livorno Port Supply/Demand Balance

- Only accurate capacity developments for 5 year time scale. Most developments based on “subject to demand”
- For Livorno in isolation, the introduction of the Europa Platform will provide much needed capacity from 2019 and especially from 2021.
- Can avoid any congestion issues (80% utilised) from 2018 and will have capacity to meet demand until 2030/31 when Base Case projections again anticipate 79.0/83.6% utilisation.
- For the region as a whole, S/D balance suggests that ports are already >80% utilised and in need of more capacity.
- Regional volumes are expected to increase from 4.49m TEU to 5.68-6.21mTEU in 2020; 6.40-7.01m TEU in 2025; 7.22-7.92m TEU in 2030 and 7.86-8.87m TEU in 2035.
- Excluding t/s and there remains a need for the Europa Platform capacity from 2017 and additional further capacity required from 2025.



# Livorno Revised Demand Forecast "Do Nothing" Approach



- The “do nothing” approach is based on assumption that Livorno maintains its current market share until 2019 when new capacity comes on stream at Vado Ligure.
- At this point, Livorno is expected to lose its share of local cargo as shipping lines start to switch to deepwater facilities that can handle the bigger vessels.
- Share of local market is expected to drop by the same share that we assumed it would increase for Europa Platform project, i.e. down from 13.8% to 7.6% in 2021 and continue to drop to 5% in 2025; 3% in 2030 and 2% in 2035.
- No transit cargo is likely to develop with no ULCSs able to call at the facility.
- Transshipment will reduce considerably with no deepwater berths although some feeder volumes may remain initially until it disappears completely by 2035.
- Failure to develop the port will result in continued reduction in volumes until only 0.13m TEU are expected in 2035.

# Thank You



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