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British port-hinterland container rail freight market analysis

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Glossary of Terms

DBC	DB Cargo
DRS	Direct Rail Services
FL	Freightliner
FOC	Freight operating company
GBRf	GB Railfreight
O-D	Origin-destination
ORR	Office of Rail and Road
Q2	Quarter 2 of financial year (i.e. July-September)
Region	English region (formerly Government Office Regions) or other UK nation
TEU	Twenty-foot equivalent unit
Tkm	Tonne kilometres

1. Introduction

This aim of this report is to identify the key trends in the British maritime (i.e. port-hinterland) container rail freight market. It is an evidence-led report which makes use of available data from published and, more particularly, unpublished sources. The use of the latter allows analysis at a more disaggregated level (e.g. estimated train service provision and TEU capacity by port-region pairs) to provide insight not available from published statistics.

The next section (Section 2) sets out the fundamentals of the study methodology and the base information used in the trend analysis. Section 3 sets the scene by presenting the relevant published statistics from ORR. These demonstrate the growing importance of intermodal rail freight, of which port-hinterland container flows form the major component. Section 4 summarises the current maritime intermodal train service provision. Sections 5 and 6 respectively deal with trends in intermodal train service provision, with a focus on deep sea port-hinterland services, and in TEU capacity provided on these deep sea port-hinterland services. Finally, Section 7 provides a Midlands perspective on the preceding analysis.

2. Methodology and base information

In addition to the statistics published by ORR, which offer a useful overview but limited insight into the detailed trends in the port-hinterland container market, the two main sources of information for the trend analysis are:

- A database of rail freight services operated, allowing train service provision to be monitored on an annual basis
- Surveys of on-train capacity, providing more in-depth information about TEU capacity provided, albeit on a more infrequent basis than the database

In combination, these two measures offer considerable insight into the changes that have been taking place. The key characteristics of these sources are presented in the following two sub-sections.

2.1 Annual database of rail freight service provision

The database of rail freight service provision has been compiled annually since 1997, adopting as consistent a methodology as possible to allow time series analysis such as that presented in this report. Key information recorded for each service includes origin, destination, departure and arrival times, frequency, days of operation, commodity and FOC. The census point is January each year, so any seasonal patterns in service provision are not incorporated into annual estimates of train service provision. The use of the same period in each year means that comparisons between years are made on the same basis and, in any case, intermodal service provision displays relatively little seasonality in the number of services operated. Given the inherent variability of rail freight operations, in comparison with the passenger train timetable, it is not possible to achieve 100% coverage. Freight trains often run on an 'as required' basis (depending on customer demand), *ad hoc* services can be common, etc. This affects intermodal services to a lesser degree than most bulk flows, but regular changes to service patterns do occur and will not be picked up within a particular year.

The database analysis presented in this report covers service provision from 2007 to 2021, so that it encompasses the three years covered by the surveys of on-train capacity (see Section 2.2). It should be note that, while monitoring trends in train service provision is a useful indicator of changing activity at a regional or O-D level, it has shortcomings. While most port-hinterland container train services operate directly from origin to destination, there are complicating operating characteristics including:

- Some trains are staged in yards *en route* and operate as separate services pre- and post-staging
- Some trains have intermediate terminal stops to attach or detach wagons, not picked up by an O-D analysis
- In some cases, complete trains start from or terminate at intermediate yards with feeder services operating to/from two or more terminals, or through trains stop at a yard to attach or detach one or more portions to/from other terminals

The first of these is easily picked up in the database, allowing the genuine O-D information to be identified. The second example is rare in the port-hinterland container market, with no current examples and very few occurring since 2007. The final one is more significant, though has been

less common in recent years. The only current example, and the main one throughout the period under consideration has been the use of Crewe Basford Hall Yard as a coordinating point for portions feeding into or out of the trunk services to/from the ports (see Table 4.1). In the context of this analysis, which considers trends in regional connections with the ports, the implications are minimal, since Crewe is in the North West, as are three of the four terminals served by feeders or portions; only Coatbridge is in a different region, and the balance of direct and feeder service provision to/from Coatbridge has varied over the years, so some caution is needed when interpreting the findings relating to North West and Scotland. Despite these points, the consistent nature of the data collection and the limited variability in their nature means that their impacts on the findings will be limited and, in any case, the analysis of disaggregated service provision provides insight not available from any published sources.

While train service provision is a useful indicator, and one that is available on an annual basis from the rail freight database, it has the drawback that it takes no account of the length of train and, by implication the on-train capacity. The next sub-section discusses how this has been overcome.

2.2 Surveys of on-train capacity

Original surveys of port-hinterland container train composition have been conducted in each of 2007, 2015 and 2021, with a consistent survey methodology used for each survey period. A representative week's worth of service provision was surveyed, taking account of port, FOC, direction of flow (i.e. import or export) and O-D pair. The survey focused on train service provision for deep sea containers at the rail-served container ports and, within the methodological constraints associated with surveys rather than full data collection, allowed the identification of average (mean) TEU capacity per train run and per O-D pair. This has then been aggregated to provide O-D analysis with estimates of annual TEU capacity at the port-region level. The large, representative sample size and consistent methodology between survey periods means that the O-D analysis at the regional level is robust.

Table 2.1 sets out the terminals served by deep sea container train services in each of the three survey periods. It also serves as a record of the allocation of terminals to regions in the subsequent analysis.

Table 2.1: Terminals served by deep sea container train services, disaggregated by region (in 2007, 2015 and 2021 survey periods)

Region Terminal	Terminal active in: 2007	2015	2021
East Midlands			
Daventry	x	x	
East Midlands Gateway			x
East of England			
-			
London			
-			
North East			
Teesport		x	x
Wilton	x		
North West			
Ditton	x	x	x
Liverpool (Garston)	x	x	x
Manchester (Trafford Park)	x	x	x
South East			
-			
South West			
Avonmouth			x
Bristol		x	
West Midlands			
Birmingham (Lawley Street)	x	x	x
Birch Coppice	x	x	x
Burton-on-Trent		x	
Hams Hall	x	x	x
Yorkshire and the Humber			
Doncaster iport			x
Doncaster Railport	x	x	x
Leeds	x	x	x
Rotherham			x
Selby	x	x	
Sheffield (Tinsley)			x
Wakefield Europort	x	x	x
Scotland			
Coatbridge	x	x	x
Mossend			x
Wales			
Cardiff	x	x	x

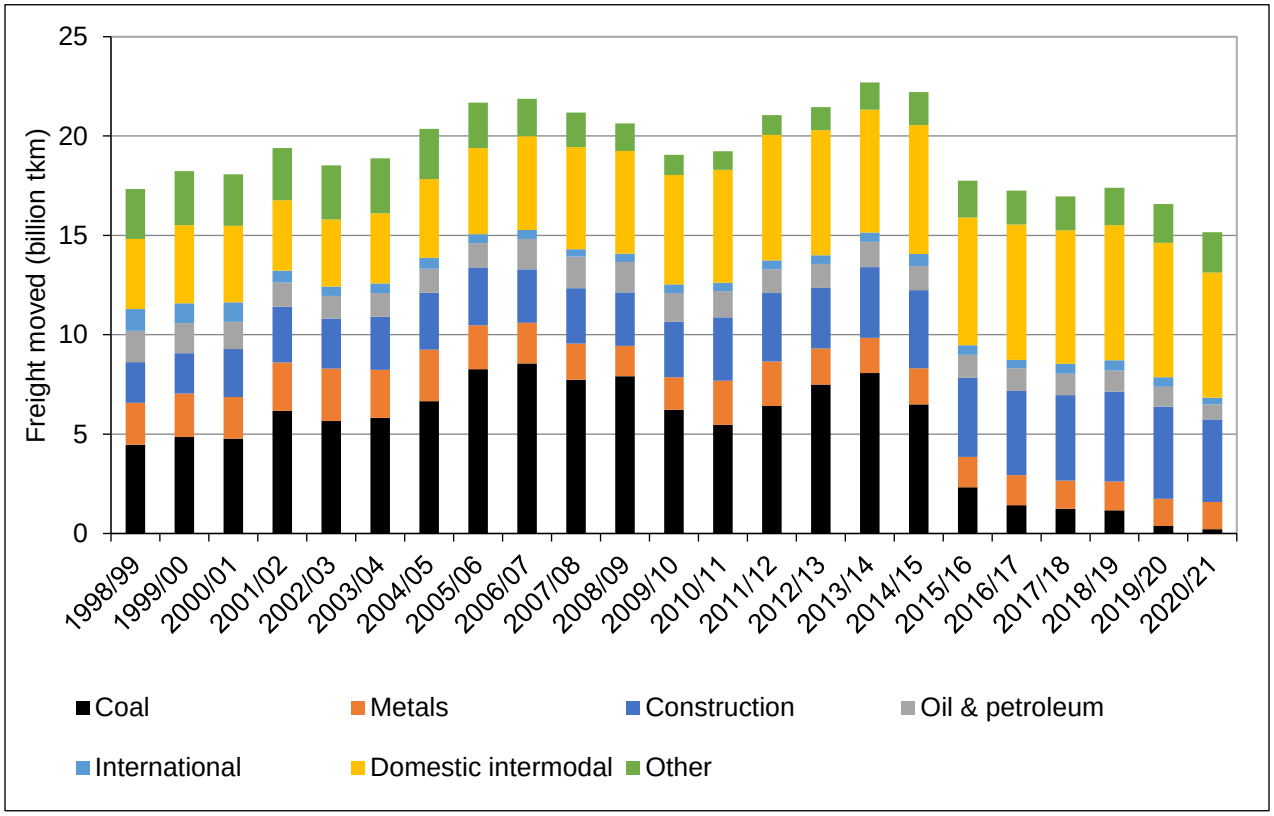
Source: original surveys

It should be borne in mind that, while the timing of the surveys was similar in each year thus allowing direct comparison between the findings of the three surveys, they differed from the timing of the database compilation so that, for example, the service provision surveyed in 2021 differed slightly from the service provision identified in the database because of changes in the intervening period.

3. Relevant published statistics

Prior to presenting the original disaggregated analysis, this section sets out the relevant published statistics from the Office of Rail and Road (ORR). Figure 3.1 shows the annual amount of freight moved by rail from 1998/99 to 2020/21, disaggregated by the official commodity groupings. Ten years ago, *Domestic intermodal* (the official commodity grouping covering, and dominated by, maritime intermodal activity) started to vie with *Coal* to be the largest grouping. Following the dramatic decline in coal traffic around 2015, *Domestic intermodal* has consistently been the largest of the seven groupings. Despite the reduction in total rail freight volume in recent years, largely resulting from the rapid contraction of coal flows, *Domestic intermodal* activity was fairly stable, at least until the onset of the Covid-19 pandemic which started to cause disruption at the very end of the 2019/20 financial year.

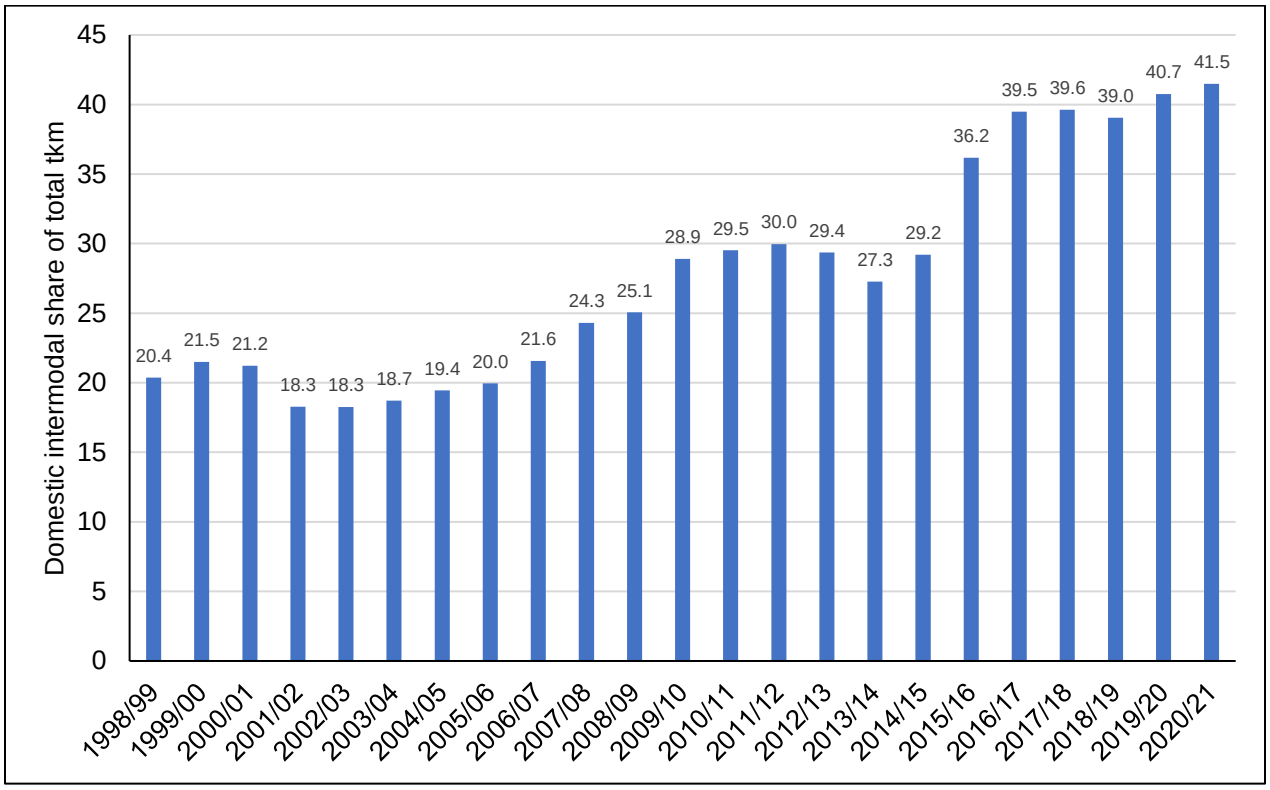
Figure 3.1: Freight moved by rail, by commodity grouping (1998/99 – 2020/21)



Source: ORR (2021); see Appendix A (Table A.1) for the raw data

Figure 3.2 demonstrates the dramatic increase in the share of the rail freight market which is accounted for by *Domestic intermodal*. Since the time series began, *Domestic intermodal*'s share has more than doubled, from around one-fifth in 1998/99 to more than two-fifths in 2020/21, the highest proportion on record. While the big increase between 2014/15 and 2015/16 can be attributed largely to the decline in coal traffic, it's evident that the trend in the *Domestic intermodal* share over the last 20 years has been upward.

Figure 3.2: Domestic intermodal share of rail freight market (1998/99 – 2020/21)



Source: ORR (2021)

4. Current maritime intermodal service provision

As a point of record, Table 4.1 summarises the port-hinterland container train service provision as at 2021/22 Q2. For completeness, this includes a number of services from Teesport and Tilbury which cater for short sea or domestic traffic; these services are excluded from the subsequent focus (from Section 5.2 onwards) on the deep sea container market.

Table 4.1: Port-hinterland intermodal rail service provision (as at 2021/22 Q2)

Destination	FOC	Typical frequency (two-way total)
Felixstowe to/from:		
Birch Coppice	GBRf	22 per week
Birmingham (Lawley Street)	FL	30 per week
Cardiff	FL	10 per week
Coatbridge	FL	10 per week *(some services staged at Crewe)*
Ditton	FL	20 per week *(some services staged at Crewe)*
Doncaster iport	GBRf	20 per week
Doncaster Railport Doncaster Railport	FL GBRf	10 per week 10 per week
East Midlands Gateway East Midlands Gateway	DBC FL	20 per week 10 per week
Hams Hall	GBRf	32 per week
Leeds	FL	20 per week
Liverpool (Garston)	FL	20 per week
Manchester (Trafford Park) Manchester (Trafford Park)	FL GBRf	48 per week *(some services staged at Crewe)* 10 per week
Rotherham	GBRf	20 per week
Teesport	FL	10 per week
Sheffield (Tinsley) Sheffield (Tinsley)	FL GBRf	10 per week 20 per week
Wakefield Wakefield	DBC GBRf	10 per week 10 per week
Liverpool (Seaforth) to/from:		
East Midlands Gateway	GBRf	10 per week
Mossend	DBC	6 per week
London Gateway to/from:		
Birch Coppice	GBRf	10 per week
Birmingham (Lawley Street)	FL	10 per week
Coatbridge	FL	10 per week
Hams Hall	GBRf	11 per week
Leeds	FL	10 per week
Liverpool (Garston)	FL	10 per week
Manchester (Trafford Park)	DBC	10 per week
Manchester (Trafford Park)	FL	10 per week *(some services staged at Crewe)*
Rotherham	GBRf	10 per week
Wakefield	DBC	10 per week
Southampton to/from:		
Avonmouth	FL	2 per week
Birch Coppice	DBC	10 per week
Birmingham (Lawley Street)	FL	32 per week
Cardiff	FL	16 per week
Crewe	FL	10 per week *(to/from Coatbridge/Garston)*
Doncaster iport	GBRf	10 per week
East Midlands Gateway	GBRf	10 per week
Leeds	FL	20 per week
Liverpool (Garston)	FL	10 per week
Manchester (Trafford Park) Manchester (Trafford Park) Manchester (Trafford Park)	DBC FL GBRf	10 per week 20 per week 10 per week
Rotherham	DBC	10 per week
Wakefield	DBC	10 per week

Teesport to/from:		
Daventry/Doncaster iport	*DRS*	*12 per week*
Doncaster iport	*GBRf*	*6 per week*
Elderslie	*GBRf*	*1.5 per week*
Grangemouth	*DBC*	*6 per week*
Mossend *Mossend*	*DBC* *DRS*	*10 per week* *2 per week*
Tilbury to/from:		
Cardiff	FL	4 per week
Daventry	*DRS*	*20 per week*

Source: based on annual rail freight database and real-time data; italicised rows (for Teesport and Tilbury) are short sea or domestic services using port rail terminals, rather than deep sea services

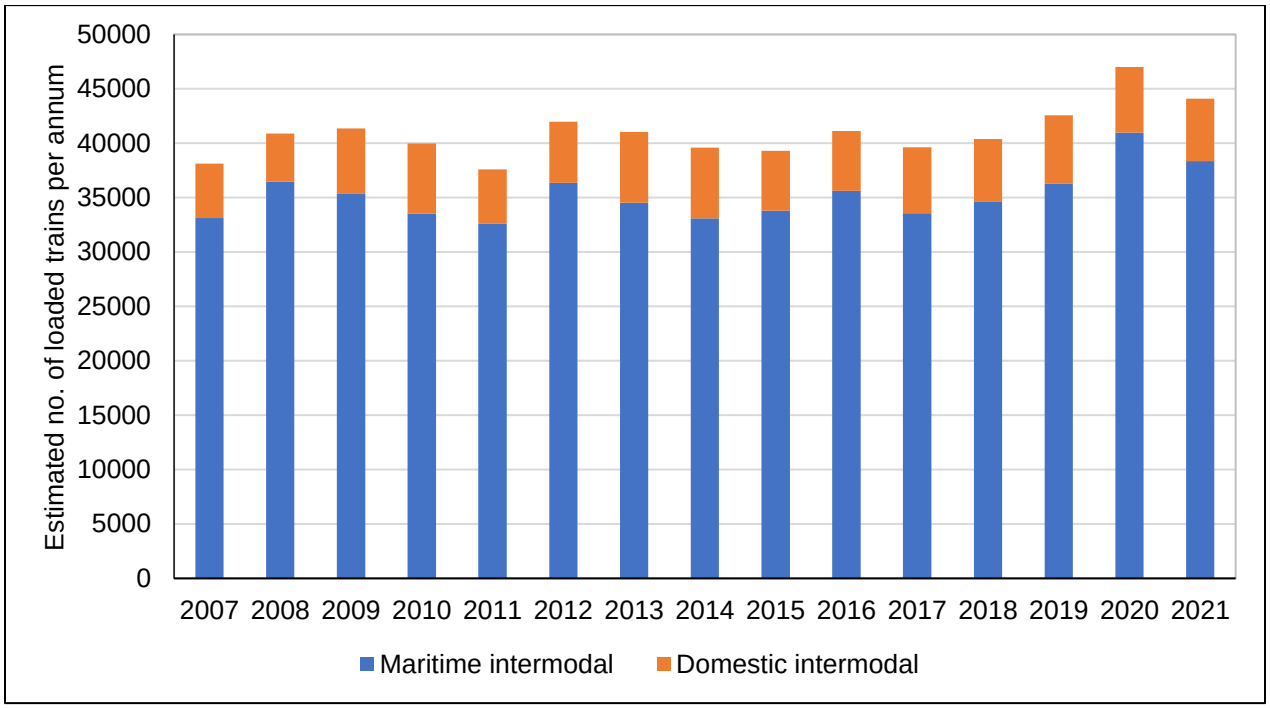
5. Trends in intermodal train service provision

Based on the annual rail freight database, this section focuses on trends in intermodal train service provision since 2007. The first sub-section (5.1) presents details of the estimated total number of intermodal trains operated in each year, followed in Section 5.2 by specific consideration of the trends in service provision for deep sea container traffic.

5.1 Estimated number of intermodal trains per annum

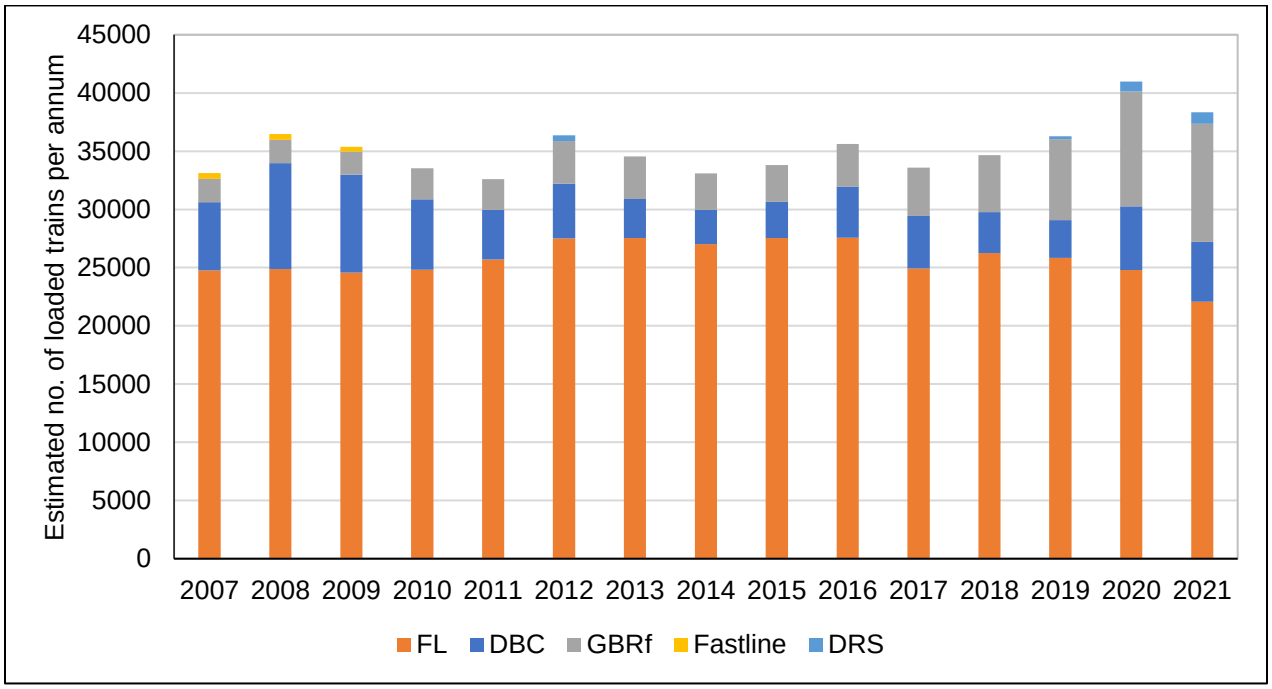
The estimated number of intermodal trains operated within Britain per annum is shown in Figure 5.1; international intermodal trains, using the Channel Tunnel, are excluded. The total is disaggregated into maritime intermodal (i.e. trains serving ports) and domestic intermodal (i.e. trains where both ends of the journey are domestic terminals). It is evident that maritime intermodal is dominant, with just 13% of the total in both 2007 and 2021, though it fluctuated between 11% and 16% during the period. Figure 5.2 focuses solely on maritime intermodal service provision, with the total disaggregated by FOC. While some increase in the number of services has taken place since 2007, the trend is erratic and does not appear to have matched the overall growth in *Domestic intermodal* activity shown in Figure 3.1. The subsequent analysis of on-train capacity provides insight into this apparent discrepancy, though changes in the nature of service provision may also have played a role, with a reduced role for train staging and portion working now than in earlier years (see Section 2.1).

Figure 5.1: Estimated number of loaded maritime intermodal and domestic intermodal trains per annum (2007 – 2021)



Source: annual rail freight database; see Appendix B (Table B.1) for the raw data

Figure 5.2: Estimated number of loaded maritime intermodal trains per annum (2007 – 2021)



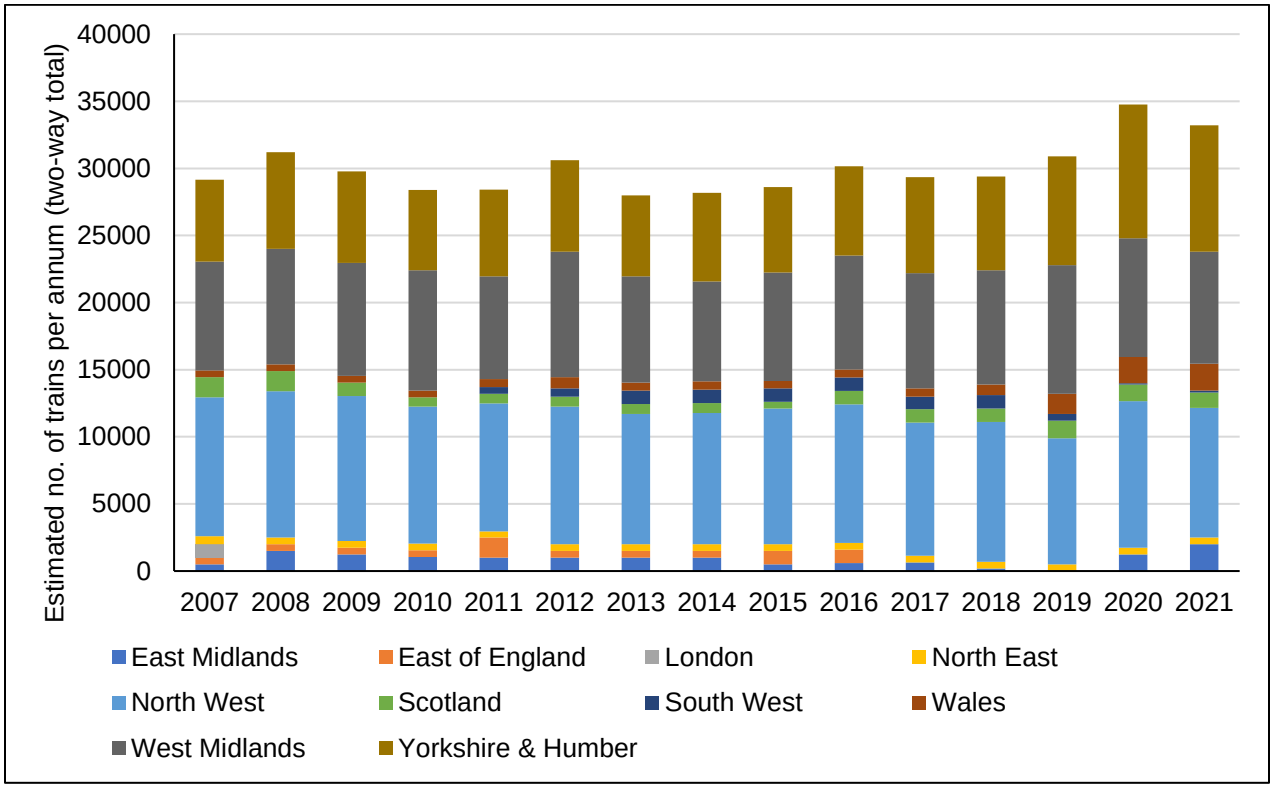
Source: annual rail freight database; see Appendix B (Table B.2) for the raw data

It is clear from Figure 5.2 that Freightliner's dominance in service provision has been eroded over time, declining from 75% in 2007 to 58% in 2021. DB Cargo's share has also reduced, but GB Railfreight's activity has increased dramatically, from just 6% in 2007 to 26% in 2021. DRS has recently (re-)entered the maritime intermodal market, though it does not operate any services targeted at flows of deep sea containers (see Table 4.1).

5.2 Trends in port-region flows of deep sea container traffic

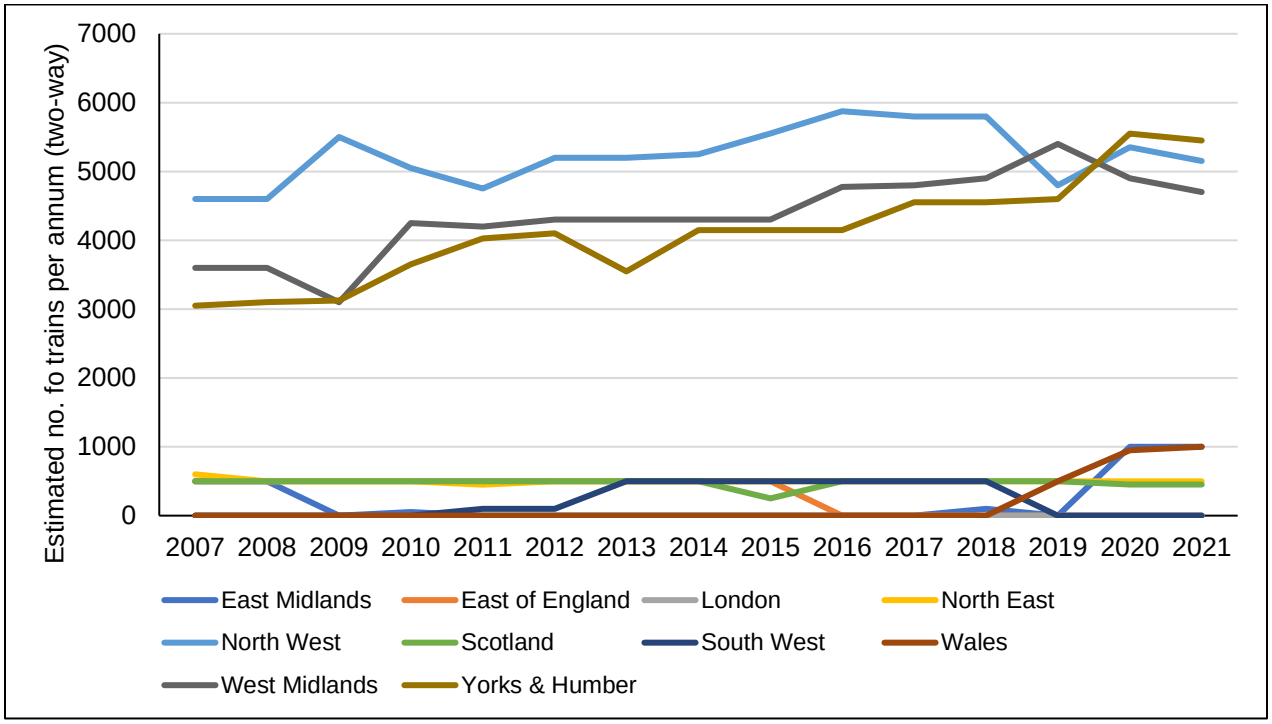
Focusing only on deep sea container train service provision, Figure 5.3 reveals the regional breakdown of services between ports and the various regions. In combination, Felixstowe and Southampton have dominated service provision throughout the time period, so the separate trends for these two ports are shown in Figures 5.4 and 5.5 respectively.

Figure 5.3: Train service provision between ports and regions (2007 – 2021)



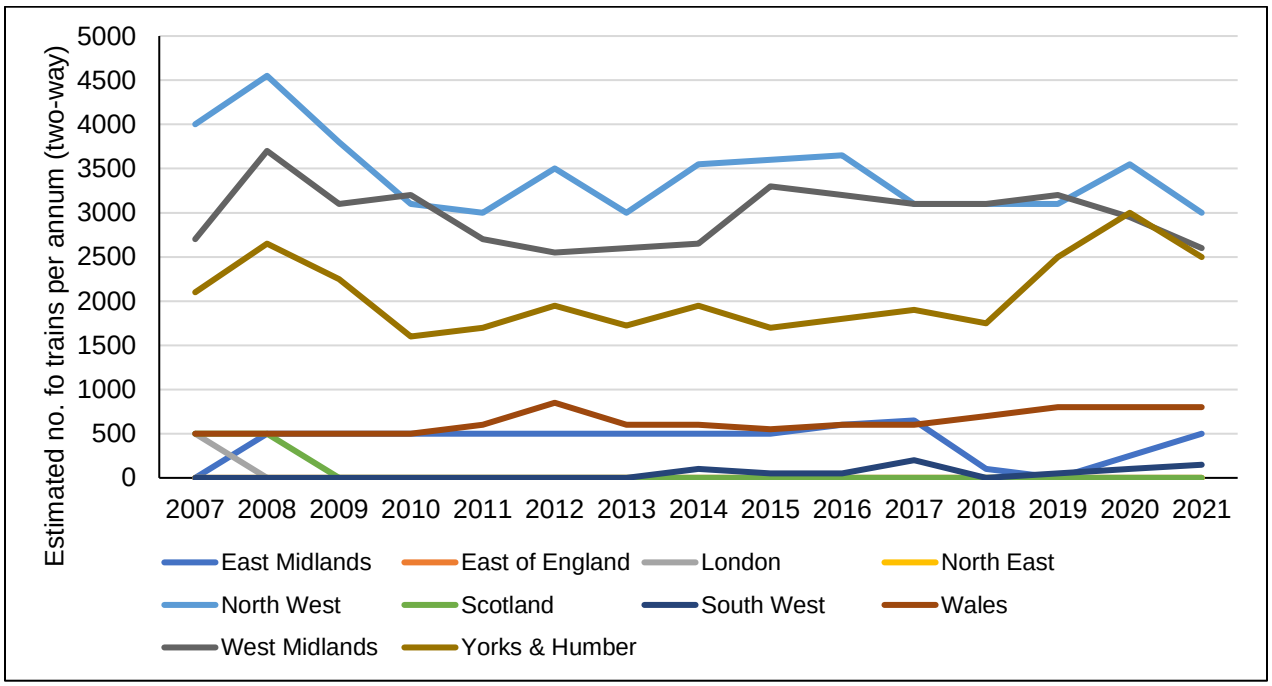
Source: annual rail freight database; see Appendix B (Table B.3) for the raw data; excludes feeder services not directly associated with a single port

Figure 5.4: Train service provision between Felixstowe and regions (2007 – 2021)



Source: annual rail freight database

Figure 5.5: Train service provision between Southampton and regions (2007 – 2021)



Source: annual rail freight database

The dominance of three regions is clear, with services between ports and North West, West Midlands and Yorkshire and Humber making up the vast majority of the total. Of the other regions, East Midlands and Wales have increased in importance in recent years, while South West has dwindled almost to zero.

6. Trends in on-train capacity for maritime deep sea container flows

As mentioned earlier, assessing changes in the number of services operated has the benefit of being a measure recorded each year in the rail freight database. While it provides considerably more insight than the high-level ORR statistics, it is a relatively crude measure which provides no indication of TEU capacity provided. This section attempts to overcome this shortcoming, albeit on an irregular basis, by analysing the on-train capacity surveys conducted in 2007, 2015 and 2021. The focus of this analysis is solely on service provision for deep sea container flows.

6.1 Mean TEU capacity provided per train, by port to/from each region

As the first step towards understanding changes in on-train capacity, Table 6.1 shows the average (mean) TEU capacity per train for port-region pairings in each of the survey periods. It is clear that there have been considerable improvements in on-train capacity, with an overall 16% increase in the eight years between the first two surveys followed by a 15% rise in the six years between the second and third surveys. Overall, based on these surveys, the typical TEU capacity of a deep sea container train increased by a considerable 35% between 2007 and 2021, from 60 TEU per train to almost 81 TEU per train.

The lack of consistency of service provision at certain ports and between many port-region parings makes it challenging to interpret the detail in Table 6.1. Only Felixstowe and Southampton have maintained a similar profile of service provision throughout the time period, with both showing sustained increases in the average TEU capacity per train over time, albeit with some fluctuations at the port-region level, particularly for those regions with low levels of service provision. When considering the connections between ports and the three key regions of North West, West Midlands and Yorkshire and Humber, in every single case there were observed increases in on-train capacity between the survey periods.

Table 6.1: Mean TEU capacity per train for port-region pairings in each survey year

Port-region pairing	Average TEU capacity per train in: 2007	2015	2021
Felixstowe to/from:			
East Midlands	51.0	-	68.5
East of England	65.7	62.1	-
North East	61.6	53.3	55.4
North West	64.4	71.3	81.3
Scotland	63.9	70.0	68.5
South West	-	60.8	-
Wales	-	-	87.0
West Midlands	63.5	75.2	83.7
Yorkshire and Humber	60.2	67.7	76.1
Total	**62.7**	**70.1**	**78.2**
Liverpool (Seaforth) to/from:			
East Midlands	-	-	70.0
Scotland	-	-	69.3
Total	**-**	**-**	**69.8**
London Gateway to/from:			
East of England*	-	56.0	-
North West	-	72.5	91.8
Scotland	-	87.8	89.8
West Midlands	-	-	90.9
Yorkshire and Humber	-	54.0	75.4
Total	**-**	**67.1**	**86.3**
Southampton to/from:			
East Midlands	65.0	82.8	78.3
North West	59.5	75.8	88.1
Scotland	48.6	-	-
South West	-	60.0	60.0
Wales	59.8	62.5	60.5
West Midlands	57.1	69.7	91.7
Yorkshire and Humber	55.5	63.4	82.4
Total	**57.9**	**71.0**	**84.2**
Thamesport to/from:			
North West	64.7	-	-
West Midlands	61.0	-	-
Yorkshire and Humber	57.9	-	-
Total	**61.6**	**-**	**-**
Tilbury to/from:			
North West	64.1	66.5	-
Scotland	70.8	-	-
South West	-	58.8	-
Wales	-	-	48.0
West Midlands	43.7	75.8	-
Yorkshire and Humber	48.7	60.2	-
Total	**54.2**	**65.3**	**48.0**
Total	**60.0**	**69.9**	**80.7**

Source: original surveys; * - London Gateway to East of England (in 2015) was a feeder service to/from Tilbury to maximise port-terminal opportunities as London Gateway came on stream; See Appendix C (Table C.1) for constituent port-terminal O-D data

Growth in the average on-train capacity has been particularly significant at Southampton and, in the recent time period, at London Gateway. Overall, only Tilbury is anomalous, with the increase in average TEU capacity per train between 2007 and 2015 being reversed by 2021. This can be explained by its transition away from a mainstream port, in the context of deep sea container train service provision, as a result of the opening of the nearby London Gateway port in 2013. As a result, only a dedicated short-formation train now operates to/from Tilbury on a low frequency, twice per week in each direction, with a correspondingly low on-train capacity.

6.2 Estimated annual TEU capacity by port to/from each region

The final piece in the jigsaw, allowing as comprehensive an understanding of trends in activity in the port-hinterland deep sea container market as is possible given available data sources, is the estimation of annual TEU capacity provided. This is calculated from the mean capacity per train data (see Table 6.1) and the annual service provision data (see Table C.2 in Appendix C for the port-region level data).

Tables 6.2 and 6.3 set out the findings, the former at the level of individual port-region pairings and the latter showing the total estimated two-way on-train capacity for each region. This suggests that there has been strong growth overall, with 57% greater TEU capacity in 2021 than in 2007. The growth has been particularly strong between the 2015 and 2021 surveys, with an increase of just over one-third in the six-year period.

Ignoring the anomalous position of Tilbury, described above, there has been an increase in capacity for all ports, though it has been particularly noticeable at Felixstowe and London Gateway. From Table 6.3, the dominance of the three key regions (i.e. North West, West Midlands and Yorkshire and Humber) is again clear, accounting for 85.4% of total capacity in 2021, with very little change in this combined total since 2007. That said, the distribution of capacity across these three regions has altered, with growth in Yorkshire and Humber essentially balancing out a decline in the North West share, though absolute capacity provided continued to increase in the North West. Of note when considering the remaining 15% or so of capacity is the increasing share accounted for by East Midlands, discussed in see Section 7.

Table 6.2: Estimated two-way annual TEU capacity for port-region pairings in each survey year

Port-region pairing	Estimated two-way TEU capacity in: 2007	2015	2021
Felixstowe to/from:			
East Midlands	28,050	-	102,750
East of England	29,565	31,050	-
North East	33,880	26,650	27,700
North West	309,120	427,800	418,695
Scotland	31,950	17,500	20,550
South West	-	30,400	-
Wales	-	-	43,500
West Midlands	225,425	289,520	351,540
Yorkshire and Humber	147,490	280,955	490,845
Total	**805,480**	**1,103,875**	**1,455,580**
Liverpool (Seaforth) to/from:			
East Midlands	-	-	35,000
Scotland	-	-	20,790
Total	**-**	**-**	**55,790**
London Gateway to/from:			
East of England*	-	28,000	-
North West	-	39,875	137,700
Scotland	-	21,950	44,900
West Midlands	-	-	127,260
Yorkshire and Humber	-	10,800	113,100
Total	**-**	**100,625**	**422,960**
Southampton to/from:			
East Midlands	39,000	41,400	39,150
North West	288,575	272,880	264,300
Scotland	24,300	-	-
South West	-	6,000	6,000
Wales	26,910	37,500	48,400
West Midlands	157,025	223,040	210,910
Yorkshire and Humber	133,200	107,780	206,000
Total	**669,010**	**688,600**	**774,760**
Thamesport to/from:			
North West	48,525	-	-
West Midlands	45,750	-	-
Yorkshire and Humber	28,950	-	-
Total	**123,225**	**-**	**-**
Tilbury to/from:			
North West	35,255	33,250	-
Scotland	31,860	-	-
South West	-	29,400	-
Wales	-	-	9,600
West Midlands	39,330	37,900	-
Yorkshire and Humber	29,220	30,100	-
Total	**135,665**	**130,650**	**9,600**
Total	**1,733,380**	**2,023,750**	**2,718,690**

Source: original surveys; * - London Gateway to East of England (in 2015) was a feeder service to/from Tilbury to maximise port-terminal opportunities as London Gateway came on stream

Table 6.3: Estimated two-way annual TEU capacity, by region in each survey year

	Estimated two-way TEU capacity in:					
	2007		2015		2021	
Region	**TEU**	**%**	**TEU**	**%**	**TEU**	**%**
East Midlands	67,050	3.9	41,400	2.0	176,900	6.5
East of England	29,565	1.7	59,050	2.9	-	-
North East	33,880	2.0	26,650	1.3	27,700	1.0
North West	681,475	39.3	773,805	38.2	820,695	30.2
Scotland	88,110	5.1	39,450	1.9	86,240	3.2
South West	-	-	65,800	3.3	6,000	0.2
Wales	26,910	1.6	37,500	1.9	101,500	3.7
West Midlands	467,530	27.0	550,460	27.2	689,710	25.4
Yorkshire and Humber	338,860	19.5	429,635	21.2	809,945	29.8
Total	**1,733,380**	**100**	**2,023,750**	**100**	**2,718,690**	**100**

Source: original surveys

7. The Midlands perspective

Given that much of the Midlands logistics activity straddles the border between East and West Midlands and, as a consequence, most of the rail terminals handling deep sea container trains are located close to the border, this final section briefly summarises the key findings as they relate to the Midlands as a whole.

Table 7.1 presents the absolute numbers in terms of estimated train service provision and TEU capacity, while Table 7.2 contextualises this in the overall British market by expressing the Midlands share of these two measures. While there are caveats relating to the exact numbers, as discussed in Section 2, the evidence suggests that there has been growth in service provision, which has been sustained year-on-year for most of the period since 2014, with growth in provision to/from West Midlands up until 2019 being supplanted by growth to/from East Midlands after the East Midlands Gateway terminal came on stream. The survey findings reveal a considerable increase in TEU capacity on trains serving the Midlands, particularly between the 2015 and 2021 surveys. In absolute terms, this growth has been split fairly equally between West and East Midlands, but with a far lower base figure for East Midlands in 2015. Overall, it appears that the Midlands has at least kept pace with the overall growth in port intermodal activity for deep sea containers, accounting for almost one-third (31.9%) of the total TEU capacity in the 2021 survey period.

Table 7.1: Midlands deep sea container train service provision and TEU capacity (2007 – 2021)

	Estimated no. of trains per annum			Estimated TEU capacity		
Year	West Mids	East Mids	Both	West Mids	East Mids	Both
2007	8,100	500	8,600	467,530	67,050	534,580
2008	8,600	1,500	10,100	-	-	-
2009	8,400	1,250	9,650	-	-	-
2010	8,950	1,050	10,000	-	-	-
2011	7,650	1,000	8,650	-	-	-
2012	9,350	1,000	10,350	-	-	-
2013	7,900	1,000	8,900	-	-	-
2014	7,450	1,000	8,450	-	-	-
2015	8,100	500	8,600	550,460	41,400	591,860
2016	8,475	600	9,075	-	-	-
2017	8,600	650	9,250	-	-	-
2018	8,500	200	8,700	-	-	-
2019	9,600	0	9,600	-	-	-
2020	8,850	1,250	10,100	-	-	-
2021	8,350	2,000	10,350	689,710	176,900	866,610

Source: based on data from Figure 5.3 and Table 6.3

Table 7.2: Midlands share of deep sea container train service provision and TEU capacity (2007 – 2021)

	Share of estimated no. of trains (%)			Share of estimated TEU capacity (%)		
Year	West Mids	East Mids	Both	West Mids	East Mids	Both
2007	27.8	1.7	29.5	27.0	3.9	30.8
2008	27.6	4.8	32.4	-	-	-
2009	28.2	4.2	32.4	-	-	-
2010	31.5	3.7	35.2	-	-	-
2011	26.9	3.5	30.4	-	-	-
2012	30.6	3.3	33.8	-	-	-
2013	28.2	3.6	31.8	-	-	-
2014	26.4	3.5	30.0	-	-	-
2015	28.3	1.7	30.1	27.2	2.0	29.2
2016	28.1	2.0	30.1	-	-	-
2017	29.3	2.2	31.5	-	-	-
2018	28.9	0.7	29.6	-	-	-
2019	31.1	0.0	31.1	-	-	-
2020	25.5	3.6	29.1	-	-	-
2021	25.2	6.0	31.2	25.4	6.5	31.9

Source: based on data from Figure 5.3 and Table 6.3

References

ORR (2021), Data Portal, Office of Rail and Road (ORR), https://dataportal.orr.gov.uk/

Appendix A: ORR annual data

This table relates to Section 3 of the main report.

Table A.1: Freight moved by rail (billion tkm), by commodity grouping (1998/99 - 2020/21)

Financial year	Coal	Metals	Construction	Oil & petroleum	International	Domestic intermodal	Other	Total	% change in total from previous year
1998/99	4.47	2.10	2.06	1.57	1.10	3.53	2.51	17.34	2.6
1999/00	4.85	2.19	2.04	1.50	1.01	3.92	2.73	18.23	5.1
2000/01	4.77	2.09	2.43	1.36	0.99	3.84	2.60	18.09	(0.8)
2001/02	6.17	2.43	2.81	1.22	0.60	3.54	2.62	19.39	7.2
2002/03	5.66	2.64	2.51	1.15	0.46	3.38	2.72	18.52	(4.5)
2003/04	5.82	2.41	2.68	1.19	0.48	3.53	2.77	18.87	1.9
2004/05	6.66	2.59	2.86	1.22	0.54	3.96	2.53	20.35	7.8
2005/06	8.26	2.22	2.91	1.22	0.46	4.33	2.29	21.70	6.6
2006/07	8.56	2.04	2.70	1.53	0.44	4.72	1.89	21.88	0.8
2007/08	7.73	1.83	2.79	1.58	0.37	5.15	1.73	21.18	(3.2)
2008/09	7.91	1.53	2.70	1.52	0.42	5.17	1.38	20.63	(2.6)
2009/10	6.23	1.64	2.78	1.45	0.44	5.51	1.01	19.06	(7.6)
2010/11	5.46	2.23	3.19	1.32	0.42	5.68	0.94	19.23	0.9
2011/12	6.41	2.24	3.45	1.20	0.45	6.31	0.99	21.06	9.5
2012/13	7.50	1.81	3.05	1.21	0.43	6.30	1.16	21.46	1.9
2013/14	8.07	1.77	3.56	1.27	0.47	6.19	1.36	22.71	5.8
2014/15	6.50	1.82	3.93	1.21	0.60	6.49	1.67	22.21	(2.2)
2015/16	2.32	1.53	3.98	1.17	0.48	6.42	1.86	17.76	(20.0)
2016/17	1.43	1.50	4.25	1.13	0.43	6.81	1.70	17.25	(2.9)
2017/18	1.24	1.42	4.31	1.08	0.49	6.72	1.70	16.95	(1.7)
2018/19	1.17	1.44	4.53	1.07	0.51	6.79	1.89	17.39	(2.6)
2019/20	0.37	1.38	4.64	0.99	0.49	6.76	1.94	16.58	(4.7)
2020/21	0.21	1.38	4.15	0.75	0.35	6.29	2.03	15.16	(8.6)

Source: ORR (2021)

Appendix B: Supporting data tables for service provision

These tables relate to Section 5 of the main report.

Table B.1: Estimated number of loaded maritime intermodal and domestic intermodal trains per annum (2007 – 2021)

Year	Maritime intermodal	Domestic intermodal	Total
2007	33,125	5,000	**38,125**
2008	36,475	4,425	**40,900**
2009	35,375	6,000	**41,375**
2010	33,525	6,450	**39,975**
2011	32,600	5,000	**37,600**
2012	36,375	5,600	**41,975**
2013	34,550	6,500	**41,050**
2014	33,100	6,500	**39,600**
2015	33,800	5,500	**39,300**
2016	35,625	5,500	**41,125**
2017	33,575	6,050	**39,625**
2018	34,650	5,750	**40,400**
2019	36,275	6,300	**42,575**
2020	40,975	6,025	**47,000**
2021	38,350	5,750	**44,100**

Source: annual rail freight database

Table B.2: Estimated number of loaded maritime intermodal trains per annum (2007 – 2021)

Year	Freightliner	DBC	Fastline	GBRf	DRS	Total
2007	24,775	5,850	500	2,000	0	**33,125**
2008	24,875	9,100	500	2,000	0	**36,475**
2009	24,575	8,400	400	2,000	0	**35,375**
2010	24,825	6,050	0	2,650	0	**33,525**
2011	25,700	4,250	0	2,650	0	**32,600**
2012	27,525	4,700	0	3,650	500	**36,375**
2013	27,550	3,350	0	3,650	0	**34,550**
2014	27,025	2,925	0	3,150	0	**33,100**
2015	27,550	3,100	0	3,150	0	**33,800**
2016	27,575	4,400	0	3,650	0	**35,625**
2017	24,925	4,500	0	4,150	0	**33,575**
2018	26,250	3,525	0	4,875	0	**34,650**
2019	25,825	3,250	0	6,950	250	**36,275**
2020	24,800	5,450	0	9,875	850	**40,975**
2021	22,075	5,150	0	10,125	1,000	**38,350**

Source: annual rail freight database

Table B.3: Train service provision between ports and regions (2007 – 2021)

Year	Estimated number (two-way) of deep sea container trains from ports to/from:										
	East Midlands	East of England	London	North East	North West	Scotland	South West	Wales	West Midlands	Yorkshire & Humber	**Total**
2007	500	500	1,000	600	10,350	1,500	0	500	8,100	6,100	**29,150**
2008	1,500	500	0	500	10,900	1,500	0	500	8,600	7,200	**31,200**
2009	1,250	500	0	500	10,800	1,000	0	500	8,400	6,825	**29,775**
2010	1,050	500	0	500	10,200	700	0	500	8,950	6,000	**28,400**
2011	1,000	1,500	0	450	9,550	700	500	600	7,650	6,475	**28,425**
2012	1,000	500	0	500	10,250	750	600	850	9,350	6,800	**30,600**
2013	1,000	500	0	500	9,700	750	1,000	600	7,900	6,025	**27,975**
2014	1,000	500	0	500	9,775	750	1,000	600	7,450	6,600	**28,175**
2015	500	1,000	0	500	10,100	500	1,000	550	8,100	6,350	**28,600**
2016	600	1,000	0	500	10,325	1,000	1,000	600	8,475	6,650	**30,150**
2017	650	0	0	500	9,900	1,000	950	600	8,600	7,150	**29,350**
2018	200	0	0	500	10,400	1,000	1,000	800	8,500	7,000	**29,400**
2019	0	0	0	500	9,400	1,300	500	1,500	9,600	8,100	**30,900**
2020	1,250	0	0	500	10,900	1,250	100	1,950	8,850	9,950	**34,750**
2021	2,000	0	0	500	9,650	1,150	150	2,000	8,350	9,400	**33,200**

Source: annual rail freight database; excludes feeder services not directly associated with a single port

Appendix C: Supporting data tables for TEU capacity

These tables relate to Section 6 of the main report.

Table C.1: Mean TEU capacity per train for port-terminal pairings in each survey period

Port-terminal pairing	Average TEU capacity per train in: 2007	2015	2021
Felixstowe to/from:			
Birmingham (Lawley Street)	61.6	64.1	86.9
Birch Coppice	-	-	71.5
Bristol	-	60.8	-
Burton-on-Trent	-	67.1	-
Cardiff	-	-	87.0
Coatbridge	63.9	70.0	68.5
Crewe *(to/from Coatbridge/North West terminals)*	56.7	65.6	80.9
Daventry	51.0	-	-
Ditton	67.5	71.0	87.7
Doncaster iport	-	-	70.3
Doncaster Railport	60.0	68.8	66.2
East Midlands Gateway	-	-	68.5
Hams Hall	66.0	89.2	89.1
Leeds	64.9	60.2	74.4
Liverpool (Garston)	69.0	64.8	84.2
Manchester (Trafford Park)	62.9	78.7	78.4
Rotherham	-	-	89.1
Scunthorpe	-	63.0	-
Selby	60.0	87.0	-
Sheffield (Tinsley)	-	-	82.3
Teesport	-	53.3	55.4
Tilbury	65.7	62.1	-
Wakefield	50.8	64.3	72.7
Wilton	61.6	-	-
Liverpool (Seaforth) to/from:			
East Midlands Gateway	-	-	70.0
Mossend	-	-	69.3
London Gateway to/from:			
Birmingham (Lawley Street)	-	-	103.2
Birch Coppice	-	-	77.0
Coatbridge	-	87.8	89.8
Crewe *(to/from Coatbridge/North West terminals)*	-	83.8	-
Hams Hall	-	-	87.5
Leeds	-	-	78.7
Liverpool (Garston)	-	-	102.1
Manchester (Trafford Park)	-	63.0	86.6
Rotherham	-	-	89.1
Tilbury*	-	56.0	-
Wakefield	-	54.0	58.4

(continued overleaf)

Southampton to/from:			
Avonmouth	-	-	60.0
Birmingham (Lawley Street)	65.1	64.3	99.8
Birch Coppice	55.2	67.0	73.1
Bristol	-	60.0	-
Burton-on-Trent	-	72.9	-
Cardiff	59.8	62.5	60.5
Coatbridge	48.6	-	-
Crewe *(to/from Coatbridge/North West terminals)*	56.0	69.7	95.2
Daventry	65.0	82.8	-
Ditton	52.9	59.4	-
Doncaster iport	-	-	70.1
East Midlands Gateway	-	-	78.3
Hams Hall	50.8	83.6	-
Leeds	64.1	63.0	103.0
Liverpool (Garston)	66.5	80.2	101.9
Manchester (Trafford Park)	61.0	80.3	83.1
Rotherham	-	-	73.3
Wakefield	43.6	67.0	62.7
Thamesport to/from:			
Birch Coppice	54.0	-	-
Birmingham (Lawley Street)	65.7	-	-
Crewe *(to/from Coatbridge/North West terminals)*	64.2	-	-
Doncaster Railport	54.0	-	-
Leeds	60.5	-	-
Manchester (Trafford Park)	65.1	-	-
Tilbury to/from:			
Birmingham (Lawley Street)	47.4	75.8	-
Bristol	-	58.8	-
Cardiff	-	-	48.0
Coatbridge	70.8	-	-
Crewe *(to/from Coatbridge/North West terminals)*	-	68.6	-
Hams Hall	39.0	-	-
Leeds	50.4	60.2	-
Liverpool (Garston)	64.1	64.4	-
Wakefield	40.0	-	-

Source: original surveys; * - London Gateway to Tilbury (in 2015) was a feeder service to maximise port-terminal opportunities as London Gateway came on stream

Table C.2: Estimated annual port-region train service provision in each survey period

Port-region pairing	Estimated annual number of (two-way) services in: 2007	2015	2021
Felixstowe to/from:			
East Midlands	550	-	1,500
East of England	450	500	-
North East	550	500	500
North West	4,800	6,000	5,150
Scotland	500	250	300
South West	-	500	-
Wales	-	-	500
West Midlands	3,550	3,850	4,200
Yorkshire and Humber	2,450	4,150	6,450
Liverpool (Seaforth) to/from:			
East Midlands	-	-	500
Scotland	-	-	300
London Gateway to/from:			
East of England*	-	500	-
North West	-	550	1,500
Scotland	-	250	500
West Midlands	-	-	1,400
Yorkshire and Humber	-	200	1,500
Southampton to/from:			
East Midlands	600	500	500
North West	4,850	3,600	3,000
Scotland	500	-	-
South West	-	100	100
Wales	450	600	800
West Midlands	2,750	3,200	2,300
Yorkshire and Humber	2,400	1,700	2,500
Thamesport to/from:			
North West	750	-	-
West Midlands	750	-	-
Yorkshire and Humber	500	-	-
Tilbury to/from:			
North West	550	500	-
Scotland	450	-	-
South West	-	500	-
Wales	-	-	200
West Midlands	900	500	-
Yorkshire and Humber	600	500	-

Source: original surveys; * - London Gateway to East of England (in 2015) was a feeder service to/from Tilbury to maximise O-D opportunities as London Gateway came on stream