



Catching the Wave

UK maritime professional services
competitiveness study



Produced in partnership with the
City of London Corporation



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Foreword



Maritime professional business services have been at the heart of both the UK and London's economy for centuries, reflecting the UK's historical role as a leading maritime nation. As

revealed in *The UK's Global Maritime Professional Services: Contribution and Trends*, published by the City of London Corporation in 2016, the sector continues to play a major role, contributing \$5.6bn p.a. to UK GDP and employing over 10,000 people in highly skilled jobs. However, as that analysis also revealed, the UK has been gradually losing market share, as other maritime centres build their capabilities.

This new report published by Maritime London updates the analysis from 2016, but focuses more heavily on understanding the reasons behind the UK's market position and what more can be done to secure our position and capture more of the new activity in the shipping industry. In particular it examines why the UK has historically been so strong in maritime services, how recent economic and political changes have affected this, and how we compare across the key factors for success to competing centres globally.

The report also provides a roadmap of actions which, together, industry and government can implement to strengthen the UK's position, and play on a level field with the other leading maritime centres. These actions include growing our base of ship owners, extending our leadership in

technology, and continuing to nurture our world class talent pool. This roadmap is complementary to government's Maritime 2050 strategy which looks to strengthen the future of the wider maritime sector in the UK.

While we should not be complacent, there is much to celebrate. The UK remains the clear leader in maritime professional business services, in terms of overall market share, the depth of expertise, and the breadth of services available in the cluster. I was also heartened to hear about the degree of goodwill towards the UK from many of the participants interviewed as part of this report. Even those who are now doing less business in the UK are still very positive about what we have to offer, and are keen to see us build on these strengths. Following the recommendations in this report will ensure that the UK remains the market leader in the years ahead.

I would like to thank the Department for Transport and the City of London Corporation for their support in sponsoring this report. I would also like to thank the many people and organisations who contributed their time and insights, without which this report would not have been possible. This degree of commitment and enthusiasm makes me very positive about the future of our sector.

A handwritten signature in black ink that reads "Jon Mountevans". The signature is fluid and cursive.

Lord Mountevans
Chairman, Maritime London

September 2019

Scope of study

The maritime business services sector plays a significant role in the UK's economy and is a major UK export to international markets. PricewaterhouseCoopers LLP (PwC) was commissioned by Maritime London Limited to conduct this study into the maritime professional business services (MPBS) industry. For the purpose of this study maritime business services include:

- Shipbroking
- Maritime insurance
- Maritime law
- Ship finance
- Classification
- Ship management
- Accounting
- Consulting
- Education

This study examines the evolution and current position of the UK's MPBS sector, building on 'The UK's Global Maritime Professional Services' report authored by PwC which was published in 2016. The report focuses on three key areas of analysis: the overall performance of the London MPBS sector compared to other competing maritime hubs, identification and evaluation of the drivers of success for UK maritime services, and recent global developments impacting the UK's relative competitive position. The report also suggests a roadmap to support and encourage the continued global leadership of the UK within maritime business services.

The key competing centres for comparison have been identified through primary research and market data, and are focused on the following hubs of maritime activity:

- Dubai
- Hamburg
- Hong Kong
- Oslo
- Shanghai
- Singapore












In addition to these, other key centres are discussed where relevant within the sector (such as Greece/Piraeus and US/New York).

This study has utilised a wide range of sources, including primary financial data, data from international industry associations, government statistics, company websites, LinkedIn profiles, and existing literature. We have also conducted 24 interviews, meetings, and industry roundtables with MPBS providers, ship owners, charterers, and other industry participants.

We would like to thank the following companies and organisations for their participation and assistance:



Key findings

| | | | | | | |
|---------------------------------|--|---|---|--|---|--|
| UK performance |  <p>The UK is the leading global centre for maritime professional business services...</p> |  <p>...with the largest market share in insurance, law and ship broking.</p> |  <p>But competing centres are challenging the UK's lead and gaining share</p> | | | |
| Strengths and weaknesses |  <p>Strengths</p> <ul style="list-style-type: none">• Deepest talent pool and world class education• Leader in MPBS technology• Strong charterer presence• Cluster effect of existing MPBS companies• Trusted business environment with an impartial legal system• Attractive quality of life | |  <p>Areas for improvement</p> <ul style="list-style-type: none">• Ship owner presence• Availability of ship finance• Degree of government support relative to some competing clusters | | | |
| Recommendations |  <p>Strengthen the core of ship owners and charterers</p> |  <p>Deepen the UK lead in specialist segments</p> |  <p>Rebuild the UK's position in ship finance</p> |  <p>Extend the UK's lead in MPBS related technology</p> |  <p>Further strengthen the talent pool</p> |  <p>Enhance cluster effect benefits</p> |

Recent performance of the UK MPBS cluster

The UK is the global leader in MPBS

The UK has long been the global leader in MPBS and still maintains a c. 25% share of the overall market. It is the largest centre globally for three services (Insurance, Law, and Shipbroking) and holds third place for third party Ship Management, and fourth place for Classification. Its only area of weakness is Finance, although even here there is considerable strength in supporting services in law, consulting, and specialist areas of accounting.

In part this success reflects the UK's prominent maritime history, with marine insurance markets and ship classification having been invented in the UK, and other services having developed leading positions as a consequence of the UK's historical trading and maritime strength. But while other aspects of the UK's maritime presence such as ship owning and ship building have diminished in importance, MPBS remains an important contributor to the economy, providing around 10,000 jobs and \$5-6bn p.a. of Gross Value Added (GVA)¹. This success has come from combining our maritime heritage with the competitive advantages that sustain our broader service economy including a skilled workforce, stable business environment, and respected legal system.

As well as being the largest cluster, the UK also differentiates itself on the depth and complexity of services it provides:

- In Insurance the UK has a c. 25% share of the overall market but significantly outperforms in more complex areas of risk. For example the UK has almost 70% of the market in offshore energy, and over 50% of the Protection & Indemnity (P&I) market with eight of the 13 P&I clubs managed from the UK. In addition the UK market underwrites the IGP&I reinsurance contract, one of the largest reinsurance contracts in the world. Insurance is the largest MPBS service for the UK and employs c. 6,000 people.
- Similarly, in maritime law the UK is the clear global leader with over 400 law firm partners focusing on maritime law, more than twice as many as the nearest competing centre. English law is used in a large proportion of maritime contracts globally, which, combined with the high standing of the UK judicial system, its depth of case law in maritime, and dedicated maritime court, provides a unique competitive advantage. This is reflected for example in the UK's success in maritime arbitration, with around 80% of global maritime disputes arbitrated in London.
- While other clusters have narrowed the gap in Shipbroking, the UK still remains the leader with more brokers than any other cluster. In addition, seven of the top twenty shipbroking firms (including two of the top three) are headquartered in London. This

¹ Source: The UK's Global Maritime Professional Services: Contribution and Trends, 2016

ensures that the UK remains one of the key centres for shipbroking as it is at the centre of talent and information transfer within these companies.

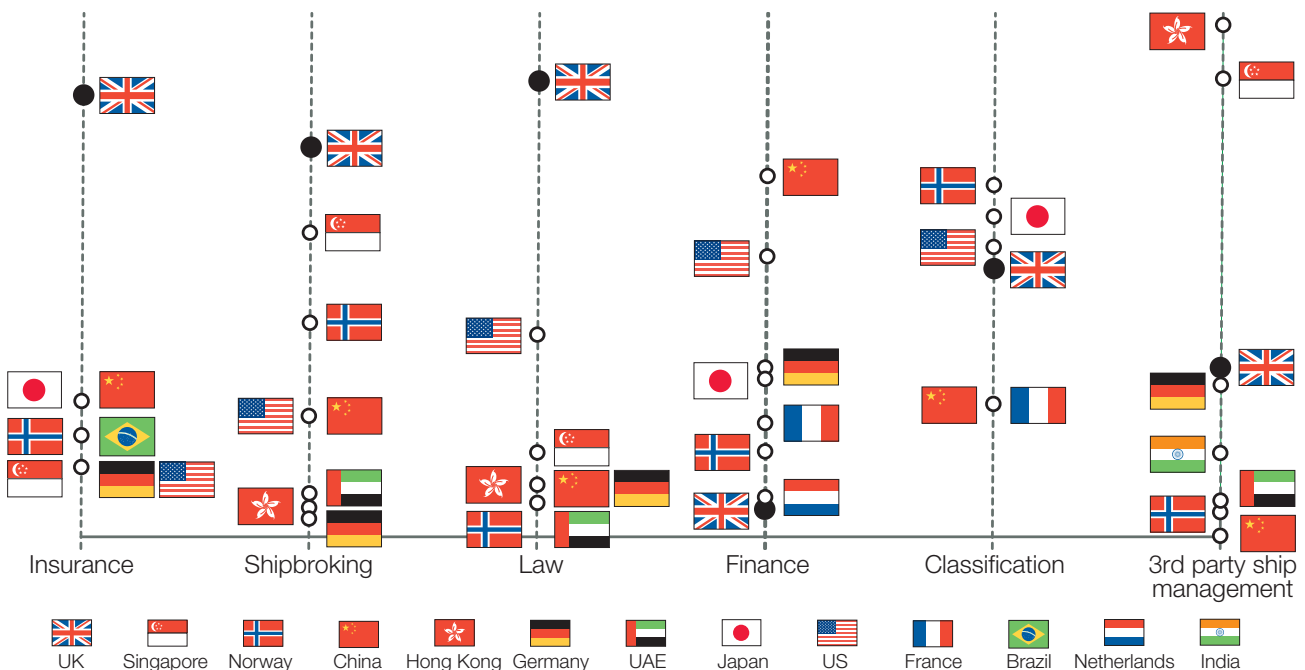
- The UK is also a major player in the Classification sector. Lloyds Register is one of the four large global classification companies which between them class over 70% of the global fleet. As such it is a major contributor to developing the technical expertise of the cluster in areas such as digital technology, low carbon fuels, and autonomous vessels.
- While Hong Kong and Singapore have larger third party Ship Management sectors, the UK is home to V. Group the largest third party ship manager globally. In addition, the UK has particular depth of expertise in the management of LNG and LPG vessels, which are among the most technically challenging vessel types.

Finally, In addition to this strength in each of the individual services, the UK stands out for the overall breadth of its cluster and its ability to combine multiple services in one location. While around ten competing centres have significant share in at least one segment of MPBS, only Singapore comes close to replicating the UK's breadth of maritime business services, but remains a distant second or third in areas such as Insurance and Law.

However, the UK has been gradually losing share for a number of years
















Despite the UK's leading position challengers have emerged in recent years. Our previous study for the City of London and Maritime London in 2016 indicated that the UK had lost share in Law, Shipbroking, and Finance in the prior years. As can be seen in Figure 2, this trend has continued since then, with further share being lost in the Law, Shipbroking, and Finance

Figure 1: Indicative market share of selected maritime centres by service, 2018



Source: IUMI, Financial reports, Company websites, LMAA, LCIA, SIAC, SCMA, EMAC, PMAC, CMAC, Petrofin, Clarksons, Marine Money

Figure 2: UK maritime business services global rank and market evolution by sector, 2015-2018

| Sector | Global rank | Evolution of UK market share | Absolute UK market growth | Comments | Key: | | | |
|---|----------------|---|---|--|------|------|------|-----|
| | | | | | 0% | 1-2% | 3-4% | >5% |
|  Insurance | 1 |  |  | <ul style="list-style-type: none"> Loss of share in lower complexity risks such as cargo and hull Also reflects adverse mix change from the large decline in the offshore sector in which the UK has a high share | | | | |
|  Shipbroking | 1 |  |  | <ul style="list-style-type: none"> Absolute size of firms in the UK continues to grow in broker numbers, although revenue is volatile year to year depending on freight rates However staff mix is continuing to gradually move to other centres | | | | |
|  Law | 1 |  |  | <ul style="list-style-type: none"> Significant lead over other centres However, various indicators, including partner and revenue mix at leading firms, suggest law firm activity is moving elsewhere UK maintains leading position in arbitration despite challenges from other centres | | | | |
|  Classification | 4 |  |  | <ul style="list-style-type: none"> The UK has seen an increase in the gross tonnage classified by Lloyds Register (5% p.a. 2015-18), with a resultant market share increase of 1ppt | | | | |
|  Finance | Outside top 10 |  |  | <ul style="list-style-type: none"> Low share in finance due to lack of significant bank lending presence and weak capital markets Share has continued to decline as remaining UK shipping loan portfolios have been sold and several London branches of foreign banks have closed. This has been partly offset by some increase in alternative finance provision | | | | |

Source: IUML Financial reports, Company websites, LMAA, LCIA, SIAC, SCMA, EMAC, PMAC, CMAC, Petrofin, Clarksons

segments, and a reversal of the previously positive trend in Insurance (partly driven by the weak Offshore sector in which the UK has a particularly strong position). The reasons for this decline are considered in detail later in this report, but include a shift in both shipping activity and ship owners to Asia, government incentives in other countries to attract the sector, and a range of factors specific to each segment. As a consequence the main centres to have gained share in this period have been the US, China, Norway, and particularly Singapore.

This decline in share has occurred within the context of a relatively stable competitor mix. Whereas in many other sectors of the economy, foreign competition emerges as new companies develop in those countries and compete with UK businesses, in MPBS the leading companies in each segment are largely the same as ten years ago. The loss of share has therefore principally manifested itself through these existing companies employing a higher proportion of their staff in competing clusters at the expense of the UK.

In several segments of MPBS the UK's absolute output has grown slightly or remained stable. However, competing centres have grown more rapidly, as they have captured more of the new activity in the shipping industry, resulting in a loss of market share for the UK. In the 2016 report *The UK's Global Maritime Professional Services: Contribution and Trends*, we identified that the MPBS sector contributed \$5.6bn p.a. to UK GDP and employed over 10,000 people in highly skilled jobs, as part of a global industry worth c. \$20bn p.a. We estimate that if the UK had maintained its market share over the last two years, this would have resulted in an additional \$700m p.a. in GVA for the UK economy. Consequently, the strength of the MPBS sector has a direct impact on the UK's economic success.

Nevertheless, the UK MPBS sector starts from an overall position of strength with the largest cluster, an unrivalled depth of services, and a world leading overall brand. While there are a number of challenges, there are also opportunities to address these and strengthen the cluster further.

The leading global exporter of MPBS

In several segments of MPBS (for example Shipbroking and Law) the majority of the leading firms globally are companies whose origin is in the UK. Even where centres such as Singapore or Hong Kong have taken share, much of this has been by UK companies which have expanded in these centres, and shifted the location where they conduct business.

In one sense these can be seen as successful exporters, with profits flowing back to the parent in the UK. This also provides other benefits to the UK cluster, for example higher value or more complex work being directed within these firms back to the UK, or the centralisation of knowledge and technology development here. However, as knowledge intensive industries, much of the value created is captured by the staff, and therefore the migration of activity overseas represents a loss to the UK economy. In addition, as many MPBS firms are partnerships, the transfer of staff to other clusters eventually results in the profit also being lost to the UK economy as an increasing proportion of partners are created in other clusters. Over time therefore, while nominally British, many companies in the sector have become more international than UK based. In a limited number of cases, historically UK based firms have moved their headquarters to other clusters (for example Howe Robinson to Singapore).

Drivers of success in maritime professional business services

In order to understand how the UK's market share in MPBS is evolving, we have identified a range of factors which affect a maritime centre's success relative to other centres. While not exhaustive, these factors explain why some centres have a strong

competitive position, and are able to attract and sustain a large number of MPBS businesses. The most successful centres typically have a strong performance across several of these drivers.

Figure 3: Key factors supporting the strength and attractiveness of a centre for MPBS

| Strength of maritime professional business services sector | | | | | | | | |
|---|---|---|---|--|---|--|--|---|
| Presence of ship owners | | | Presence of charterers | Cluster effect | Talent and education | Technology | Government support | Other factors |
| As the main customers for MPBS the presence of ship owners in a cluster is a key factor for success | | | | | | | | |
| Corporate & personal taxation | Trade lanes | Availability of finance | As the typical transaction counterparty, charterers also drive services use in some sub-sectors | Clusters of complimentary MPBS services are self-reinforcing | Access to a highly skilled workforce through world leading educational institutions and seafarers moving into onshore roles increases a maritime hub's attractiveness | Technology is increasingly important for MBPS sectors, providing both jobs in the cluster and potential competitive advantage to firms located there | Government initiatives can support the maritime service cluster and improve the attractiveness of a location | Other less tangible factors which affect business location decisions, such as overall visibility of maritime in the country and its attractiveness as a place to live and do business |
| Personal and corporate taxation impacts the appeal of a centre for ship owners and their businesses | A shift in the global mix of trade impacts the overall attractiveness of some locations versus others | Ship owners are reliant on finance providers for capital, and are therefore attracted to centres with strong capital availability | | | | | | |

In the subsequent pages we assess each of these factors across three questions:

- Why is the driver important for an MPBS cluster?
- What have been the key trends affecting this driver in the UK?
- How does the UK compare to other leading MPBS centres?

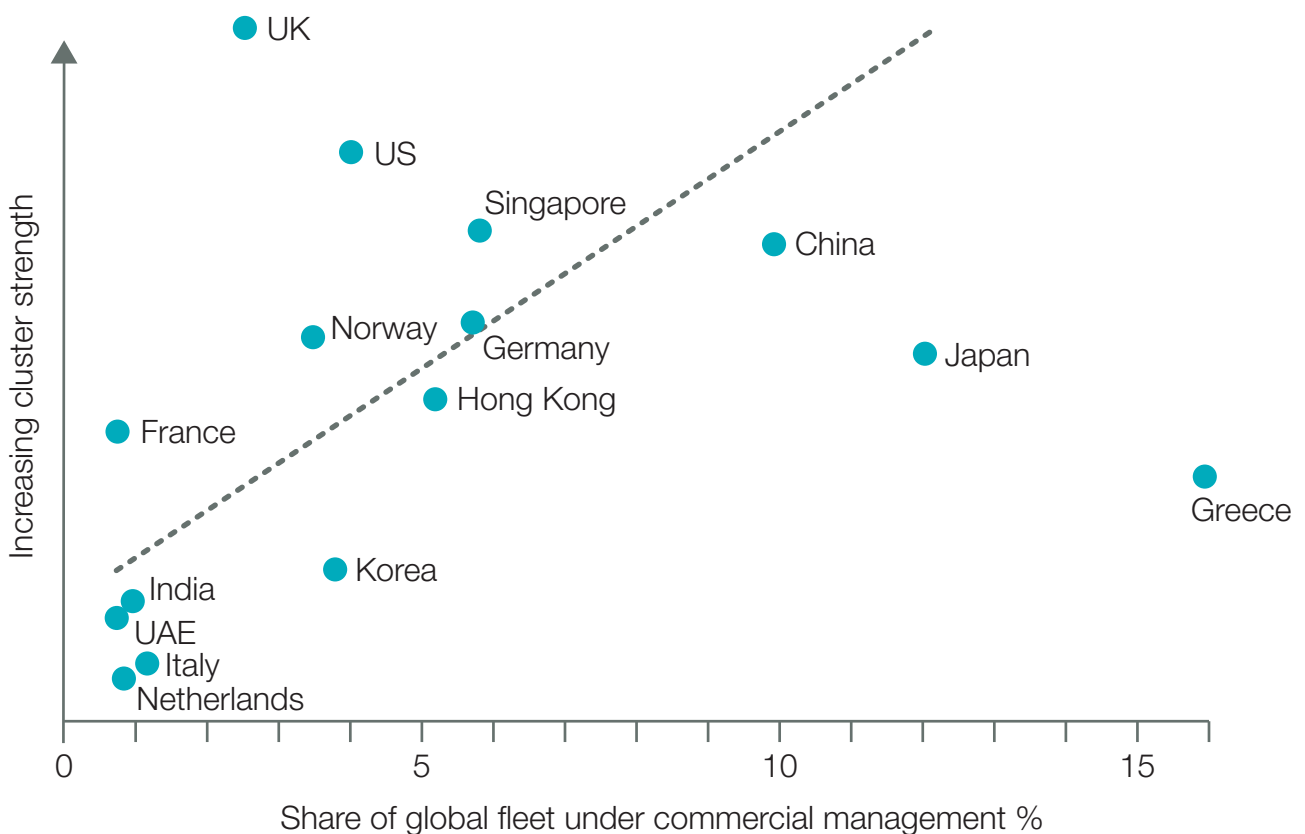
Presence of ship owners in UK

Importance of owners to the cluster

As the main customers of MPBS providers, ship owners form the 'core' around which a cluster develops. While communications technology has gone some way in eroding the importance of distance, the physical presence of ship owners in the same

location is still a crucial driver of the strength of an MPBS cluster. As can be seen in Figure 4, for the top 15 MPBS clusters there is generally a strong correlation, between the size of the ship owner base and the strength of the cluster.

Figure 4: Strength of top 15 MPBS clusters versus ship owner base



Source: PwC analysis. Note: cluster strength measured based on market share across insurance, shipbroking, third party ship management, classification, and finance

This view was supported by interviewees for whom there was a strong consensus that physical proximity to ship owners is still important for ease of communication, exchange of information, and to build trust and relationships, all of which contribute to a strong services sector. This latter point was seen as particularly important given the commercially sensitive nature of many MPBS services. In general, both owners and MPBS providers believe they are more likely to do business with counterparts in the same cluster.

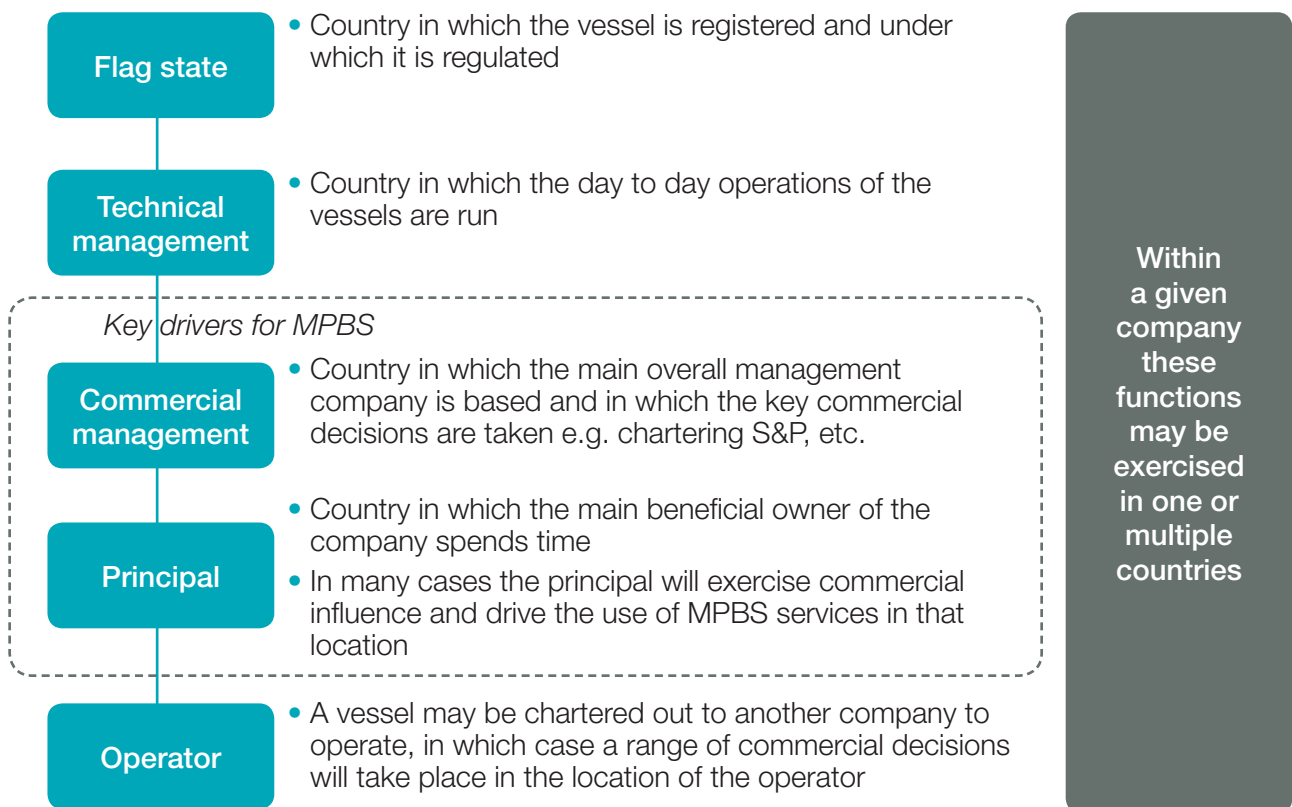
The UK is one of the clear outliers on Figure 4 with a much stronger MPBS sector than its ship owner base would suggest. This reflects its other strengths in terms of MPBS heritage, cluster effect benefits, depth of

talent, and legal system. Nevertheless, the UK's comparative lack of ship owners is a weakness relative to other centres and therefore needs to be a key area for improvement to maintain a healthy MPBS cluster.

The location of shipping companies is not straightforward to define

The international nature of the shipping industry and the mobility of its assets means that shipping companies can be highly flexible in where they chose to locate. Indeed, as shown in Figure 5 for any given vessel there are likely to be multiple countries in which management activity relating to the vessel takes place.

Figure 5: Multiple potential locations in which management and services activities take place



From the perspective of MPBS, the most important location is typically where the commercial management of the vessel takes place, as this is where key decisions around chartering, sale & purchase, etc. are made which in turn drive the use of services such as shipbrokers, finance, and lawyers.

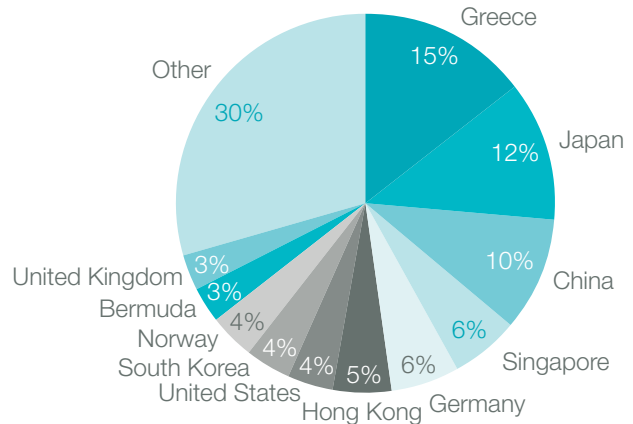
However, particularly for individual/family owned companies (which account for over 50% of the global fleet, with the remainder largely comprising listed companies and government controlled entities), the location in which the beneficial owner of the company (“the Principal”) is located (if different) is often also an important location. A consistent feature of our interviews was that the presence of Principals has a positive commercial effect on the cluster, thorough, for example, the development of relationships with MPBS providers. Given that Principals are typically high net worth individuals, the location of the principal also has a secondary advantage in that it drives further economic activity outside of the MPBS sector. Therefore, throughout this report we take ship owners to mean both the commercial management company and the Principal (if applicable).

The UK is at a significant disadvantage in terms of owner presence

Based on the location of the commercial operation of vessels, the UK lags considerably behind other MPBS centres.

Figure 6: Global fleet by country of commercial management 2018, Gross tonnage

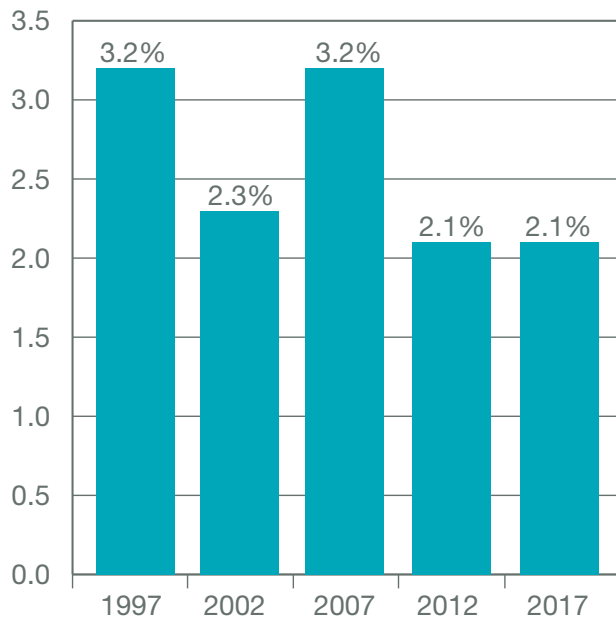
Note: Does not sum to 100% due to rounding



Source: Clarksons World Fleet Register

At the same time, the presence of owners is not an automatic guarantee of success in MPBS. The MPBS sectors in Greece, Japan, and China lag behind the leading clusters, despite controlling almost 40% of the global fleet between them. Conversely, as can be seen from Figure 7, the UK has had a low share of the overall global fleet for many years, but has still maintained a strong MPBS cluster due to its other attractions such as its depth of expertise, talent pool, native English language speakers, and stable business environment. This also points to the incumbency benefit of having an existing services cluster and the difficulty of replicating this, as we consider later in the report. Nevertheless, the larger number of owners based in Singapore, Germany, and Hong Kong relative to the UK is a significant strength for them.

Figure 7: UK owned fleet as a percentage of global fleet, Deadweight tonnage

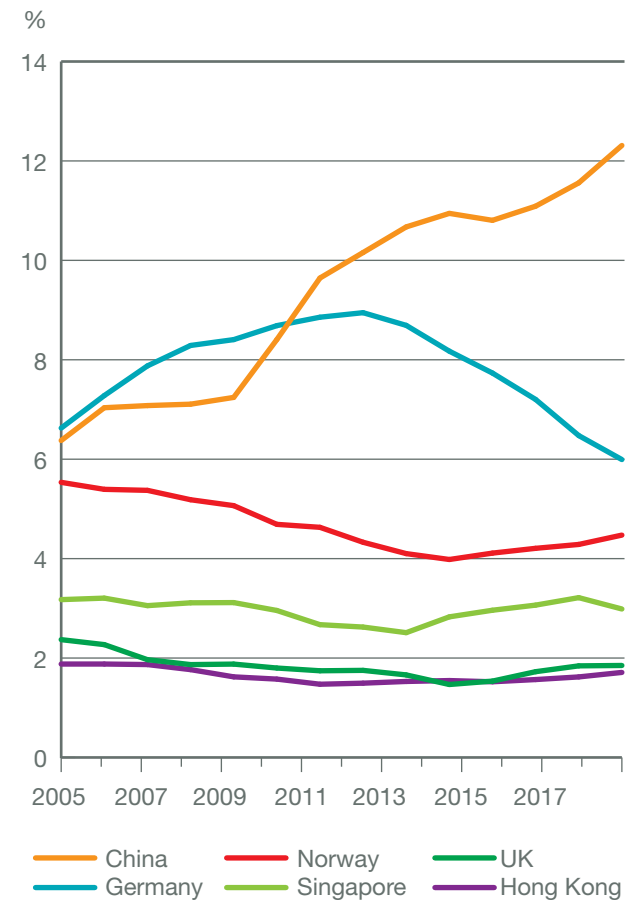


Source: DfT, UNCTAD

The 'ownership gap' is not widening as much as it is perceived to be

There is a widespread perception within the industry that competing centres have been gaining share of ship ownership in recent years, and that this has driven their growth in MPBS relative to the UK. However, as shown in Figure 8, with the exception of China, most competing centres have also had a declining or flat share of global fleet ownership. It should also be noted that the absolute level of tonnage managed in the UK has increased, from 15.0m GT in 2005 to 24.1m GT in 2018, a growth rate of 3.7% p.a. However share has been lost as other countries (in particular China) have grown more rapidly, with the global fleet growing at 5.7% p.a. over the same period.

Figure 8: UK and key competitors' share of global fleet, Gross tonnage



Source: Clarksons World Fleet Register

Note: measured on nationality of principal basis rather than location of commercial management

At the same time, the ownership statistics do not tell the whole story. As noted above, commercial management of the vessel can often take place in a different location to the ultimate owner. Singapore and Hong Kong perform particularly well in this regard, with an additional 2.5-3.5% of the global fleet commercially managed from these locations beyond what is owned in them, reflecting their attractive tax environment and efforts to attract commercial managers. A significant proportion of this comes from Chinese owned companies, and it is therefore likely that they have benefited from the overall growth of the Chinese fleet in recent years.

However, the UK has been affected by the loss of non-UK principals

In addition, the UK MPBS sector has historically benefited from the activity of non-UK principals (mainly from Greece and Norway) who nevertheless spent a significant portion of the year in the UK. These are typically owners of small to medium sized private shipping companies in which the owner still has some involvement. Therefore, while the commercial and operational management of these companies may be based outside of the UK, they are still large users of UK MPBS.

However, recent years have seen a significant decline in the presence of foreign Principals, largely as a result of changes to non-dom taxation. While empirical data is difficult to gather here, we have been provided with information by the Greek Shipping Cooperation Committee, the trade group which represents Greek ship owners in the UK. This shows that since the introduction of changes to the non-dom rules, owners representing almost 2% of the global fleet have changed their residency from UK to other countries. Given, as shown in Figure 6, that the fleet commercially managed from the UK amounts to c. 3% of the global fleet, this represents a substantial reduction in the potential customer base for UK service providers. This data is supported by commentary from our interviews that a substantial proportion of foreign Principals are now spending less time in the UK, and are conducting less business when they are here. This has the effect of reducing the demand for MPBS services in the UK and has been a further headwind to the sector.

Interviewees believe that the decline in the presence of Principals in the UK has been an important factor in the decline of the UK's position in MPBS. Improving the UK's position here is likely to require increasing the number of ship owners either based in the UK or conducting a significant proportion of their business here. At the same time, the UK's continuing substantial

lead in some areas of MPBS such as complex insurance and arbitration, despite a longstanding absence of a significant owner base, suggests that these segments are less driven by the local presence of ship owners, and more by their own competitive advantages.

While the ambition to grow the UK flag is helpful, this will require the right support

In 2017 the government announced a policy to grow the size of the UK flag. While successful implementation of this policy will help support the MPBS cluster, this will require the right support and investment. While interviewees were generally positive about the UK flag, especially recent improvements to customer service, some areas for improvement were noted around availability of surveyors and speed of response in dealing with sale and purchase (S&P) transactions. In addition, while there was broad support for growing the size of the UK flag, some interviewees noted that the strategy should continue to focus on quality ship owners rather than diluting the high standards of the UK flag. This is consistent with the longer term strategy outlined in the Maritime 2050 report to ensure the UK flag is maintained as a quality brand.

Encouraging more UK owners should be a key area of focus for government and industry

Although the UK has continued to prosper despite a relatively small number of UK based owners there was widespread agreement among interviewees that encouraging more UK owners was one of the key requirements to grow the UK MPBS sector. This is reinforced by the fact that other clusters are catching up across many of the other drivers of success, meaning the UK cannot afford to lag behind in this area. The UK starts from a strong position already, with a recent study indicating that the UK would be the second choice for Greek ship owners if domestic policy changes forced

them to relocate from Greece (with 48% considering it, only marginally behind Singapore at 52%)². Nevertheless the UK should aim to position itself as the first choice for ship owners who are looking to relocate their business. Strengthening the core of ship owners is therefore one of our key areas of recommendation, including incentivisation of shipping startups, more coordinated and proactive marketing of the benefits of the UK, and reconsideration of factors which may have affected the perception of the UK such as some of the areas of personal taxation which have affected Principals.

However, the global base of ship owners should not be seen as a fixed pool or zero sum game. As the historical development of

container shipping or the current rapid growth in LNG carriers demonstrates, important new shipping segments are constantly emerging. While currently nascent, there are many promising growth areas which could become important segments in the future, including vessels used in oil field decommissioning, Carbon Capture and Storage (CCS) support vessels, and powerships. The UK is well placed to take a lead in these niches given its combination of deep financial markets and the offshore and engineering skills which are often required to operate these types of vessels. Government and industry should therefore look for ways to identify and support the development of niche and emerging shipping sectors, which, in addition to being valuable in their own right, would also expand the customer base for the MPBS cluster.

² Source: EY, Repositioning Greece as a global maritime capital, 2017

Corporate taxation

Industry and government are currently working to improve the UK's tonnage tax regime

As noted previously, the international nature of the shipping industry combined with the mobility of its assets means that shipping companies have a high degree of flexibility in choosing their location. As a response to this, the UK, in line with most other maritime centres, offers a tonnage tax regime. This enables shipping companies to opt to pay corporation tax on deemed profit based on the tonnage of their fleet, rather than accounting profits, resulting in a low effective corporation tax rate for shipping companies. This allows the UK to remain competitive against other jurisdictions, most of which operate similar schemes.

The UK Chamber of Shipping, in conjunction with the UK government, is currently undertaking a detailed study of the tonnage tax regime, involving a survey of current and potential members of the scheme. This will be used to identify a range of options to increase the attractiveness of the UK tonnage tax regime, with the aim of increasing the number of shipping companies which use the scheme. Consequently, we have not undertaken a detailed comparison of UK tonnage tax relative to competing centres. However, it is worth noting that interviewees saw the

current regime as beneficial and a strong positive for the UK's maritime overall strength, as an incentive for shipping to be based in the UK. Interviewees also identified a number of areas in which the regime could be further improved:

- Greater flexibility in the election window for opting in to the tonnage tax regime.
- Opening the regime up to a wider range of vessels, for example currently excluded offshore vessels, to maximise participation in the scheme and to encourage investment in emerging maritime segments.
- Access to R&D research tax credits for companies participating in the regime.
- Closer coordination between HMRC and DfT on tonnage tax to reduce the administrative burden on participants.
- A more flexible interpretation of the strategic and commercial management test, for example allowing UK flagged vessels to qualify automatically.

As part of the Maritime 2050 study maintaining fiscal competitiveness was identified as a key element in enhancing the attractiveness of the UK. The government should therefore give careful consideration to adopting these industry recommendations.

BEPS reforms will have an uncertain impact on the maritime sector

In 2018 the Base Erosion and Profits Shifting (BEPS) recommendation began to be implemented by OECD members. In essence the BEPS initiatives are designed to limit the ability of multinationals (across all industries) to reduce their tax liabilities by means that are perceived as being artificial. The precise impact of this will depend on how the recommendations are enacted in both domestic legislation and bilateral tax treaties, and how all the affected parties

respond. However, from the perspective of shipping company location, the key long term impact could be that more profit will need to be taxed in the locations where key functions take place, rather than where the vessels are owned. Initial indications are that this may result in shipping companies reassessing where they are located, based on a range of factors including the relative tax attractiveness of different jurisdictions and the ease of relocation. The UK should therefore ensure it is positioning itself to benefit from any changes in location which take place as a consequence of these reforms.

Personal taxation

Personal tax rules and rates have a significant role in the location of shipping companies

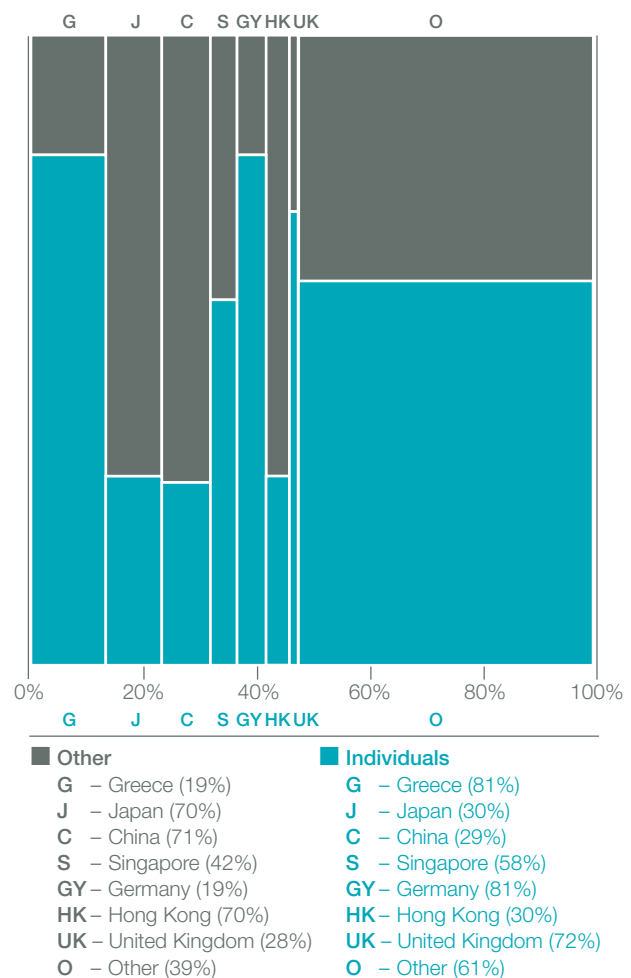
While corporate taxation is important in determining the location of shipping companies, personal taxation is also relevant. This reflects the ownership structure of shipping, with over 50% of the global fleet still controlled by individuals or families rather than listed companies or private equity firms. While state controlled and larger listed companies are typically tied to their country of origin, individual owners have greater flexibility in choosing in which country to be based. As noted previously this location will then become a key centre for purchasing decisions for the company, both due to the proximity of the Principal, and because the commercial management of the company may be located in the same country.

However, tax is only one factor in decision making process

While there is no systematic research to support this, recent changes to the taxation of non-domiciled individuals have increased complexity and cost for the individuals affected. The changes have impacted many non-domiciled but long term UK residents, some of whom will be ship owners. For some of these individuals location of residence will be affected by a variety of lifestyle and personal factors of which tax is one. Such changes may have led affected individuals to conclude that the UK is less welcoming to their business interests (even though the changes related to the taxation of individuals generally and were not linked

to specific industries). So, whilst there may be no direct impact, the tax system could be viewed as a signal of government intent and the degree to which it is open for business.

Figure 9: Share of global fleet owned by individuals versus other owners, Gross tonnage



Source: Clarksons World Fleet Register

As noted above, the approach of individual Principals to taxation varies significantly, driven by a mix of personal circumstances and preferences. However, there can be a significant incentive for Principals to be based in the most favourable locations.

Several competing MPBS centres have highly attractive personal taxation regimes

A number of the main competing MPBS centres offer potentially highly attractive tax regimes, with much lower top rates on the key personal taxes and/or a limitation of taxation to domestic rather than global income. These low rates can also be attractive for MPBS professionals, which provides a further draw to these centres.

Historically, despite the relatively high rates detailed in Figure 10, the UK was still perceived as an attractive base for Principals due to the non-dom rules which allowed them to be based in the UK without becoming liable for tax on their global income. Again, while the impact varies from individual to individual, anecdotal evidence

from interviews suggests that in many cases the implementation of the changes to the non-dom rules have encouraged Principals who were previously resident in the UK to establish residency in other countries, reducing their involvement with the UK MPBS cluster, and may have discouraged the migration of new owners into the UK.

Other high tax competitors have more lenient statutory residence rules

Other key competing centres have comparably high rates of personal taxation to the UK, and also tax income on a global basis. Consequently, for these locations the most important factor in assessing the relative attractiveness of the regimes are the rules around qualifying for statutory residency. In general, individuals would prefer not to become resident in one of these jurisdictions given the high rates. Therefore, the stricter the rules on statutory residency, the less attractive the location for a Principal, and the less time they are likely to spend there and conduct business.

Figure 10: Selected elements of tax regime in UK and low tax MPBS competitors

| Centre | Top tax rate | | | Scope of taxation for residents |
|-----------|--------------|---------------|--------------------|---------------------------------|
| | Dividends | Capital gains | Inheritance tax | |
| UK | 38.1% | 20.0% | 40.0% ³ | Global income |
| Singapore | 0.0% | 0.0% | 0.0% | Domestic and remitted |
| Hong Kong | 0.0% | 0.0% | 0.0% | Domestic income |
| Dubai | 0.0% | 0.0% | 0.0% | Not applicable as no income tax |

³ May be lower if subject to reliefs which are available to trading groups

Figure 11: Selected elements of tax regime in UK and high tax MPBS competitors

| Centre | Top tax rate | | | Statutory residency rules and other factors |
|---------|--------------|---------------|-----------------|--|
| | Dividends | Capital gains | Inheritance tax | |
| UK | 38.1% | 20.0% | 40.0% | <ul style="list-style-type: none"> Residency established by spending 16-183 days in the country depending on the number of 'ties' one has to the UK. Ties can include location of family and amount of time spent working in the UK |
| Germany | 26.4% | 26.4% | 50.0% | <ul style="list-style-type: none"> Residency established by spending 183+ days per year, or by a more subjective test around ownership of a property intended for future use |
| Norway | 30.0% | 30.0% | 0.0% | <ul style="list-style-type: none"> Residency established by spending 183+ days per year, or 270 days over two years in the country Additional wealth tax at 0.85% on net wealth Effective rate on dividends often lower due to allowances on capital invested |

As can be seen from Figure 11, the rules in the UK may apply earlier than in competing centres, with individuals who have a number of 'ties' to the UK becoming resident in a much smaller number of days than Germany or Norway. This was identified as an important issue by interviewees who particularly pointed to the test around number of working days in the UK as discouraging them from carrying out business here.

Other jurisdictions are also increasingly attractive to owners

At the same time other countries offer highly attractive regimes to Principals. For example, despite the recent introduction of

a Voluntary Contribution Agreement in Greece, equivalent to a 10% personal income tax for Greek residents on income from domestic shipping companies, the overall regime remains attractive to owners. In Switzerland the 'forfait' system allows resident foreign nationals to be taxed on living expenses rather than income. Both of these systems have proved attractive to previously UK based Principals following the recent changes in UK taxation. In addition, a number of other European countries (e.g. Italy and Portugal) have recently introduced systems similar to the Swiss. Consequently, the competition to attract Principals is likely to intensify over the coming years.

Changing global trade lanes

Asian centres have benefited from a change in global trade dynamics

Over the last few decades the global economic centre of gravity has increasingly shifted from North America and Europe towards Asia. As shown in Figure 12 Asia is now the leader in terms of inter-regional

trade and participates in over 50% of trade across regions, up 10 percentage points over the last 20 years⁴. It is the second largest region for intra-regional trade, rapidly gaining share in the last decade. As shipping activity has gravitated towards Asia this has drawn shipping companies, charterers, and MPBS providers, contributing to the growth of clusters in Asia.

Figure 12: The 10 largest global trade pairs

| Share of global trade | | | Trade pair | | Trade value (\$bn 2016) |
|-----------------------|-------|-------|-----------------------|-----------------------|-------------------------|
| 1996 | 2006 | 2016 | | | |
| 41% | 43% ▲ | 37% ▼ | Europe & Central Asia | Europe & Central Asia | 8,319 |
| 17% | 18% ▲ | 24% ▲ | APAC | APAC | 5,303 |
| 5% | 6% ▲ | 7% ▲ | APAC | Europe & Central Asia | 1,495 |
| 6% | 5% ▼ | 6% ▲ | APAC | North America | 1,230 |
| 8% | 6% ▼ | 5% ▼ | Europe & Central Asia | North America | 838 |
| 3% | 3% | 3% | Latin America | North America | 770 |
| 2% | 2% | 2% | Europe & Central Asia | Middle East & Africa | 534 |
| 1% | 2% ▲ | 2% | APAC | Middle East & Africa | 525 |
| 1% | 1% | 2% ▲ | APAC | Latin America | 347 |
| 1% | 1% | 1% | Latin America | Latin America | 254 |

Source: UN Comtrade

4 Source: UN Comtrade database

The importance of Asia in global trade is forecast to continue growing

In PwC's 'The World in 2050' report, South East Asia is forecast to become the largest centre of intra-regional trade by 2030. China is the largest individual contributor to South East Asian trade, and by 2030 China is forecast to have grown its share to c.20% of World GDP, up approximately 3 percentage points. The existing developed countries are expected to lose share, with the corresponding US figure projected to decline by 2 percentage points to c.14%. Further, a number of other economies in Asia are likely to become increasingly important to global trade with India and Indonesia expected to be the second and fourth largest economies by 2050, whereas Japan and Germany are projected to fall out of the top 5.

There is no doubt this change in trade mix will be a headwind for the UK as more economic activity is conducted in regions closer to the main competing clusters.

However, successfully navigating globalisation has been one of the key strengths of the UK cluster in recent years, with UK firms building market leading positions in many of the growing MPBS centres. As long as the UK head offices of these firms continue to lead in terms of expertise, technology, and thought leadership, the UK will continue to profit from the growth of MPBS services globally.

Nevertheless, UK companies will also need to emphasise building relationships with clients in emerging economies. There may be particular opportunities in regions such as South America and Africa, which, while of increasing importance in global trade, are unlikely to develop the scale to justify their own major MPBS clusters. At the same time, the existing developed economies of the EU and US will still be major contributors to world trade, and will continue to provide the most significant market for the UK to address.

Availability of finance

Finance is a key element in a MPBS cluster

Finance plays an especially important role in strengthening maritime clusters for two main reasons:

- While for other MPBS services the customer/provider relationship is clear, ship owners, despite being the customer, are dependent on finance providers for capital. Clusters which have strong finance providers will therefore tend to attract ship owners to them, in turn attracting other MPBS providers.
- Financial transactions create demand for other MPBS services (e.g. finance law, valuations, S&P broking).

Recent years have seen a significant decline in the availability of bank finance for shipping in the UK...

Historically the UK was a major player in bank lending to shipping companies, both through UK banks with large portfolios of shipping loans such as RBS and Lloyds which accounted for c. 10% of global bank shipping lending in 2010⁵, and the presence of significant overseas branches of the main European shipping lenders. However, in response to the crisis which hit the shipping industry beginning in 2008, the implementation of the Basel III regulations, and a general retrenchment towards UK

focused lending, both RBS and Lloyds exited the market, leaving no UK bank with a substantial portfolio of shipping loans. At the same time most of the European lenders have closed or substantially reduced their shipping presence in London. This leaves only a handful of international banks (in particular Citi and ING) writing new shipping loans from London, resulting in the UK having a marginal presence of c. 1-2% of total bank lending in the sector.

Although these market and regulatory factors have also reduced bank lending in other countries, it still remains the most important source of capital globally for ship finance. Many of the key competing clusters to the UK still retain banks with substantial shipping portfolios, for example four of the top twenty shipping banks are based in the Nordics while two are based in Germany⁶, attracting ship owners and creating demand for other MPBS services. While there appears to be limited appetite among UK banks to return to large scale lending to the sector, there may be lower risk opportunities in areas such as industrial shipping and vessels integrated into larger infrastructure or supply chain projects.

... this is compounded by an already weak position in shipping capital markets

In addition, the UK has long had a relatively weak position in capital market funding for shipping. While individuals are the largest

5 Source: Petrofin Research

6 Source: Petrofin Research

category of ship owners, listed companies still account for c. 23% of the global fleet⁷.

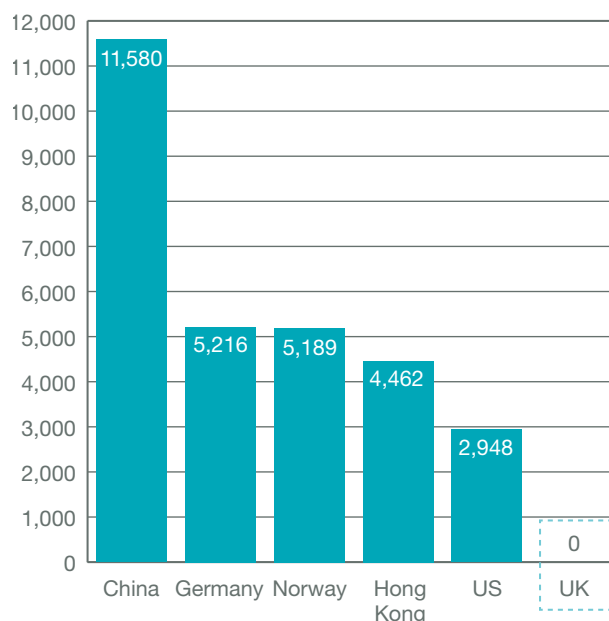
However, there are no listed commercial shipping companies on the UK stock markets including AIM (excluding companies such as Carnival plc or James Fisher plc which while owning and operating vessels are not primarily engaged in marine transportation as a sector). Listed companies would benefit the MPBS sector by providing demand for finance, legal, and accounting work. In addition, where the location of the commercial management or the Principal follows the listing, this drives demand for the full range of MPBS services.

As shown in Figures 13 and 14 key competing centres have significant listed shipping sectors (either in absolute capitalisation or share of capitalisation), resulting in a knowledgeable investor base and a pool of experienced analysts, making them go to exchanges for further IPOs. This lack of an existing shipping focused investor and analyst base was seen as the key barrier to London attracting listings.

There was some disagreement among interviewees about the desirability of attempting to encourage the listing of shipping companies in the UK, given the cyclical nature of the sector and the variable quality and reputation of some smaller listed entities, which were seen as at odds with the UK market's high regulatory standards. However, London's strong reputation around Environmental, Social, and Governance (ESG) may provide an attraction for some

shipping companies who place a high value on these factors. In addition, given London's longstanding experience in dual listings, it may make sense to encourage a number of secondary listings by higher quality larger listed entities. Not only would these drive some MPBS activity in the finance and legal sectors, they would provide demand for shipping focused analysts, traders, etc. which in turn would increase the attractiveness of London as a location for primary listings. Recent discussions around a dual listing of COSCO in London are a positive first step in this direction.

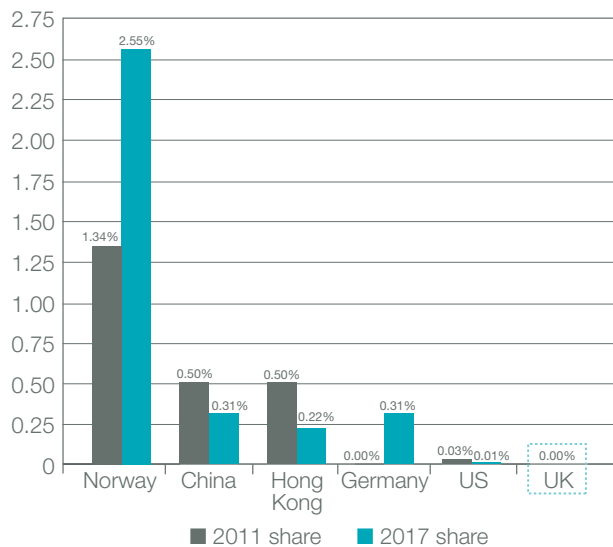
Figure 13: Maritime transportation total market capitalisation, \$bn



Source: DataStream. Note: the marine transportation sector excludes cruise companies

⁷ Source: Clarksons World Fleet Register

Figure 14: Maritime transportation share of total market capitalisation



Source: DataStream. Note: the marine transportation sector excludes cruise companies

Similarly, despite being the leading European centre for bond trading in general, London is a relatively minor centre for shipping bonds. New York and Oslo dominate this market with 41% and 18% respectively of the issuance (c. \$10bn p.a.) over the last three years. This again reflects the greater concentration of issuing expertise in these markets, and a greater understanding of shipping among investors.

The importance of alternative finance is growing and should present opportunities to the UK

With the decline of traditional bank lending, alternative forms of finance have grown to close some of the gap. Private equity (from professional firms rather than individuals), which historically had a limited presence in shipping, has grown its share recently, now representing up to 5% of the overall finance mix. Although the UK is theoretically well-positioned as the leading centre for private equity activity in Europe, most investments into shipping from generalist funds have occurred in the US. The UK has however had more success in developing specialist shipping focused funds such as Tufton Oceanic and Marine Capital. Given the large

pool of institutional capital available in London from pension funds and other sources, this a potential area for further development. However, in order to tap into the significant pool of money looking for long term investments and ‘core+’ infrastructure opportunities, the industry will need to find ways to overcome some of the traditional concerns of investors around both cyclicity and ESG factors. ESG in particular could provide an opportunity for the UK to grow this source of finance, by taking the lead in defining standards and benchmarks to enable institutional investors to meet their ESG requirements while investing in the maritime sector. In addition, the government should also consider ways to unlock and facilitate funding from these sources, in line with its Patient Capital Review aims of supporting funding for high growth businesses. This could include support for a venture capital/private equity fund specifically targeted at that the shipping industry to encourage innovative new businesses in the UK.

Lease finance from Chinese companies has also played a significant role in closing the financing gap in the last few years. Chinese leasing now accounts for c. \$50bn of financing for the global fleet, and was estimated to have provided 15-20% of total new lending in 2018⁸. While the majority of activity clearly occurs in China, London has become an important centre for origination. There may be an opportunity to formalise this further; with London already the largest centre outside of greater China for both renminbi trading and bond issuance, it would make the ideal centre for Chinese backed leasing into the European market as Chinese lenders look to expand their client base. In addition to the direct finance activity this would create, it would also create ancillary legal and shipbroking activity.

8 Source: Marine Money and PwC estimates

While export credit is an important source of finance for shipping, this has historically been dominated by the Export Credit Agencies from the large shipbuilding nations (i.e. China and South Korea) to support their own shipbuilding industries. Due to the absence of significant UK merchant shipbuilding this has not been a focus for UK Export Finance in the past. However, taking a broader view of UK exports to include the service income which may be generated from encouraging vessel ownership in the UK could provide another source of capital to regenerate the UK shipping finance sector. Similarly, guarantees or loans could be extended to support new building or repair activity where there is usage of UK content. There may also be the opportunity to encourage the development of UK manufacturing of environmental equipment by linking export finance and green finance (discussed in further detail below).

Green finance is also an opportunity for the UK to build a specialist niche

Green finance can potentially cover a wide range of applications in shipping. Narrowly conceived it covers capital to finance improvements to the direct environmental impact of ships e.g. the installation of scrubbers or ballast water treatment systems. More broadly any investments into shipping which promote an overall improvement in the environmental efficiency of the economy could be viewed as green finance, for example the financing of short sea shipping to replace more polluting truck transport, or the financing of LNG vessels to support the substitution of coal power by gas.

To date, green finance has been a nascent avenue for shipping capital in Europe. Recent initiatives include the European Investment Bank offering co-financing for environmental projects, German bank KfW's financing of multiple scrubber projects, and NYK's issuing of a bond to finance scrubbers and ballast water treatment

systems. In addition, the public sector has also become increasingly involved. The Norwegian government in particular has launched a number of schemes to provide green finance to shipping including financial support for the commercialisation of new technology, loan guarantees / reduced interest rates for installation of environmentally friendly equipment, and export credits supporting green technology.

While these initiatives make a start on providing financing for scrubber technology and other environmental technology investments, a large gap still remains. While the exact costs of IMO 2020 sulphur cap are difficult to predict, it is likely billions of dollars will be required for capex on scrubber technology in the next few years. With a range of other environmental initiatives in the pipeline including ballast water treatment and potential CO2 emission regulations, there is likely to be substantial demand for capital to fund environmentally driven capex for the foreseeable future.

The UK is well placed to provide this type of capital, with London widely regarded as one of the leading international centres for green finance, as well as having a large base of technical and legal expertise. The UK Government and City of London Corporation have also launched the Green Finance Institute in order to further accelerate the transition to a zero-carbon and climate-resilient economy through the mobilisation of capital. The MPBS sector, government, and finance industry should work together to develop this area through:

- Developing specialised green finance products which can address this market.
- Unlocking investments from pension funds and other institutional capital through, for example, the use of a public/private fund facilitated by the British Business Bank.

- Playing a leading role in organisations such as the Climate Bonds Initiative to help define relevant standards for maritime green finance.
- Appropriate government incentives around export finance and residual value guarantees.
- Implementing a more integrated strategy between export finance and green finance, particularly where this could catalyse the development of more marine technology in the UK. The recent 'Accelerating Green Finance' report by GFI recommended the creation of a technology accelerator. Linking this to later availability of export finance would enable the UK to have a more prominent role in developing these technologies.

Presence of charterers in the UK

As the counterparty to ship owners in many transactions, charterers also create significant demand for MPBS services in the locations they are based. While technology has made it easier to collaborate at a distance, interviews nonetheless suggested that proximity remains a significant factor supporting trust and communication with service providers, with charterers often preferring to procure their insurance, shipbroking and legal services from firms located in the same cluster.

Charterers charter a vessel from the owner for varying time periods, ranging from a short voyage to several year time charters. Charterers are typically either ship owners themselves, temporarily in need of additional vessel capacity, industrial users such as steel producers, or commodity traders (including the in-house marketing arms of mining companies and oil and gas producers). As with ship owners, commodity traders have considerable flexibility in their choice of location. As such, commodity trader charterers can offer a key source of demand for services MPBS in the UK.

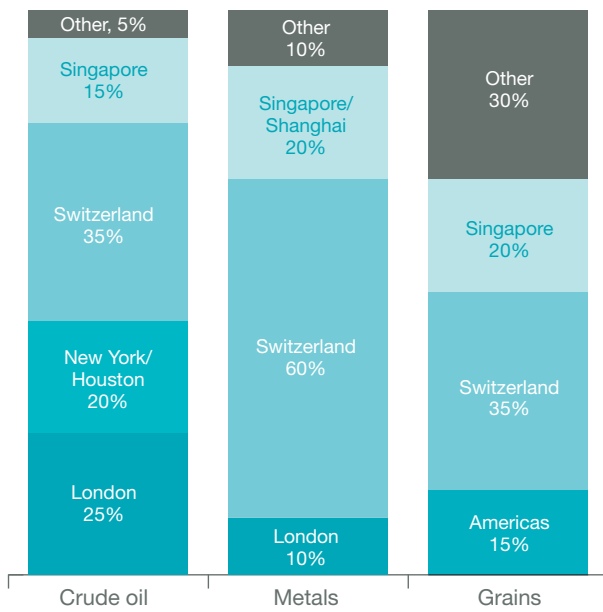
Switzerland is the leading global centre for commodity trading, but London is also a major hub

Switzerland is the leading centre for trading across multiple commodities. The importance of commodity trader presence on MPBS demand can be seen here since, while Switzerland has a small ship owning community, we estimate it has c. 5% of the shipbroking market, and a number of major

brokers such as IFCHOR based there. A large number of commodity traders are also located in Singapore. Both of these countries have actively courted these industries through fiscal policies and incentives.

However, London also benefits from being a major commodity trading hub, ranking second in crude oil trading and with a significant presence in metals trading. This strength is a result of several factors including proximity to European markets and North Sea oil fields, the presence of the trading arms of the UK oil majors BP and Shell, and the availability of trade finance from the City of London. These have then been further strengthened by the presence of trading desks from most of the large oil companies and trading houses. This strength in commodity trading provides a significant differentiator compared to many of the other MPBS centres, which lack a significant commodity trading presence.

Figure 15: Share of transactions by location for main commodity sectors, 2012



Source: Commodities report from Swiss Federal Departments of Foreign Affairs, Finance and Economic Affairs

Increasingly activity has been moving to Singapore, but most firms will seek to maintain a European hub

In recent years more commodity trading activity has moved to Asia, attracted by its growing share of demand for commodities. Asian centres, such as Singapore which was already a substantial trading hub, have particularly benefited from this shift. However, this should be seen as a part of a larger rebalancing, reflective of changes in global trade lanes. Many traders continue to maintain both a European and US (often Houston) presence in addition to Asian offices, as these remain major centres for commodity demand, and local knowledge is a key part of successful trading. While Switzerland is the leading centre in Europe, London is likely to remain a significant player, benefiting from both its own commodity trading cluster effect and the synergies of operating in a major MPBS centre.

Cluster effect

The presence of an existing MPBS cluster is a major advantage for the UK

Business clusters occur when a concentration of businesses in the same or related industries develop in one location. This increases the productivity of each of the companies in the cluster, as they are able to share resources such as infrastructure and specialised suppliers. For service-based industries such as MPBS, the key benefits tend to arise from human resource based advantages, for example access to a large pool of skilled workers and knowledge transfer between companies. Cluster benefits were identified by the Maritime 2050 report as one of the UK's main competitive advantages.

The UK's history as a shipping hub led to the initial formation of its MPBS cluster. While some of these initial advantages have eroded, the presence of an existing cluster is itself a strong driver of the ongoing strength of UK's MPBS offer, and is difficult and time consuming for newer maritime centres to replicate. The benefits of the cluster occur both in an individual service as well as across services and include:

- Depth of talent pool both in each service but also across different services.
- Ability of different services to cross-sell into one another and transfer knowledge.

- Existence of industry associations and regulatory bodies which also facilitate knowledge transfer.
- The presence of a variety of services in the UK provides multiple reasons for ship owners and other industry participants to visit or maintain a presence, reinforcing the strength of each individual service.

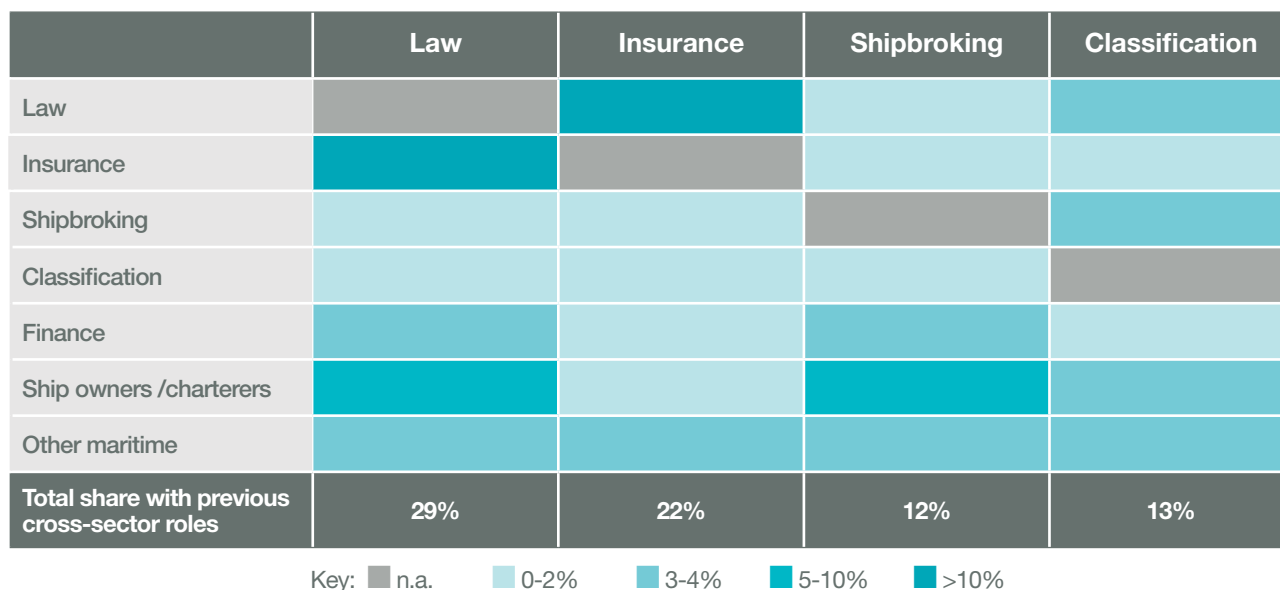
There is significant movement of talent within and between MPBS sectors

The London maritime cluster has a variety of firms within each sector, providing significant opportunity for individuals to move between different employers. Our research shows that movement between firms within a sector is especially high in Law where almost 50% of all profiles analysed have had roles in at least two firms, and 12% have worked at three or more firms. In Shipbroking, 30% have moved between firms (7% at 3 or more brokers)⁹. While this can be seen as a cost to the individual firms concerned, it both promotes the transfer of knowledge and makes the UK a more attractive destination for talent.

Clusters also enable the movement of people, and thereby knowledge and skills not only within but across different services. As illustrated in Figure 16, a significant proportion of staff within UK MPBS companies have previous experience in a different MPBS service, ranging from internships and secondments to career changes. This enables them to bring

9 Source: PwC analysis on LinkedIn profiles

Figure 16: Share of professional staff within a selected MPBS service that have previous experience in another MPBS service



Source: PwC analysis of LinkedIn profiles from a sample of MPBS firms

specialist knowledge from one service into another (for example knowledge of the insurance sector into Law, or previous chartering experience into shipbroking). As the UK is a leader across more MPBS services than any other cluster, this creates more intersections across services, and therefore more opportunity to develop in-depth specialist knowledge.

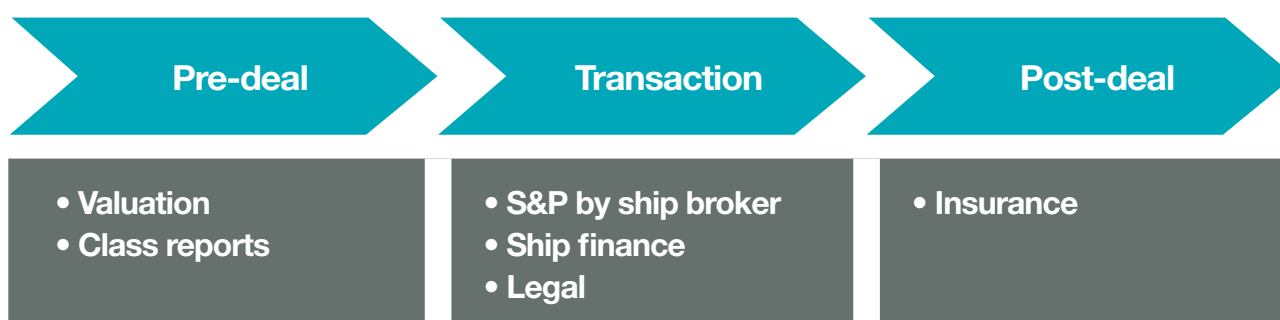
MPBS services are interrelated providing the opportunity for ‘cross-sell’

While MPBS companies can provide their services on a standalone basis, many processes in the shipping industry (for example sale and purchase of vessels, chartering, and disputes) will often involve professionals from multiple services. While these do not necessarily all have to be

conducted in the same place, interviewees indicated there tends to be overlap in location. This is therefore a positive for existing clusters such as the UK since the provision of one service tends to reinforce the others. At the same time, it highlights the risk associated to the UK from its weak position in ship finance, which is often one of the key services in driving cross-selling.

In addition, to cross-selling, the cluster also provides the opportunity for knowledge transfer and joint development of thought leadership between different services. For example insurers benefit from the presence of surveyors and lawyers in helping to develop standards on new areas of risk or offering broader claims services. Similarly, in addition to legal expertise, arbitration services require significant input from people with technical and business backgrounds.

Figure 17: Flow of services in a vessel purchase transaction



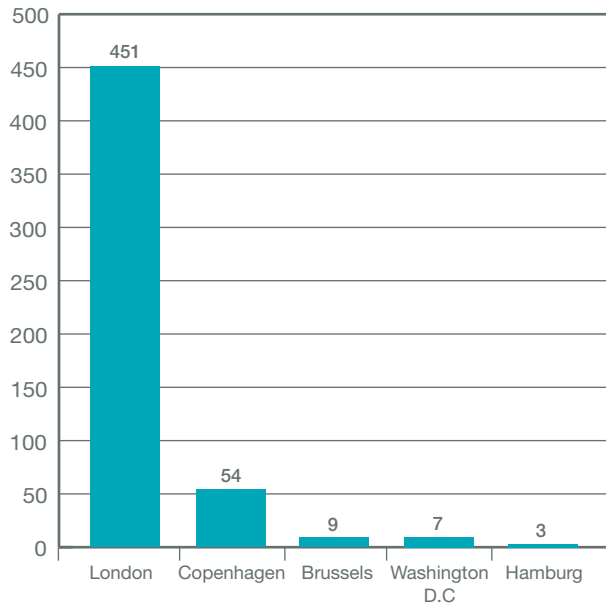
Source: PwC Analysis

Maritime institutions also form an important part of the cluster

Maritime institutions including regulatory bodies and trade associations also contribute to the cluster effect. They attract businesses which benefit from proximity to these organisations, increase knowledge transfer, and act as an additional source of and destination for expert talent. Their presence also raises the reputation and influence of their base as a maritime hub.

The UK leads the way on this front, with significantly more staff employed in these institutions than any other centre. The flagship for the UK is the International Maritime Organisation, but it also benefits from the presence of the International Association of Classification Societies, the International Group of P&I Clubs, and the Institute of Chartered Shipbrokers among others.

Figure 18: Location of international maritime institution staff



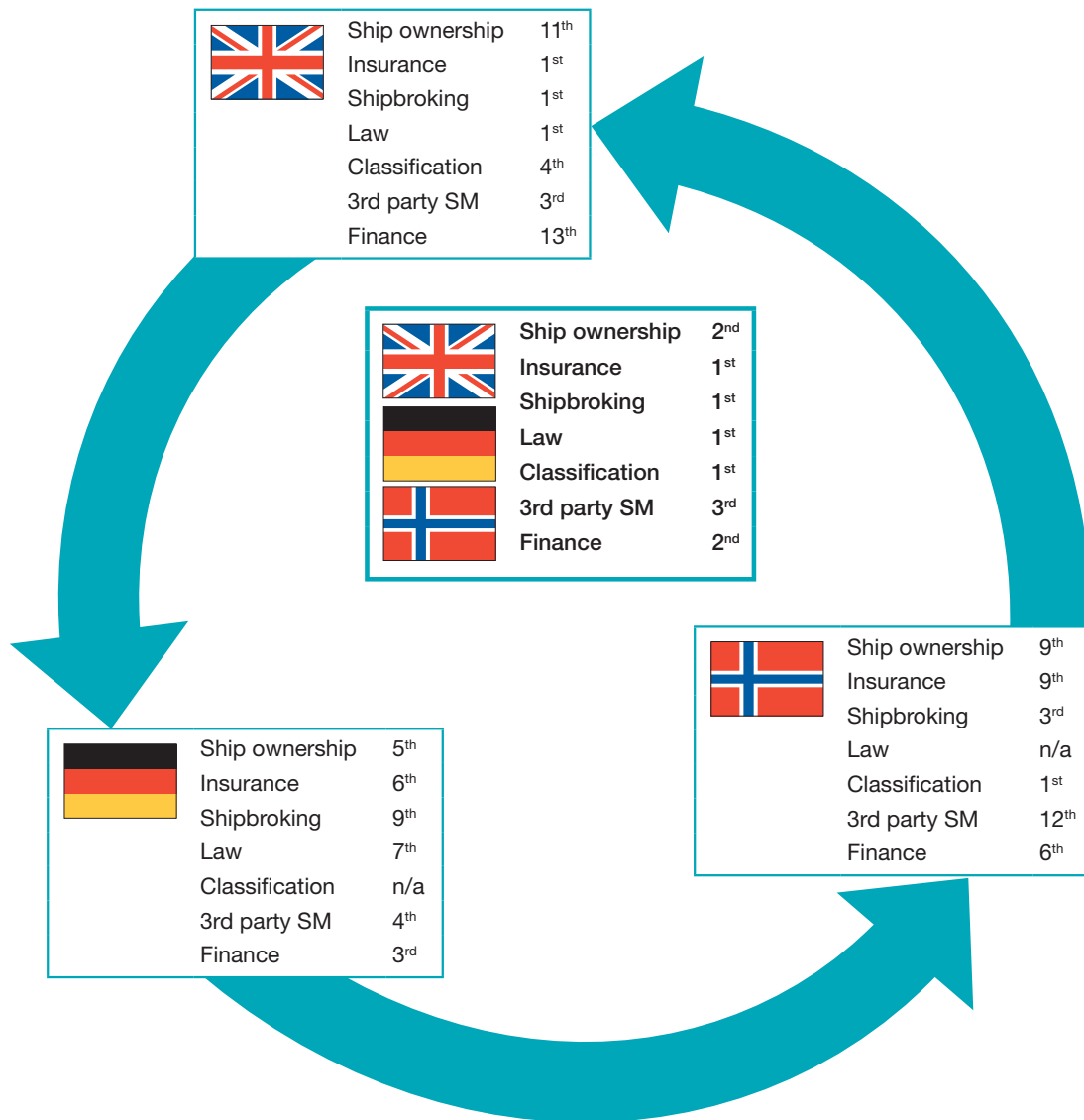
Source: PwC Analysis, Institution websites

There is a potential opportunity to leverage the strengths of other European clusters.

While we have largely viewed other European maritime centres as competitors in this report, there is the opportunity to extend cluster thinking towards the European centres as a whole. Interviewees have suggested that some other maritime centres such as Hamburg, Oslo, and Copenhagen should not be seen purely as competition, but rather as having complementary strengths and offerings. Given the proximity of time zones and travel to these centres, there is the opportunity to work together. By collaborating with these other centres, London can overcome the limitations of some of its weaker segments (such as Finance) by working with other centres (e.g. Oslo), while simultaneously encouraging an increase in demand for other services where it is especially strong.

As Figure 19 demonstrates, 'coopetition' with other European clusters would produce a world beating combination, with a top three position in all sectors of MPBS and a large ship owning base. This lead would be further enhanced by including other European shipping centres such as Athens or Copenhagen. Development of such a super cluster would principally involve developing greater interaction between the companies in each cluster and working together on the development of standards and intellectual capital. As such the possibility should initially be pursued by industry bodies such as Maritime London, and could be developed regardless of the UK's ultimate relationship with the EU.

Figure 19: Impact of combining leading European clusters



Industry and government should continue to enhance the cluster effect

Maintaining the strength of the cluster effect will largely depend on ensuring the strength of the other drivers and therefore the presence of MPBS companies in the UK to ensure the depth and flow of skilled staff. At the same time the industry should ensure

that it continues to work together to maximise the benefits of the cluster effect, through, for example, joint working groups on areas which affect multiple MPBS sectors. In addition, proactive marketing from both government and industry will be required to ensure that key global maritime institutions, in particular the IMO, are retained in the UK.

Talent and Education

Access to talent has historically been a key competitive advantage for the UK MPBS sector. A large pool of experienced seafarers, the high quality of maritime professional education, and the UK's attractiveness for and openness to skilled international labour has allowed UK-based firms to hire highly skilled people. Sustaining this lead will be crucial to maintaining the UK's lead in MPBS.

In addition, maritime education is in itself an important export, both in terms of foreign students studying in the UK, and UK institutions launching joint ventures with universities in other countries. As well as increasing the output of the education sector, attracting international students provides additional benefits through either increasing the talent pool available in the UK, or, for those that return to work in other countries, connecting fellow UK students into global shipping networks.

The UK is a leading provider of maritime business education but competition is increasing

The UK is one of the leading providers of maritime business education (e.g. university courses in shipping finance, law, and business). There are more than 20 UK institutions offering maritime business courses, with 10 being among the top 350 global universities¹⁰. In addition, the Costas Grammenos Centre for Shipping, Trade, and Finance at Cass Business School is widely regarded as the leading maritime business school globally. The business education

sector also benefits from the presence of the wider cluster, with the ability to bring in experienced practitioners to contribute to both teaching and research, and the opportunity for students to develop their professional networks with alumni.

The quality of UK maritime education is reflected in the success which UK institutions have had in expanding internationally. For example, City University of London has a presence in both Dubai and Greece where it offers degrees in maritime management and law. Similarly, several Chinese universities have partnered with UK universities to offer high-quality business education to Chinese students locally. Finally, The UK is also a leading centre for MPBS professional qualifications as home to the Institute of Chartered Shipbrokers and Lloyds Maritime Academy among others.

However, as in other areas, other centres offer increasing competition. Singapore has several globally ranked universities which offer maritime business courses, and China in particular is building a major presence in maritime education. The Dalian and Shanghai Maritime Universities, are some of the largest institutions globally that focus on maritime education. Between them, they have c.45,000 full-time students and offer more than 250 technical and business courses. Both of these universities are also actively collaborating with international institutions and have started to offer courses to foreign students.

¹⁰ Source: Times Higher Education World University Rankings 2019

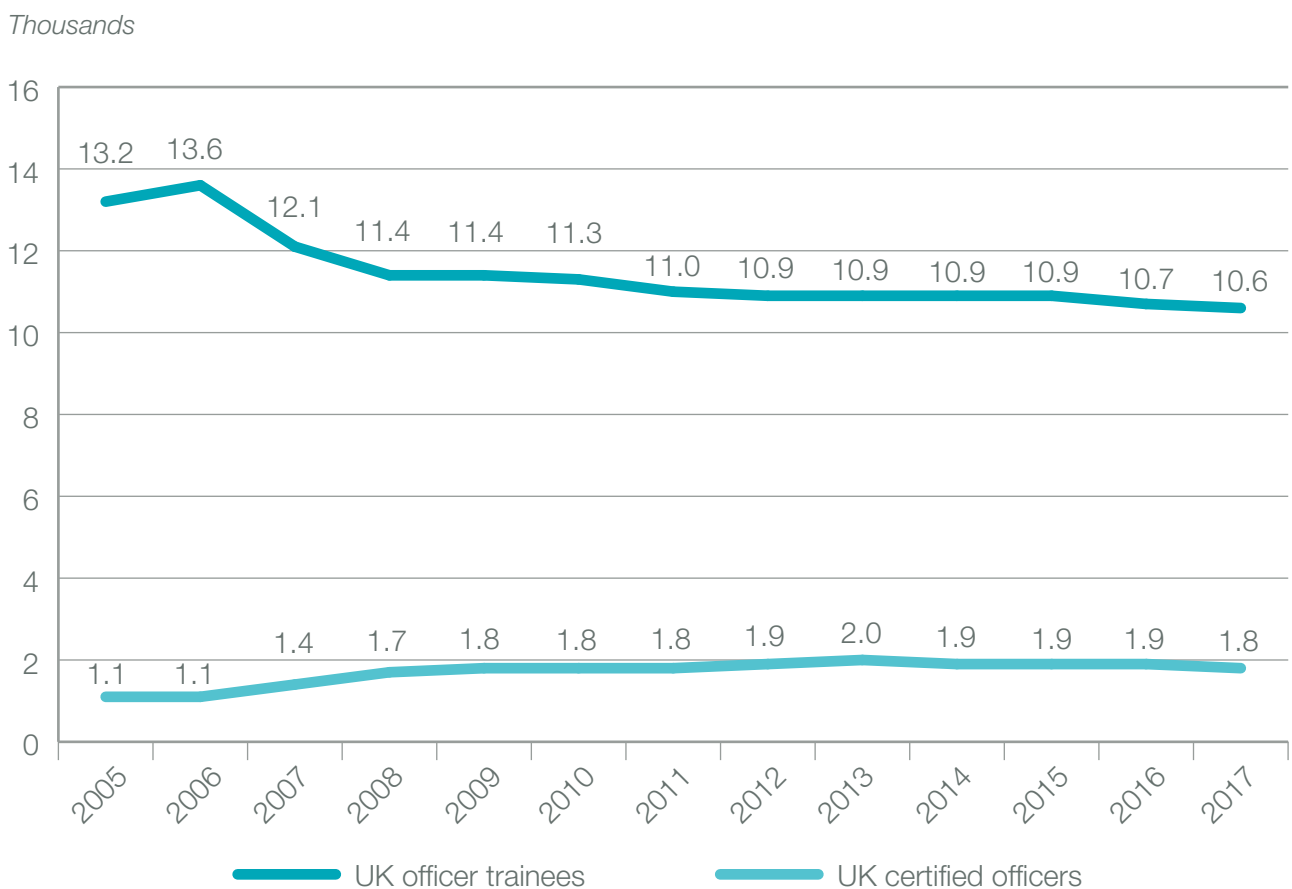
Two other challenges may hinder the UK's future attractiveness for international students. The first is the high costs associated with attending university in the UK. Both tuition fees and living expenses in the UK are high, especially when compared with Asia. Secondly, the introduction of stricter processes for obtaining visas will potentially deter some students from pursuing higher education in the UK.

At the same time, there is also a need to encourage more UK students to undertake maritime business education. Currently most students enrolled on these courses are international students, reflecting the low profile the maritime sector has in the UK. The recommendations in the Maritime 2050 study to improve the perception of the industry and create a Maritime Skills Commission should help to address this, as will ongoing promotion of the sector by industry bodies.

While also a world class provider of training for seafarers, the UK would benefit from increasing the flow of experienced officers into the MPBS sector

In addition to delivering a vital contribution to the broader UK maritime sector and a valuable career in its own right, experienced seafarers are an important part of the MPBS workforce. Interviews with professionals, and analysis of the workforce of different MPBS firms confirmed that a significant number of former seafarers have been recruited into the sector. Former seafarers bring extensive practical and on the ground knowledge, which is highly useful in a number of contexts, for example law, insurance, and classification, and vital for ship management companies.

Figure 20: Number of UK certified officers and trainees at sea



Source: Department for Transport

Since 1998, the UK government has supported cadetship training through the 'Support for Maritime Training' (SMarT) scheme, spending c. £15m annually to provide financial support to people undergoing training¹¹. This, combined with the support provided by apprenticeships, has arrested the long term decline in the number of UK seafarers. Despite the recent stabilisation in absolute numbers, the UK is losing share of the overall global officer total, as the number of officers globally grows at c. 5% p.a. while UK numbers remain relatively flat¹². Between 2005 and 2014, the UK's share fell from 2.8% to 1.4%, indicating that other countries are more successfully building a pipeline of future MPBS professionals.

Reversing this trend will require two approaches. Firstly, recent analysis by the UK Chamber of Shipping indicated that the proportion of training costs covered by the SMarT programme has declined as college fees have increased. The adoption of the SMarT Plus proposals in 2018 will help to reverse this as well as improving the career pathway for cadets. Secondly, while funding for training is a key issue, there are several other factors that may further limit the long-term supply of seafarers. The low visibility of maritime careers, the lack of diversity (97% are male) and difficult working conditions are all barriers. This suggests that further support and promotion of the sector is needed to encourage people to pursue careers at sea. In addition, from an MPBS sector perspective, involvement in marketing the opportunities in attractive shore based roles which sea experience can lead to may help alleviate some of these issues. This is already a key aim of the Maritime London Officer Cadet Scholarships, but broader participation of the industry to market these opportunities would be desirable.

In addition, UK cadet training colleges should consider building on their world class reputation for training by expanding internationally. This is a route which has already been successfully explored by other leading UK education institutions including within the maritime sector (e.g. Cass Business School's Dubai campus). This would have the benefit both of growing UK education exports but also creating further linkages into the UK cluster.

Foreign talent is integral to the UK MPBS sector

Analysis of the workforce of selected MPBS firms suggests that within maritime law, insurance, shipbroking, and classification, 25 to 30% of employees are foreign nationals¹³. Of these, the majority are European. Interviews with MPBS professionals confirmed and emphasised that foreign talent is essential for the industry, in part due to the visibility and reputation of the maritime industry in the UK being insufficient to attract many British graduates. In addition, openness to the best international staff enables UK firms to remain market leaders.

Given the importance of foreign nationals to the MPBS sector, it is essential for the UK to protect their right to stay in the country, and for new workers to arrive, after Brexit. This will be crucial to maintain the continued strength of the industry and prevent foreign talent from moving to other more immigration-friendly maritime centres, such as Dubai. Indeed, greater flexibility and openness here may present an opportunity to gain ground from Singapore as it has begun to increase the requirements around local worker quotas.

11 Source: DfT statistics

12 Source: BIMCO Manpower report

13 Source: PwC analysis of LinkedIn profiles

Technology

Technology is of increasing importance in the MPBS sector

As with many other areas of the economy, the maritime sector is undergoing significant changes as a result of new technology. While maritime technology can cover a wide range of applications including ship building and aquaculture, in this report we focus on digital technology and software which is most applicable to the MPBS sector. These include more broadly applicable technologies such as AI, IoT, and blockchain, as well as a range of maritime specific innovations including AIS data and vessel automation.

Tech companies not only contribute growth and employment in their own right but also provide the opportunity to strengthen the existing cluster. As the established leader in MPBS, the UK should be in a strong position to benefit from the development of new technology:

- The UK's leading position provides both a large market to sell into, and a large pool of specialised talent to draw on, making it an attractive base for startups.
- The largest companies in each segment, many of which are UK based, have greater resources to invest.
- MPBS are knowledge based services. Technologies such as AI offer the opportunity to centralise this knowledge, reversing the trend of activity increasingly moving into regional markets.

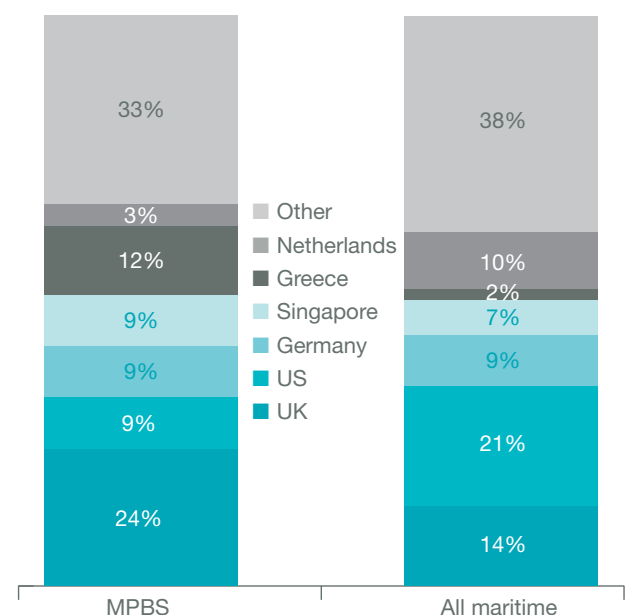
At the same time new technology also poses a risk. Disruptive new technology

provides the opportunity to upend existing industry structures and may allow competing centres to leapfrog the UK's leadership. For example, tracking data from IoT and AIS combined with AT/VR visualisation technology has the potential to radically alter how marine casualty disputes are decided, while the use of big data and analytics is currently transforming the pricing of risk in marine insurance. If the UK lags behind in the development and adoption of these technologies it will lose its lead in MPBS to other centres.

The UK leads in MPBS technology startups

The UK is the leading location globally for technology startups focused on the MPBS sector, and second behind the US for broader maritime technology startups.

Figure 21: Maritime technology startups by country



Source: PwC database of maritime technology startups

Interviews with technology companies identified a number of reasons for the UK's success:

- The strong base of key skills in London, both in specific technologies such as machine learning but also the availability of experienced technology sales staff.
- A more favourable time zone than the US for maritime focused companies.
- Large MPBS customer base to market to.

It also reflects the UK's overall cross-sectoral strength in innovation and technology with significantly higher investment into software and IT services than in competing MPBS centres. Venture capital investment into these areas in the UK was c. 2.5 times higher than in Germany and Hong Kong across 2016 to 2018 and five times higher than Singapore¹⁴. It also reflects the important cluster effect which also exists in technology, with London consistently ranked as a leading startup cluster globally.

| City | Startup Genome ranking | StartupBlink ranking |
|-----------|------------------------|----------------------|
| London | 3 rd | 3 rd |
| Singapore | 12 th | 36 th |
| Hamburg | Not ranked | 74 th |
| Oslo | Not ranked | 81 st |
| Hong Kong | Not ranked | 35 th |
| Shanghai | 8 th | 22 nd |
| Dubai | Not ranked | 73 rd |

Source: Startup Genome global startup ecosystem ranking 2017, StartupBlink website

The UK is also seeing investment in technology from large established companies

In addition to startups, the UK also benefits from established MPBS companies investing in the sector. The UK has a significant advantage in this regard. As the market leader it is home to many of the largest MPBS companies which due to their size are better able to invest in new technology. For example, Clarksons is considerably ahead of ship brokers in other maritime centres in terms of its investment in digital products (e.g. online research products). Similarly, UK law firms are investing in Robotic Process Automation (RPA) to automate straightforward tasks. The recent announcement by the Lloyds insurance market of the roll-out of a digital platform for is also a positive development. Finally, the UK cluster also benefits from the presence of broader maritime technology companies such as Inmarsat and Rolls-Royce which are investing in connectivity and autonomous vessel technology.

Although the UK has a strong position here, other centres also have large companies making significant investments in technology, with Norway in particular a strong competitor. DNV GL has recently formed a digital solutions organisation with 1,000 employees focused on data and software (across several segments including maritime). Similarly Kongsberg has developed a digital division focused on vessel automation, AI, and IoT. Maintaining the UK at the forefront of digital maritime technology will require appropriate incentives for large companies to continue to invest in R&D in the UK, and the availability of skilled staff to support the development of new technology.








14 Source: PitchBook and PwC analysis

There is more to do to maintain the UK's leading position

While the UK is the leader in MPBS technology companies, given its overall strength in the broader tech sector this leadership is not as pronounced as it could be. Interviewees told us that this in part reflects the lower visibility of the maritime sector in the UK, with UK tech

entrepreneurs more likely to be focused on sectors such as consumer and fintech, whereas for those in Singapore or Hamburg, maritime is an obvious choice. In addition, several competing centres have a wider range of public and private sector initiatives to drive innovation.

Figure 22: Government initiatives to support maritime technology in the UK and competing clusters

| Centre | Degree of support | Example initiatives |
|-----------|---|--|
| UK |  | <ul style="list-style-type: none"> • Technology a key theme of the Maritime 2050 study including a legislative framework for autonomous vessels and the creation of a Maritime Innovation Hub at a UK port • Marine Industries technology roadmap developed in 2015 • Maritime specific initiatives implemented by cross-sector funds such as Innovate UK |
| Singapore |  | <ul style="list-style-type: none"> • Innovation and digitisation identified as one of the 5 key pillars of its IMC 2030 strategy • Pier 71 and Unboxed, government backed shipping and logistics accelerators • c. \$75m committed to development of Port of Singapore as a 'living lab' |
| Hamburg |  | <ul style="list-style-type: none"> • Government owned Port of Hamburg has been a leading player in developing 'smart port' solutions in conjunction with technology companies |
| Oslo |  | <ul style="list-style-type: none"> • Significant government support for maritime innovation through MAROFF and other funds • Maritime focused VCs and accelerators such as Oceanview.vc and Katapult Ocean |
| Hong Kong |  | <ul style="list-style-type: none"> • Government backed Innovation and Technology Venture Fund (c. \$1bn) to invest across all sectors |
| Shanghai |  | <ul style="list-style-type: none"> • Significant support for maritime R&D at both national and regional level |
| Dubai |  | <ul style="list-style-type: none"> • Several initiatives including the Maritime Creativity and Innovation Lab, Innovation Quay, and Virtual Maritime Cluster |

Key: Low  →  High

At the same time there is also emerging competition from centres such as Silicon Valley and Israel, which have not historically been important maritime centres, but are building on their strong startup clusters.

A further risk identified by interviewees was around the reticence of many established companies in the sector to engage with and invest in new technology. While this is seen as a global issue, UK based MPBS companies will need to take a lead in developing and adopting technology if they are to maintain their overall dominance of the sector.

The Maritime 2050 study introduced a number of welcome policies to respond to these challenges including the development of a legislative framework for autonomous vessels and the creation of a Maritime Innovation Hub at a UK port. In addition, there are several other measures which government and industry should consider.

Firstly, the UK industry should be at the forefront in developing standards and thought leadership in key areas of technological development (e.g. cyber risk in insurance or autonomous vessels in the legal sector) to ensure it maintains leadership in specialist and high growth areas of MPBS. Secondly, existing government support schemes for technology such as Innovate UK and the London Co-Investment should increase their emphasis on the maritime sector, and consider the creation of a maritime focused fund as exists in Singapore. Thirdly the industry should prioritise the development and especially the deployment of new technology.

Finally, as discussed elsewhere in the report, policies to enhance both the prominence of and access to the maritime sector will be crucial. These include improving the overall visibility and perception of the maritime industry to ensure that technology entrepreneurs and investors have a greater focus on the sector, and maintaining an open and flexible immigration system to enable UK firms to recruit the best talent.


Government support



Most maritime cluster governments have strategies to support the sector




Governments in competing maritime clusters have increasingly recognised the need to support and encourage both the


broader maritime sector and MPBS. This reflects the attractiveness of maritime activity to the overall economy, but also its flexibility to operate from the most attractive location. But there is significant variation in the depth and maturity of government maritime strategies between the different clusters.

Figure 23: Government maritime support in UK and competing clusters

| Centre | Degree of support | Key policies and initiatives | | |
|--------|---|---|---|---|
| | | Overall maritime strategy | MPBS strategy | Policies to promote ship owners/ charterers |
| UK |  | <ul style="list-style-type: none"> • Comprehensive Maritime 2050 strategy launched in January, building on previous initiatives such as the Maritime Growth study • Key policies include world leadership in maritime technology, enhancing the maritime workforce, and continued improvement in infrastructure, trade, and competition | <ul style="list-style-type: none"> • Renewed cooperation in recent years between government and MPBS industry bodies | <ul style="list-style-type: none"> • Tonnage tax regime • Increased focus on customer service at the UK Flag • SMarT programme to train cadets |

| Centre | Degree of support | Key policies and initiatives | | |
|-----------|---|---|---|--|
| | | Overall maritime strategy | MPBS strategy | Policies to promote ship owners/ charterers |
| Singapore |  | <ul style="list-style-type: none"> • Maritime a priority industry for development • Updated strategy developed in 2017 (IMC 2030) focused on deepening the cluster and improving technology and skills • Government seen as highly responsive in working with industry • Multi-billion dollar investment in Tuas mega port as hub of Singapore's maritime industry • Funding provided to develop industry e.g. c. \$75m Maritime Cluster Fund to develop new businesses and products | <ul style="list-style-type: none"> • Financial incentives for MPBS companies to move to Singapore • IMC 2030 identified specific policies to grow insurance, shipbroking, and finance • Historically very open to attracting foreign talent though some tightening in recent years | <ul style="list-style-type: none"> • Financial incentives for owners and charterers to move to Singapore, including bespoke tax agreements and rent free deals • Tonnage tax regime • Government proactive in encouraging owners to move to Singapore, e.g. meetings at short notice with ministers/senior civil servants, active courting of owners rather than reactive |
| Hamburg |  | <ul style="list-style-type: none"> • Historically driven by cities or Lander, with some national initiatives • Increasing interest at a federal level with a new strategy currently being prepared | | <ul style="list-style-type: none"> • Tonnage tax regime • Active state support for larger owners during industry downturn (e.g. loan guarantees) • Historically the KG partnership structure supported a large German owned fleet, though this is now decreasingly important |

| Centre | Degree of support | Key policies and initiatives | | |
|-----------|---|---|--|---|
| | | Overall maritime strategy | MPBS strategy | Policies to promote ship owners/ charterers |
| Oslo |  | <ul style="list-style-type: none"> Maritime viewed as a priority industry with a maritime strategy recently developed Policies include supporting technology, enhancing training, and increasing linkages between ocean related industries | <ul style="list-style-type: none"> Maritime strategy includes renewed investment in maritime education Wide range of green finance initiatives to encourage green investment in shipping | <ul style="list-style-type: none"> Tonnage tax regime Initiatives to improve attractiveness of Norwegian flag including digitisation of processes and simplification of regulations |
| Hong Kong |  | <ul style="list-style-type: none"> Historically laissez-faire approach to the sector, however government has recently become more proactive with new policies and establishment of HK Maritime and Port Board to drive growth | <ul style="list-style-type: none"> Marketing of Hong Kong as a centre for international arbitration Measures to increase marine insurance including tax incentives and streamlined regulation for P&I clubs Increase in funding for Maritime and Aviation fund for training to c. \$30m | <ul style="list-style-type: none"> Tax exemption for Hong Kong flagged vessels Range of recent policy announcements including tax reductions for ship management companies, tax changes to encourage ship leasing, and an increase in the number of double taxation agreements |
| Shanghai |  | <ul style="list-style-type: none"> National strategy focused on the One Belt One Road initiative, port development, and ship building capability Individual cities/ regions such as Shanghai and Shenzhen have specific maritime strategies | <ul style="list-style-type: none"> Marketing of China as a centre for international arbitration Incentives for MPBS businesses in regional free trade zones, such as tax and permit exemptions e.g. tax incentives for marine insurance in Shanghai | <ul style="list-style-type: none"> Development of 'national champions' in shipping industry e.g. COSCO merger with China Shipping Significant government influence over lending policies of major banks which are currently providing substantial finance for the maritime sector Tonnage tax regime |

| Centre | Degree of support | Key policies and initiatives | | |
|--------|---|---|---|---|
| | | Overall maritime strategy | MPBS strategy | Policies to promote ship owners/ charterers |
| Dubai |  | <ul style="list-style-type: none"> • Maritime identified as one of six priority sectors for development • Overall maritime sector strategy to turn Dubai into a leading global maritime hub, and strengthen offer in services and technology • Maritime Cluster Office to drive implementation of the strategy | <ul style="list-style-type: none"> • Finance and shipbroking identified as areas for growth in maritime strategy • Launch of Emirates Maritime Arbitration Centre | <ul style="list-style-type: none"> • No corporation tax • Dubai Maritime City free zone to encourage ship owners and other participants • Reports that the government is considering establishing a \$1bn fund to invest in shipping companies |

Key: Low  →  High

Case study – Singapore

Singapore has been the most successful of the competing clusters in implementing a long term government strategy to develop the maritime sector. The origins of this policy lie in the 2003 report from the Economic Review Committee, which recommended that the government increase its focus on the services sector, identifying the 'trade and logistics' sector as one of the main priorities. As part of this a 'London Plus' strategy was developed, with the objective of diversifying beyond its traditional maritime strength as a physical port hub to become a global services hub. In order to achieve this a number of policies were implemented:

- Growing the number of ship owners and ship managers based in Singapore through tax and other financial incentives (e.g. rent free periods).
- Actively targeting and encouraging both ship owners and service companies to move to Singapore, particularly focusing on adding new capabilities to the cluster e.g. the War Risks Mutual, the Singapore Chamber of Marine Arbitration, and SGX's purchase of the Baltic Exchange.
- Deregulation of previously restricted sectors such as the law.
- Ongoing openness to immigration of foreign talent, with c. 60% of MPBS staff being non-Singapore nationals¹⁵.
- Funding to subsidise professional and tertiary education in relevant qualifications.
- Investment in R&D through the Singapore Maritime Institute.

Although Singapore has also benefited from a number of external trends, in particular the shift in trade lanes towards Asia and the accompanying increase in the Asian owned fleet, these policies have had significant success. The number of international shipping groups managed from Singapore has increased from around 20 in 2000 to over 140 currently¹⁶. At the same time, it has grown from being a small regional player in MPBS to occupy the number two position in shipbroking and ship management, and a top five position in insurance and law. In addition to these tangible results, it has also improved its maritime 'brand' and is widely perceived as one of the leading maritime centres.

While some aspects of the Singapore model will be difficult to replicate in the UK, there are a number of lessons to be learned. The UK needs to be more active in courting ship owners and other industry participants to come here, and would benefit from greater coordination and focus on this. It is also vital that post Brexit, the UK remains open and welcoming to foreign talent. Finally, Singapore highlights the benefits of implementing a consistent and long term strategy to grow the sector.

15 Source: PwC analysis of LinkedIn profiles

16 Source: Singapore Leading International Maritime Centre report 2018

The UK has made significant progress in recent years but can still do more

While the UK government has supported the sector for a number of years through a range of initiatives including the tonnage tax regime and SMarT training, the publication of the Maritime Growth Study in 2015 highlighted a number of areas for improvement including industry and government leadership, training, and marketing. Since then, there was broad consensus among interviewees that government and industry were working more closely together, and there was higher visibility of the maritime sector.

However, the UK is still currently perceived as significantly behind Singapore's level of support for the sector. The Singapore government is highly active in marketing its maritime cluster and in engaging with industry participants to encourage them to move to Singapore. This often includes significant financial inducements such as bespoke tax arrangements and rent free deals. In addition, other clusters (e.g. Hong Kong and Dubai) have recently begun to implement or improve maritime strategies, partly in response to Singapore's success. The bar is therefore rising, and the UK will need to do more in order to maintain its position.

The Maritime 2050 report published in January 2019 presents an important opportunity to meet this challenge. The report identified seven high level themes including environment, infrastructure, people, and technology to guide policy priorities, and lays out short, medium, and long term recommendations in each area, with the intention of developing detailed route maps for each in due course. The overall ambition and scope of the report is a strong positive and an indication to the global industry that the UK is serious about the maritime sector. In addition, the proposals outlined so far provide a good starting point to address many of the industry's issues. However, government will need to ensure that the additional policies laid out in the route maps are sufficiently bold to match and even exceed those of competing clusters. Furthermore, government will need to emulate competitors such as Singapore in keeping maritime high up on the policy agenda, and ensuring continuity of policy over the long term.

In addition to specific policies there was a general consensus in the sector that the UK would benefit from projecting a more welcoming face to ship owners and greater responsiveness in encouraging them to move to the UK. We therefore recommend the creation of a role within government to coordinate between relevant departments and with the authority to represent government to ship owners.

Segment specific drivers

While there are a variety of trends across individual MPBS segments...

In addition to the broader drivers affecting the MPBS sector as a whole, each of the individual segments is also affected by factors relating to its specific market. Figure 24 (below) outlines some of the main trends by segment.

...there are also some common themes including regulation and cost competitiveness

Two common themes emerge from the sector specific trends. Firstly, cost pressure, driven by both ongoing financial distress in the underlying shipping industry and other factors, is evident in several MPBS segments. As a relatively high cost location

this has an impact on the UK's competitiveness, although it should be noted that most competing centres are also high cost locations. This suggests the UK will need to focus on areas of MPBS where there is a higher degree of value-added or where the UK can differentiate itself (for example the impartiality of UK law or the strong reputation of the Lloyds market for honouring payments).

Secondly, the comparatively high level of regulation in the UK appears to be a concern in some segments. Views from interviewees on this subject were nuanced, with a number pointing to the fact that the higher level of regulation in the UK was an attraction in some cases. Nevertheless, the MPBS sector will benefit from ongoing review in this area to ensure the level of regulation is appropriate and creates a level playing field.

Figure 24: Segment specific drivers

| Segment | Recent segment specific trends |
|-----------------|--|
| Insurance | <ul style="list-style-type: none"> • Excess availability of capital globally has increased underwriting capacity and continues to put pressure on insurance rates • Solvency II regulations affecting the competitiveness of UK insurers versus those in other centres by increasing capital requirements |
| Law | <ul style="list-style-type: none"> • Development of arbitration centres in several competing clusters including Singapore and Dubai • Increasing pressure by Asian finance providers through ship building contracts to use Asian jurisdictions for arbitration • Ongoing attempts by clients to control costs are leading to increased insourcing by clients and use of law firms in cheaper locations |
| Shipbroking | <ul style="list-style-type: none"> • Continued weakness and volatility of charter rates has kept revenues under pressure |
| Finance | <ul style="list-style-type: none"> • A wide range of regulations including Basel III, MiFID II, and Know Your Customer rules are affecting the competitiveness of the sector. For example Basel III has increased the capital which banks must hold against shipping loans, making them less profitable to write |
| Ship management | <ul style="list-style-type: none"> • Cost pressure and lack of availability of experienced seafaring staff leading to increased operation from low cost countries |

Other factors

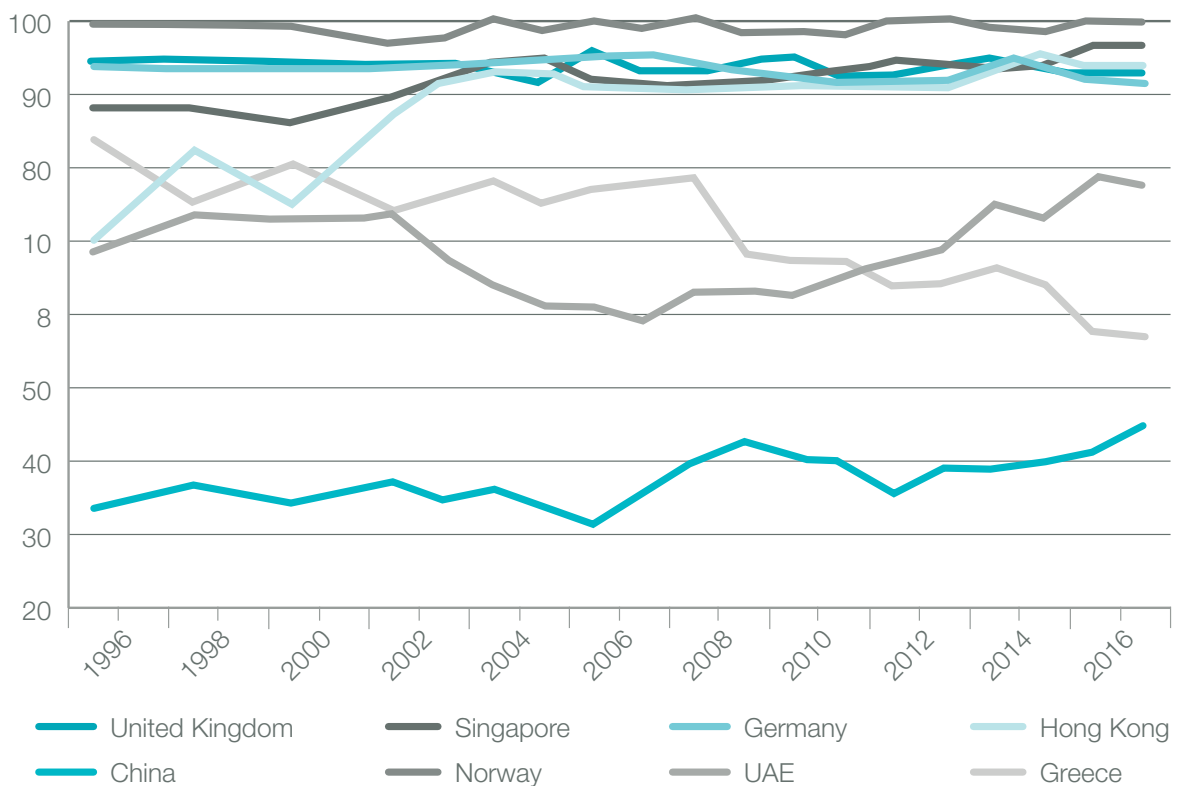
In addition to the factors already discussed, there are a number of more intangible draws which attract MPBS companies, ship owners, and charterers to the UK. While their subjective nature means that their importance varies from person to person, they are an important factor in the overall decision making process. While competing clusters continue to improve in these areas, the UK maintains a significant lead in perceptions of the probity of its legal system and its attractiveness as a place to live.

The UK legal system is one of the most transparent and effective in the world

Where the reliability of enforcement and effectiveness around rule of law is high, companies can trust that contracts will be fairly and effectively enforced. The UK has consistently ranked as one of the top performing countries on this metric.

Figure 25: Rule of law score, 1996-2017

Note: Rule of law is assessed across several metrics, which are combined to establish a percentile rank among all countries (100 = most effective legal system)



Source: World Bank











While some competing centres such as Singapore and Hong Kong have improved their performance on this metric over the last 20 years, and now match the UK in current performance, they have not built up the longstanding reputation the UK has. This was reflected in our interviews with many interviewees still believing the UK to be differentiated by the quality and probity of its legal system, and the degree of independence of its judiciary. This provides a significant competitive advantage as it is difficult for competing centres to replicate this perception. Indeed, recent events in Hong Kong around, for example, the new extradition law, suggest the UK should maintain a significant lead on this factor.

Interviews with MPBS professionals offered mixed views on the impact of Brexit on the UK's perception as a politically stable country. Some pointed to opportunities to reduce regulation post-Brexit, while others expressed concerns about the availability of talent and the perception of the UK as 'open for business'.

The UK also provides an attractive business environment

The UK has consistently maintained a reputation as one of the best global destinations for doing business. However, other countries with major maritime centres, such as Singapore, Hong Kong, Norway and the USA, also have supportive regulatory frameworks for political stability, business formation, trade, taxation and employment.

Figure 26: Ease of doing business ranking, 2019

| Economy | 2019 rank | 2012 rank | Change |
|----------------|-----------|-----------|--|
| Singapore | 2 | 1 | 1  |
| Hong Kong | 4 | 2 | 2  |
| Norway | 7 | 6 | 1  |
| United States | 8 | 4 | 4  |
| United Kingdom | 9 | 7 | 2  |
| UAE | 11 | 33 | 22  |
| Germany | 24 | 19 | 5  |
| France | 32 | 29 | 3  |
| China | 46 | 91 | 45  |
| Greece | 72 | 100 | 28  |

Source: *Doing Business 2019 report, World Bank*

Over the last five years, there has also been a significant improvement in the ease of doing business in the UAE, China and Greece. The UAE, for example, is now ranked almost as highly as the UK, which illustrates the progress the government has made in improving local business conditions. This confirms our findings from interviews with lawyers and tax experts, who noted an increase in businesses opening offices in Dubai. While the UK has maintained a strong position, some recent changes to corporate governance reporting, e.g. payment practices reporting and energy

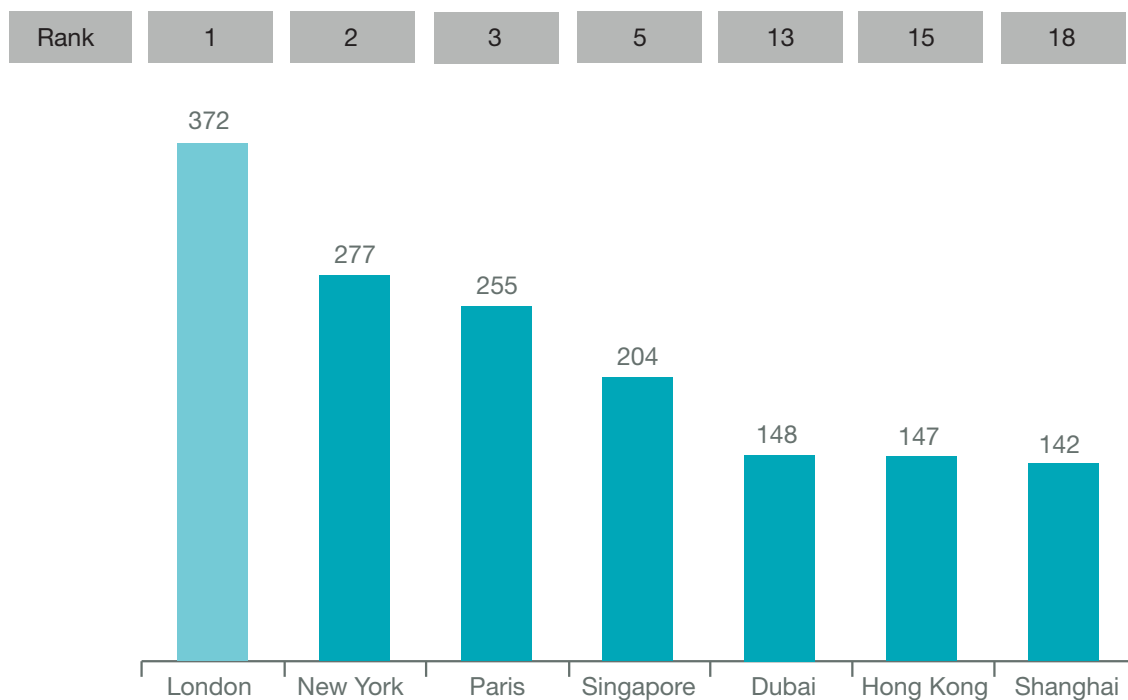
and carbon reporting, may be particularly unattractive to shipping companies.

London significantly outperforms on quality of life

A key differentiator of the UK is London's dynamism and cultural scene. From sports events to dining options, London offers an unparalleled variety of cultural activities, particularly when compared to other MPBS centres, which have historically performed relatively poorly in these areas.

Figure 27: Cultural interaction score, 2018

Note: Cultural interaction is assessed across 16 metrics, such as number of tourist attractions, number of international visitors, and attractiveness of shopping and dining options, which are combined to establish a total score

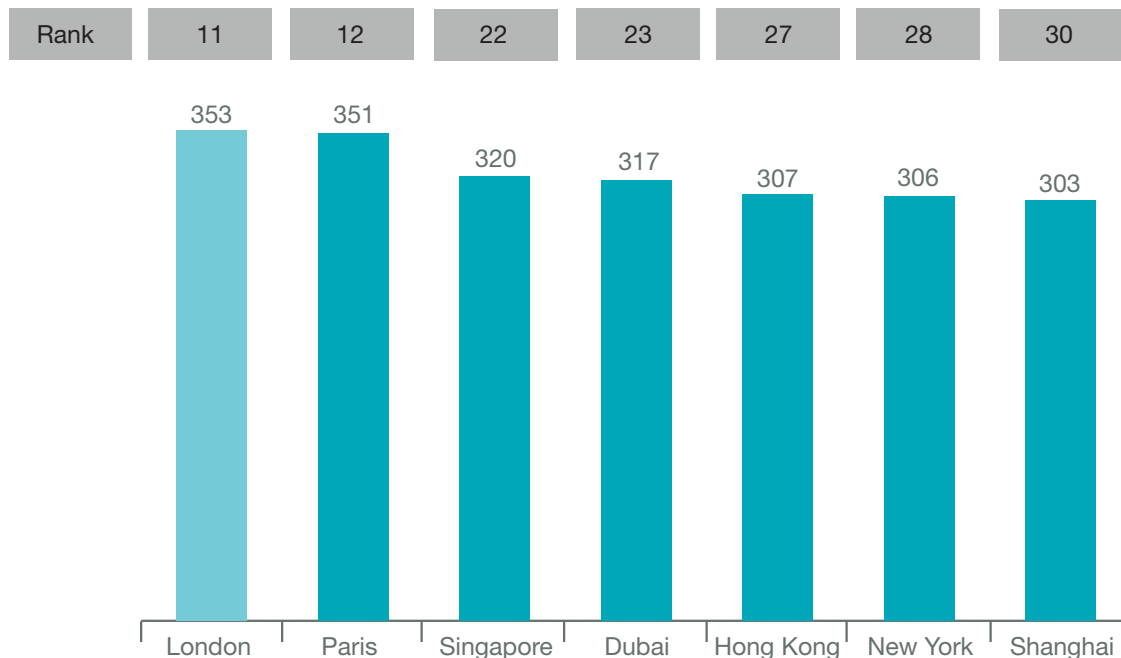


Source: Global Power City Index 2018, Institute for Urban Strategies, The Mori Memorial Foundation

Despite its high cost of living, London also scores well on 'liveability' indices. However, London is only slightly ahead on this metric compared to other maritime centres, which also have similarly high living standards.

Figure 28: Liveability, 2018

Note: Liveability is assessed across 14 metrics, such as unemployment rate, average housing rent, number of medical doctors and life expectancy, which are combined to establish a total score



Source: Global Power City Index 2018, Institute for Urban Strategies, The Mori Memorial Foundation

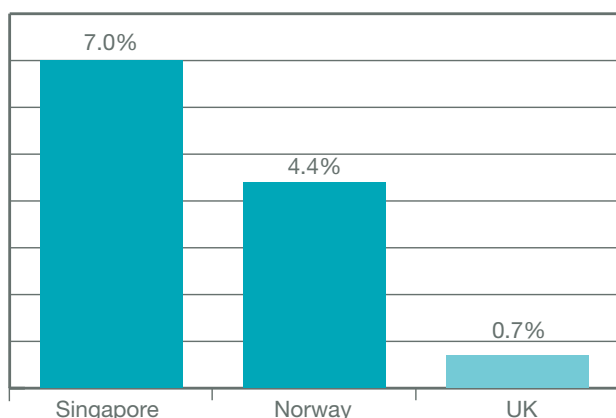
The lower visibility of the maritime sector in the UK is a barrier to recruitment.

Although a large sector in absolute terms, the maritime sector’s share of the overall UK economy is relatively small given the

contribution of other sectors such as finance, technology, and manufacturing. This is in contrast to competing MPBS centres where maritime is often one of the largest industries.

This low public profile creates a number of difficulties for the MPBS sector:

Figure 29: Maritime sector contribution to the economy as percent of GDP, 2016



Source: UK Department of Transport – Maritime 2050, Maritime Port Authority of Singapore – International Maritime Centre 2030 – Strategic Review, Norwegian Shipowners’ Association – Maritime Outlook Report 2018

- Greater difficulty in attracting and recruiting the right staff compared to other centres where the maritime industry is seen as a first choice of career.
- Lower priority for government support.
- Lower likelihood of technology entrepreneurs choosing to innovate in this sector.




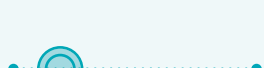






Interviews with industry professionals suggested that promoting the importance of the maritime industry to the UK economy and rebuilding its image could strengthen the long-term growth prospects of the sector.

Summary of overall UK performance

Figure 30 overleaf summarises the UK performance relative to other maritime centres on the key drivers for success in MPBS. The UK is a leader in availability of talent and education, and technology, but has gradually lost ground to other centres in areas such as the presence of ship owners.

In some cases, for example the movement of trade lanes towards Asia, both government and industry have limited ability to change the UK's position. However, in many others, there is considerable scope for positive action.

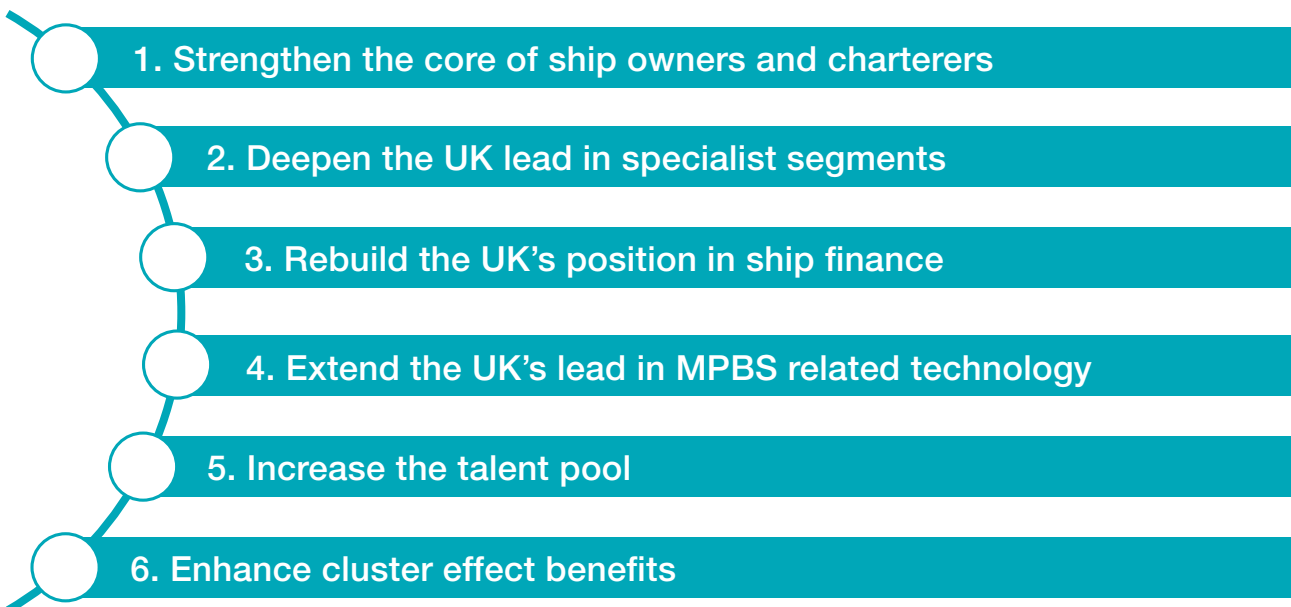
Figure 30: UK performance on key drivers for success in maritime professional business services

| Driver of success | | UK performance relative to other MPBS centres | Potential impact of industry and government action | Comments |
|-------------------------|---------------------------------|---|--|---|
| Presence of ship owners | Presence of ship owners | Weak  Strong | M | <ul style="list-style-type: none"> The UK has lost ground in recent years both in terms of vessels owned in the UK and the presence of principals While the UK will struggle to replicate the attractions of some competing countries, there are opportunities to improve competitiveness |
| | Corporate and personal taxation |  | H | <ul style="list-style-type: none"> Tonnage tax regime viewed positively, but recent personal tax changes have had a negative impact on UK ship owner base |
| | Trade lanes |  | L | <ul style="list-style-type: none"> Global trade continues to shift toward Asia, which draws shipping companies, charterers and MPBS providers to Asian maritime centres, such as Singapore |
| | Availability of finance |  | M | <ul style="list-style-type: none"> There has been a significant decline in the availability of shipping finance in the UK in recent years Opportunities to rebuild ship finance provision exist mostly in the alternative finance space |
| Presence of charterers | |  | M | <ul style="list-style-type: none"> The UK is an important centre for oil and gas trading, but Singapore is building a major presence in all commodities |
| Cluster effect | |  | M | <ul style="list-style-type: none"> While the cluster effect is largely an outcome of the other factors, the industry and government can work together to ensure that the benefits of linkages between different services are maximised |
| Talent and Education | |  | H | <ul style="list-style-type: none"> The UK is a leader in maritime education and has access to both international and seafarer talent Government policy should aim to ensure that talent remains accessible |
| Technology | |  | H | <ul style="list-style-type: none"> The UK is a leader in digital maritime technology, driven by the availability of talent and funding There are opportunities to improve adoption, support and visibility of innovative maritime solutions |
| Government support | |  | H | <ul style="list-style-type: none"> The level of government support in the UK has been improving, but continues to lag behind Singapore Other centres are also improving their performance and this is likely to become a more competitive area |
| Other factors | |  | M | <ul style="list-style-type: none"> The UK offers a good business and social environment that attracts business owners to the country The government should continue to support businesses through a stable political and economic environment |

Low impact potential **L** **M** **H** High impact potential

Maintaining our leading position – the way forward

Based on our analysis of the drivers of success in MPBS and the UK's position relative to the main competing clusters, we have identified a number of initiatives to enhance the UK's already leading position. These represent a potential roadmap for industry and government to work together to improve the competitiveness of the UK cluster. The initiatives have been grouped under six headings.



1. Strengthen the core of ship owners and charterers

While the UK has maintained a strong MPBS cluster despite a relatively small ship owner base, it is clear that increasing the presence of both owners and charterers would provide a significant boost.

- 1.1. Government to create a 'shipping czar', a senior figure to drive more proactive government marketing of the sector and to engage with ship owners and charterers to encourage them to move to the UK, demonstrating a hunger to have them here. The czar would coordinate

between relevant departments, trade associations, and the MCA, and have the authority to represent government to ship owners, acting quickly to coordinate and deliver assistance to owners looking to move to the UK.

- 1.2. Government should re-evaluate the existing target to grow the UK Flag and develop a new explicit and ambitious target. This should include measures to deliver growth including a comprehensive strategy review, continuing to improve customer service to existing users, and a marketing strategy to compete with other registries.

- 1.3. Government to consider further measures around personal taxation to reinvigorate the presence of ship owners in the UK, including matching international norms on statutory residency with the UK's comparable European competitors.
- 1.4. In light of the opportunity created by BEPS reforms to attract more shipping companies to the UK, government should maximise the attractiveness of the tonnage tax regime. Potential improvements to the regime should include a more flexible election window and inclusion of more vessel types.
- 1.5. Encourage UK leadership in niche and emerging shipping segments (e.g. powerships, vessels used in relation to CCS and oil field decommissioning) which could diversify the ship owning base. As part of the Maritime 2050 roadmaps government and industry should identify promising growth segments and develop ways to support these.
- 1.6. Industry indicated the importance of attracting seed capital to the sector to increase the number of shipping startups. Measures to achieve this could include agreeing criteria for qualification that will allow shipping companies to access existing government venture capital incentives (e.g. EIS, VCT), and thorough promotion of these by the industry.
- 1.7. In the context of industry's desire to increase the presence of large customers, government should incentivise a small number of flagship owners or charterers to be based in the UK through e.g. tax or business cost incentives. This will depend on the development any future changes to competition law.

2. Deepen the UK lead in specialist segments

The UK has a strong lead in a number of areas such as maritime disputes and more complex insurance. The sector should focus on ensuring the UK maintains 'clear blue water' in these segments of the market.

- 2.1. Ensure the UK government is at the forefront of developing legal frameworks around areas such as AI, autonomous vessels, and carbon emissions which are likely to be important issues in future disputes and arbitration.
- 2.2. Similarly, the UK MPBS sector should ensure that it leads the way in setting and developing standards around innovation. This should include a strong and proactive relationship between the UK IMO delegation and the Maritime Professional Services Forum, and greater cooperation between companies within each MPBS sector to define standards (along the lines of the Digital Container Shipping Association).
- 2.3. Dedicated promotion by government and industry of segments in which the UK has a clear lead and unique capability e.g. arbitration and complex insurance risks. This should include industry working with the DIT to communicate the unique capabilities of the UK and integration of these into the DIT's 5 year export plan.
- 2.4. Depending on the future regulatory environment, government should consider reform of regulations which have adversely affected a number of MPBS segments (e.g. MiFID II, Solvency II, Basel III).

3. Rebuild the UK's position in ship finance

Our research identified the decline in ship finance provision as one of the main weaknesses of the UK cluster in recent years. While the return of a significant bank lending presence appears unlikely, there are a number of other measures which should be considered to increase ship finance provision.

- 3.1. Government and industry to work with the LSE to achieve some selected dual listings of large shipping companies in London. This will provide a base of analysts and knowledge to catalyse further capital markets activity.
- 3.2. Develop London as the leading offshore centre for RMB based ship leasing and other forms of finance. This will require proactive and coordinated HMG and industry engagement with Chinese leasing firms highlighting the advantages of having a presence in the London market.
- 3.3. Industry to work with the deep pool of institutional investors in the UK (e.g. pension funds) to create greater understanding of and interest in investing in the shipping sector.
- 3.4. Industry to work with UKEF to develop policies for more flexible use of UK export finance where this can be linked to UK based ship owning or the use of UK MPBS.
- 3.5. Development of the UK as a leading centre for shipping focused green finance.
 - 3.5.1. Industry should take a lead in developing green finance products which can address this market and ensuring that the UK plays a leading role in standards organisations such as the Climate Bonds Initiative.

- 3.5.2. Government should support this through putting in place incentives such as export finance, public / private funds, and vessel residual value guarantees related to green technology.

- 3.6. Government to encourage UK banks to re-enter some lower risk areas of the ship lending such as industrial shipping or vessels integrated into broader infrastructure projects, with a potential of linking to UKEF guarantees.

4. Extend the UK's lead in MPBS related technology

The UK already has a strong position in digital maritime technology, however more can be done to improve adoption, support, and visibility.

- 4.1. Foster, greater openness among leading UK MPBS companies to adopt technology through workshops, thought leadership events, and promotion of the benefits of innovation.
- 4.2. Maritime should be a priority sector in existing government support schemes (e.g. Innovate UK and the London Co-Investment Fund) with specific targets for investment in the sector.
- 4.3. Creation of an industry and government backed fund focussing specifically on supporting innovation in the maritime sector.
- 4.4. Maritime London technology and innovation working group to target greater promotion of the importance of technology and the potential benefits for UK companies.

4.5. The maritime sector is less visible to technology specialists than in competing centres, restricting the number of startups. The industry could raise visibility by:

- 4.5.1. Sponsoring MPBS related hackathons, Kaggle competitions, etc.
- 4.5.2. Working more closely with existing accelerators and VCs to raise understanding of the opportunities.
- 4.5.3. Coordinating with Maritime 2050 activities to promote the maritime sector more broadly.

5. Increase the talent pool

Availability of skilled staff is a key driver of success for the MPBS cluster. While this has historically been a strength, the UK could further enhance its position.

- 5.1. Ensure that, post-Brexit, visa and immigration rules mean that UK firms are able to continue to recruit the best international staff, and that educational institutions remain open to global students.
- 5.2. Government to continue and potentially increase training support for officer cadetships, as a key source of talent for future shore-based roles.
- 5.3. Increased marketing by industry of the opportunities in MPBS sector to ex seafarers.
- 5.4. Promote increased diversity in the workforce to ensure that all available talent is being used in the industry, through the sector playing an active role in the Women in Maritime task force.
- 5.5. Industry and DIT to drive the internationalisation of the UK's highly successful maritime colleges, both as a source of exports but also to

increase linkages to the international talent pool.

6. Enhance cluster effect benefits

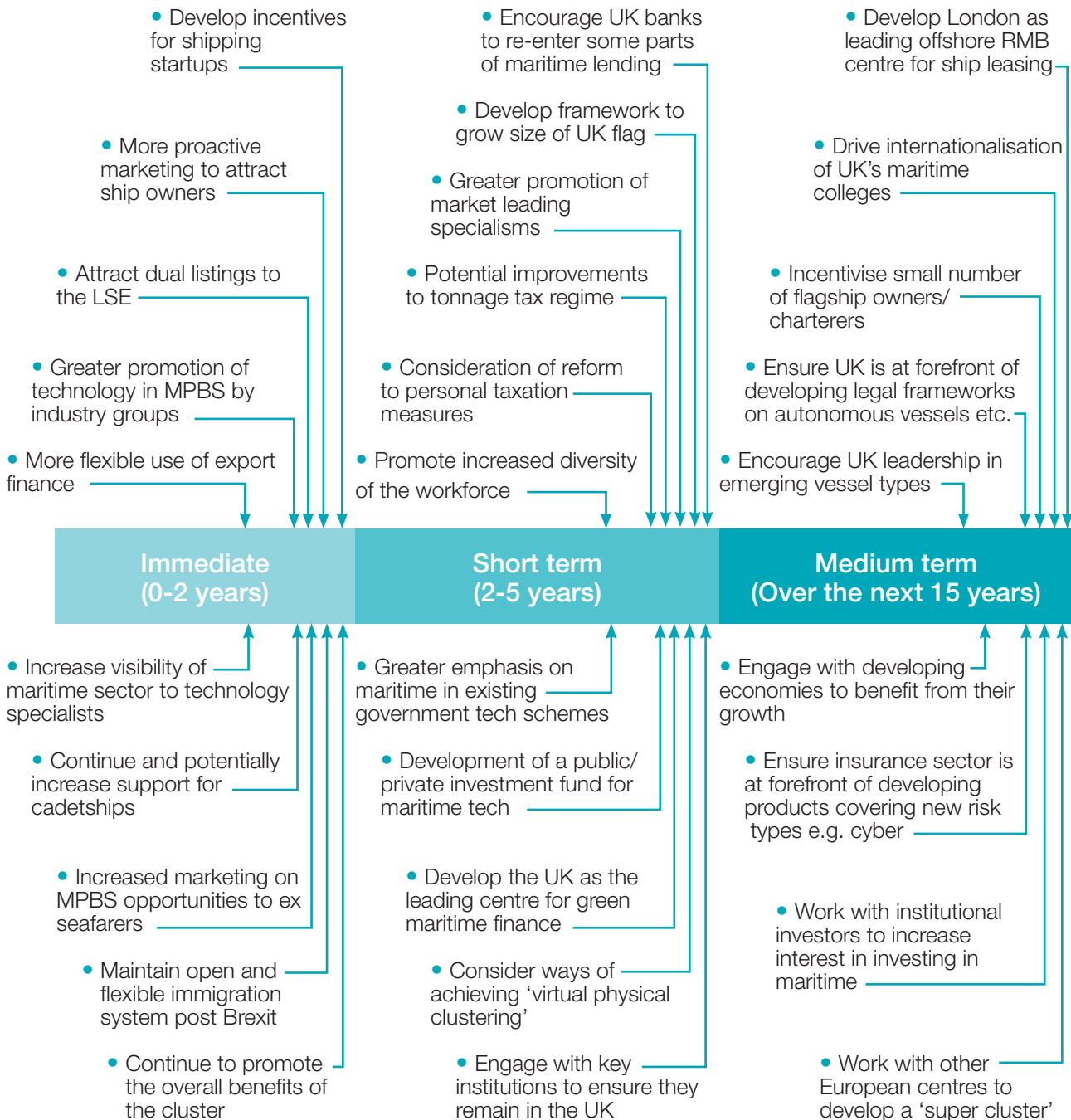
A key strength of the UK has historically been the cluster effects of multiple MPBS providers in one location. These benefits could be further increased through a number of initiatives.

- 6.1. Continue to work closely through forums such as Maritime London and Maritime UK to promote the overall success of the cluster.
- 6.2. Strengthen the relationship with the Department of International Trade (DIT) to develop a greater understanding of the UK's MPBS offer and effectively utilise the department's global network.
- 6.3. Work with other European MPBS clusters to develop and promote a 'super-cluster' reinforcing one another's strengths.
- 6.4. Proactively engage with developing economies, particularly China, to capitalise on their rapidly expanding presence, and develop, through Maritime London, the Baltic Exchange, and the China Shipping Association of London, a knowledge hub and network for Chinese firms looking to invest in the UK.
- 6.5. While physical co-location of the cluster would be difficult to achieve in London, look into ways of achieving 'virtual clustering' to improve collaboration and increase the visibility of maritime services in the UK e.g. facilitating secondments between MPBS sub-sectors and fostering closer links with educational institutions.
- 6.6. Proactively engaging with key global maritime institutions to ensure they remain based in the UK.

These initiatives should reinforce the foundations of the sector in terms of ship ownership, talent, and the availability of finance, while ensuring the UK positions itself to take a lead in emerging technologies, markets, and vessel types. Taken together, they constitute a significant agenda for change. Given the scale of the challenge these initiatives are likely to be

phased over a number of years. In figure 40 we have presented a delivery timeframe, aligned with 'route map' timeframes from the Maritime 2050 report. There are a wide range of initiatives which can be actioned in a relatively short period of time. Others are likely to take a number of years to yield results but will also require action in the nearer term to be successful.

Figure 31: Recommendations delivery timeframe



Delivering these recommendations will require both government and industry to work closely together to implement them through a combination of:

- Ongoing consultation between the Department for Transport and maritime trade associations, particularly Maritime London to lead and shape the implementation of the recommendations.
- Coordinating involvement of other relevant government departments including Treasury and the Department for International Trade.
- Working closely with ship owners, charterers, and other stakeholders to ensure that they are involved in the implementation of recommendations.

As with the broader Maritime 2050 strategy, the roadmap will need to be flexible to changes in the external environment, particularly the impact of Brexit. Nevertheless, strengthening the MPBS cluster should remain a core element of the Maritime 2050 strategy, reflecting MPBS' importance as the jewel in the crown of the UK's maritime sector.

Glossary

| | |
|----------------------------|---|
| AI | Artificial intelligence refers to the development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition and decision-making. |
| AIS data | Automatic identification system data used to avoid vessel collisions which can also be collected and analysed to understand shipping trends. |
| Alternative finance | Forms of finance that stretch beyond the three traditional asset types (stocks, bonds and cash). Examples include private equity, private debt, venture capital, crowdfunding, and lease financing. |
| Arbitration | A form of dispute resolution by independent third party. |
| Autonomous ships | Ships that can be operated with no or reduced crew under semi or fully autonomous control. |
| Basel III | An internationally agreed set of measures developed by the Basel Committee on Banking Supervision in response to the financial crisis of 2007-09. |
| Business cluster | A geographic concentration of interconnected businesses, suppliers, and associated institutions in a particular business sector. |
| CCS | Carbon capture and storage. |
| Chartering | The activity whereby a ship owner hires out the use of his vessel to a third party. |
| ESG | Environmental, Social, and Governance factors in investing. |
| Flag state | Country in which a vessel is registered and under which it is regulated. |
| IACS | International Association of Classification Societies. |
| ICS | International Chamber of Shipping. |
| IGP&I | International Group of Protection and Indemnity Clubs. |
| IMC 2030 | A report outlining Singapore's maritime strategy. |
| IMO | International Maritime Organisation. |

| | |
|------------------------------|---|
| IoT | Internet of Things refers to the interconnection of computing devices embedded in everyday objects, enabling them to send and receive data via the Internet. |
| IPO | Initial public offering refers the process of offering shares in a private corporation to the public. |
| IT | Information technology. |
| Kaggle | A popular platform host to many data science competitions, often offering monetary prizes for winners which propose the best solution to problems posted by different organisations. |
| KYC | Know your customer is the process of a business verifying the identity of its clients. |
| Lloyd's of London | An insurance and reinsurance market located in London. |
| Machine learning | An application of artificial intelligence that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. |
| Market capitalisation | The market value of a publicly traded company's outstanding shares. |
| MiFiD | The markets in financial instruments directive is a regulation that increases the transparency across the European Union's financial markets and standardises the regulatory disclosures required for particular markets. |
| MPBS | Maritime professional business services – shipbroking, maritime insurance, maritime law, ship finance, classification, ship management, accounting and consulting. |
| Principal/Ship owner | An owner of a company or a vessel, who usually exercises significant commercial control and who can be based outside of the country of operation. |
| R&D | Research and development. |
| RMB | Renminbi is the official currency of the People's Republic of China. |
| RPA | Robotic process automation. |
| S&P | Sale and purchase of a vessel. |
| SMarT scheme | The support for maritime training scheme offers funding for seafarer training. In 2018, it was announced that the annual funding available will be doubled from £15m to £30m per year. |
| Tonnage tax | A taxation mechanism applied to shipping companies based on the net tonnage of the fleet of vessels under operation by a company. |
| VC | Venture capital or venture capital funds. |

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