

IPAF POWERED ACCESS RENTAL MARKET REPORT 2019 GLOBAL REPORT

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IPAF has been working with DuckerFrontier to create these exclusive industry reports since 2009, making this the tenth anniversary of our award-winning collaboration

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FOREWORD

IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – EUROPE

- The International Powered Access Federation (IPAF) promotes the safe and effective use of powered access equipment worldwide. IPAF is a non-profit member organisation that represents the interests of rental companies, manufacturers, distributors, users and training companies. It was set up in 1983 and celebrated its 35th anniversary in 2018.
- The IPAF training programme for platform operators is certified by TÜV as conforming to ISO 18878. More than 170,000 people are trained each year through a worldwide network of more than 600 IPAF-approved training centres. Successful trainees are awarded the PAL Card (Powered Access Licence), the most widely held and recognised proof of training for platform operators.
- Membership of IPAF is open to users of platforms, manufacturers, distributors, rental and training companies. Members enjoy access to practical information and a growing portfolio of member services. They also have the chance to influence the legislation and regulations that govern platform use. More information can be found at www.ipaf.org
- IPAF has more than 1,300 members in more than 65 countries.

FOREWORD



Additional copies of this report can be ordered at www.ipaf.org/reports or from your nearest IPAF office.

Head office:

Moss End Business Village
Crooklands, Cumbria LA7 7NU, United Kingdom
+44 15395 66700
+44 (0)15395 66084 (fax)
info@ipaf.org
www.ipaf.org
www.ipaf.org/directions-uk

Benelux:

IPAF-Benelux
Veersedijk 59
3341 LL, Hendrik Ido Ambacht, Netherlands
+31 (0)786471330
benelux@ipaf.org
www.ipaf.org/nl

Brazil & Latin America

IPAF-Latin America
Rua Andaluz 140
13.280-000 Vinhedo
São Paulo, Brazil
+55 11 39588590
+55 11 9 9420 7336 (mobile)
americalatina@ipaf.org
www.ipaf.org/pt

China

IPAF-China
Beijing, China
86-10-84302310
86-13601106577 (mobile)
86-10-84705210 (fax)
china@ipaf.org
www.ipaf.org/cn

Germany:

IPAF-Deutschland, Alter Schulhof 3
D-28717 Bremen, Germany
+49 421 6260 310
deutschland@ipaf.org
www.ipaf.org/de

Italy:

IPAF-Italia
Via Mauro Macchi, 8
20124 Milano, Italy
+39 02 677 390 15
italia@ipaf.org
www.ipaf.org/it

FOREWORD



Additional copies of this report can be ordered at www.ipaf.org/reports or from your nearest IPAF office.

Mexico

IPAF-México
Vallarta 35
Villa Coyoacán, Coyoacán
México City, 04000, México
+52 55 5204 3289
+52 1 55 3719 8459 (mobile)
diego.bustamante@ipaf.org
www.ipaf.org/es

Nordic And Baltic

IPAF-Nordic and Baltic
Vattumannens Gata 144
SE-136 61 Haninge, Sweden
+46 (0)70 606 0263
nordic@ipaf.org
www.ipaf.org

South East Asia:

IPAF-South East Asia,
25 Bukit Batok Crescent
The Elitist, #04-12
Singapore 658066
+65 9686 4191
sea@ipaf.org
www.ipaf.org

Spain:

IPAF-Iberia, Edificio Europa, 4ª planta
c/ Vía de Francia s/n
Interior Zona Franca
E-11011 Cadiz, Spain
+34 677 889 049
espana@ipaf.org
www.ipaf.org/es

Switzerland:

IPAF-Basel, Dufourstrasse 11
CH-4052 Basel, Switzerland
+41 61 227 9000
basel@ipaf.org
www.ipaf.org

USA:

IPAF-US, 225 Placid Drive
Schenectady, NY 12303, US
+1 518 280-2486
usa@ipaf.org
www.ipaf.org

UAE:

IPAF Middle East & India
Arenco Building 4
Office No: 513
Dubai Investment Park, Dubai
United Arab Emirates (UAE)
+971 (0) 55 3094 333
uae@ipaf.org
www.ipaf.org

- DuckerFrontier provides unrivalled market research and executive advisory services based on decades of experience supporting the strategic decisions of more than 700 companies. Client executives benefit from the firm's broad expertise and geographic reach, robust cloud-based technology platforms, expanded insight into customer behavior, and award-winning data and analyst insights spanning the B2B, healthcare, consumer, and private equity industries.
- DuckerFrontier has been working with IPAF to create these exclusive industry reports since 2009, making this the tenth anniversary of our award-winning collaboration.
- DuckerFrontier benefits from solid industry experience and a highly international team with the ability to approach and study global markets at a local level:
 - Product and industry expertise: experience in the MEWP and equipment rental markets through several projects covering access equipment and other types of construction machinery at all levels of the value chain including rental as well as distribution and contracting.
 - International approach applied locally: with a team of permanent native consultants working out of offices that reach across the US, Europe and Asia, DuckerFrontier prides itself on the fact that all fieldwork is completed in the respondent's native language by in-house consultants.
 - Methodological expertise: on-going involvement in strategic consulting within areas such as market sizing and segmentation, distribution structure, competitive positioning, voice of the customer or market opportunity and new product entry assessments for a variety of products within the global construction and transportation industries amongst others.
 - Quality charter: DuckerFrontier works to the guidelines of the ESOMAR ethics standards.
- More information on DuckerFrontier can be found at www.duckerfrontier.com

FOREWORD

This report was produced by DuckerFrontier in Europe, in cooperation with its US office.



DuckerFrontier EUROPE

110, avenue Victor Hugo
F-92100 Boulogne Billancourt cedex, France
www.duckerfrontier.com
Tel: +33 1 46 99 59 60

Audrey Courant, Managing Director

acourant@duckerfrontier.com

Anne Myon, Senior Engagement Manager

Amyon@duckerfrontier.com

Sara Migliaro, Senior Engagement Manager

Smigliaro@duckerfrontier.com

DuckerFrontier USA

1250 Maplelawn Drive

Troy, MI 48084, US

www.duckerfrontier.com

Tel: + 1 248-530-2011

Nicole McGregor, Managing Director

nmcgregor@duckerfrontier.com

FOREWORD – OBJECTIVES



This study assesses the Mobile Elevating Work Platform (MEWP) rental market for Europe and the US over a 12-year period.

- The study covers the time period 2008-2020, with particular focus on 2018.
- Main objectives:
 - 2018 MEWP rental market value and fleet size.
 - Trends and dynamics (2008-2020).
 - Operational indicators (investment, age of fleet, application).
 - In addition to the primary market value and fleet-size objective, fleet mix is included to ensure that the value is anchored in reality. Moreover, fleet information is typically more readily available than rental revenue. This has allowed for cross-checks, revenue-per-unit ratios and the optimization of secondary sources.
 - Estimated size of the 2018 MEWP rental fleet worldwide, with a breakdown by region and by machine type (including the estimated share of vehicle mounted platforms held by rental companies owning self-propelled fleets).
- Additional information:
 - Ranking of construction and non-construction sub-sectors in the MEWP rental revenue.
 - Return on investment/average payback period by equipment type.
 - Utilisation rates by equipment type (booms vs scissors).
- The current study does not examine rental company profitability.
- All interviews were conducted in the first three months of 2019, which has allowed for primary data collection on the full previous year, thus providing for more specifically targeted and up-to-date information than would have been available from any statistical sources.

FOREWORD – SCOPE AND DEFINITIONS

Products and countries.

- The present study focuses on powered access equipment, i.e. mobile elevating work platforms (MEWPs). It includes the full range (all sizes and types) of powered access equipment except mast climbing work platforms (MCWPs) and hoists.
- Included are powered access equipment, all booms, scissor lifts and vertical masts:
 - Both articulated and straight telescopic booms.
 - Self-propelled as well as push-around, towable and vehicle-mounted.
- Excluded are: low-level equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs, hoists and equipment owned by non-rental companies.
- The European part of the study comprises the following ten countries:
 - Denmark (DK)
 - Finland (FI)
 - France (FR)
 - Germany (DE)
 - Italy (IT)
 - Netherlands (NL)
 - Norway (NO)
 - Spain (ES)
 - Sweden (SE)
 - United Kingdom (UK)

These represent 85% of the European* market in value.



* Defined as 28 EU countries + Norway + Switzerland + Macedonia

FOREWORD – SCOPE AND DEFINITIONS



Target companies and respondents.

- The main source of information for this study is primary research through telephone interviews. Organisations interviewed for this study include rental companies and other industry experts:
 - Rental companies:
 - Specialist MEWP rental companies: MEWPs account for more than 50% of total rental revenue.
 - Generalist rental companies: MEWP rental revenue accounts for 50% or less of total rental revenue.
 - From rental companies interviewed, on average, MEWP rental revenue represents 71% of their overall rental revenue.
 - National rental associations;
 - Manufacturers;
 - Industry experts.
- Secondary data was also gathered to validate major market trends identified.
- Only persons with input in machine selection or management were qualified as respondents. Recurrent respondent job functions were Managing Director, Sales Director, Technical Director, Purchasing Manager, Fleet Manager and Operations Manager.
- DuckerFrontier and IPAF would like to thank all industry representatives interviewed, without whose kind assistance it would not have been possible to conduct this research.
- IPAF and DuckerFrontier would also like to thank Murray Pollok, Managing Editor of *International Rental News*, for his contributions and commentary on the current rental market.

Definitions of terms used.

- **MEWP rental revenue:**
 - Includes for example machine rental rates, machine repair, support (e.g. fuel services), transportation/delivery, training, insurance, operator charges.
 - Used equipment sales are excluded from the MEWP rental revenues reported.

- **Specialists vs Generalists:**
 - For specialists: MEWPs account for more than 50% of total rental revenue.
 - Generalists: MEWPs account for 50% or less of total rental revenue.

- **Cross-Hire:**
 - Rental by one rental company from another rental company (excluded from final results).

- **Utilisation rate:**
 - Physical number of machines out on hire as percentage of total number in fleet at any given time.

- **Retention period:**
 - Average time during which rental companies typically keep their powered access equipment.

- **Rental rate:**
 - Corresponds more to net prices than list prices. Directly linked to the rental revenue.
 - The euro amount that the customer agrees to pay for possession and use of a machine.

Definitions.

- Exchange rates:
 - The currency exchange rates used for countries outside the eurozone are as below (average annual 2018 exchange rates). The same rate has been used throughout the time period in order to eliminate variation in growth rates due to exchange rates rather than to the actual MEWP rental market.

	Currency Unit	Converter to Euro
UK	£ 1	1.130
Denmark	DKK 1	0.134
Norway	NOK 1	0.102
Sweden	SEK 1	0.095
US	US\$ 1	0.848

	Currency Unit	Converter to Euro	Converter to USD
RDC	¥ 1	0.132	0.111

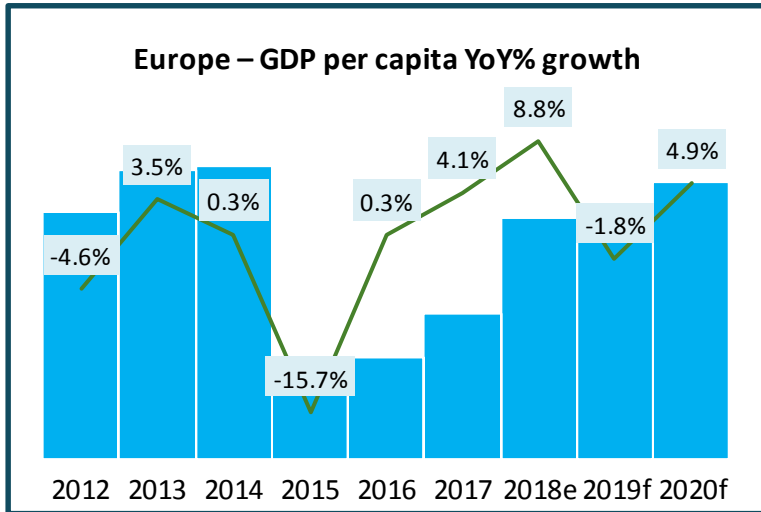
EXECUTIVE SUMMARY

IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019

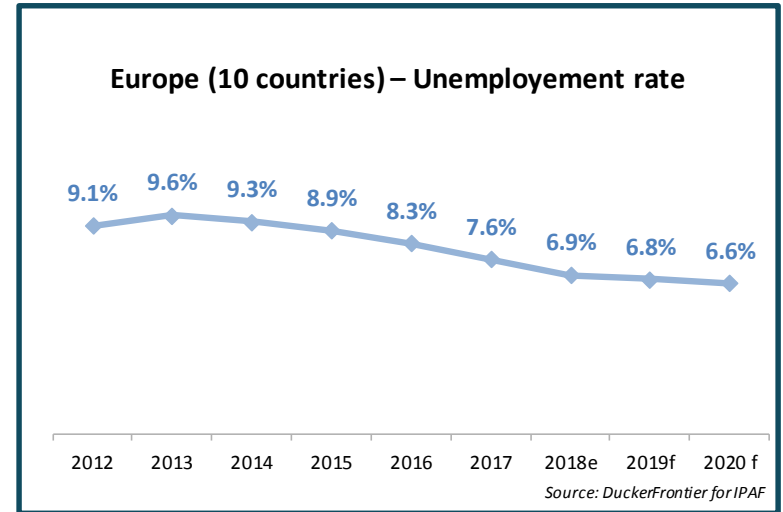
EXECUTIVE SUMMARY – EUROPE

Macro-economic outlooks are generally unstable in Europe: GDP per capita is expected to start growing in 2020, after decreasing in 2019. Unemployment is expected to fall, while construction activity is expected to be maintained.

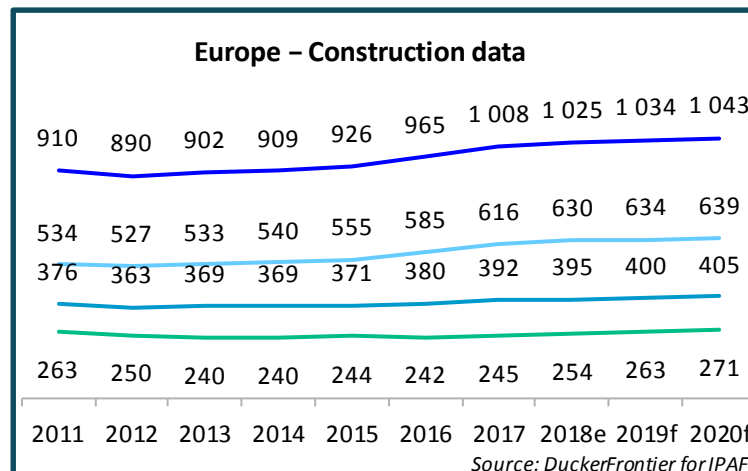
Compound Annual Growth Rate (CAGR) 18-20 = 1.51%



Source: FrontierView – March 2019.



Source: FrontierView – March 2019.



Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

Compound Annual Growth Rate (CAGR) (2018-2020)

- Residential construction: **0.71%**
- Non-res. constr. : **1.16%**
- **Total construction : 0.89%**

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

MEWP rental market situation at end 2018.

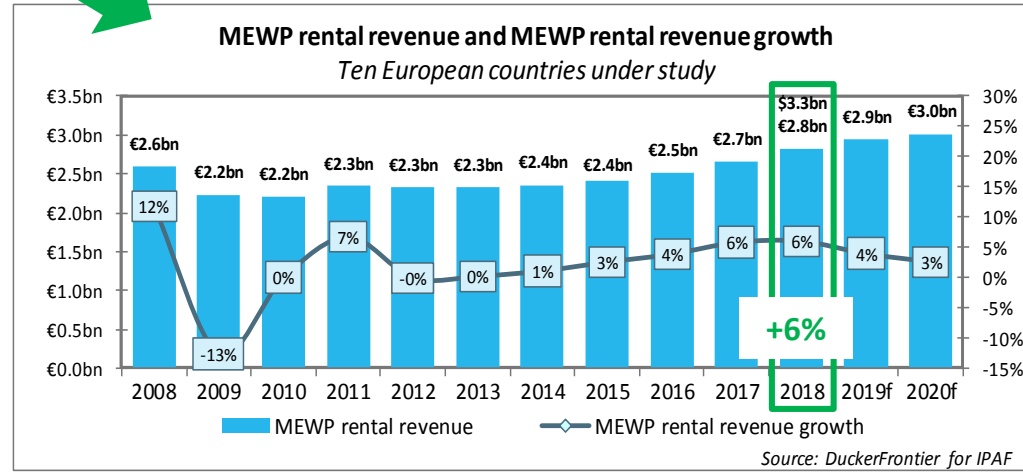
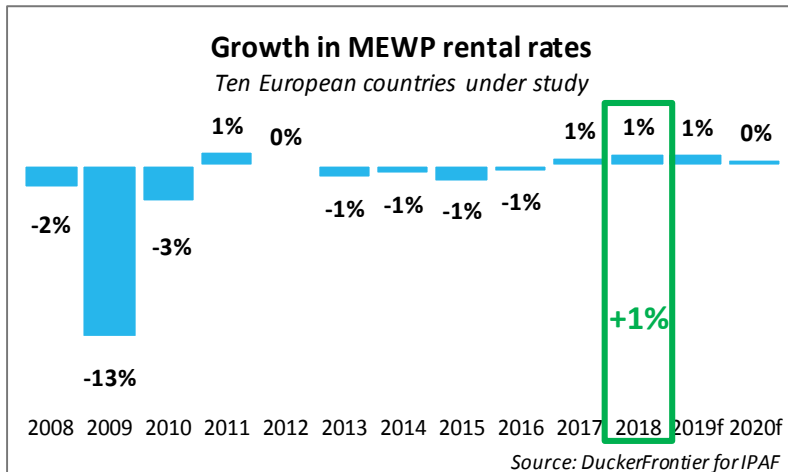
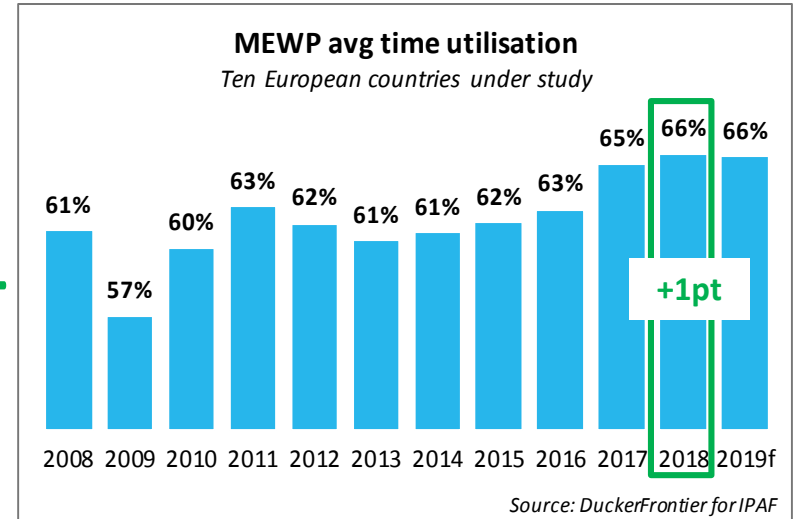
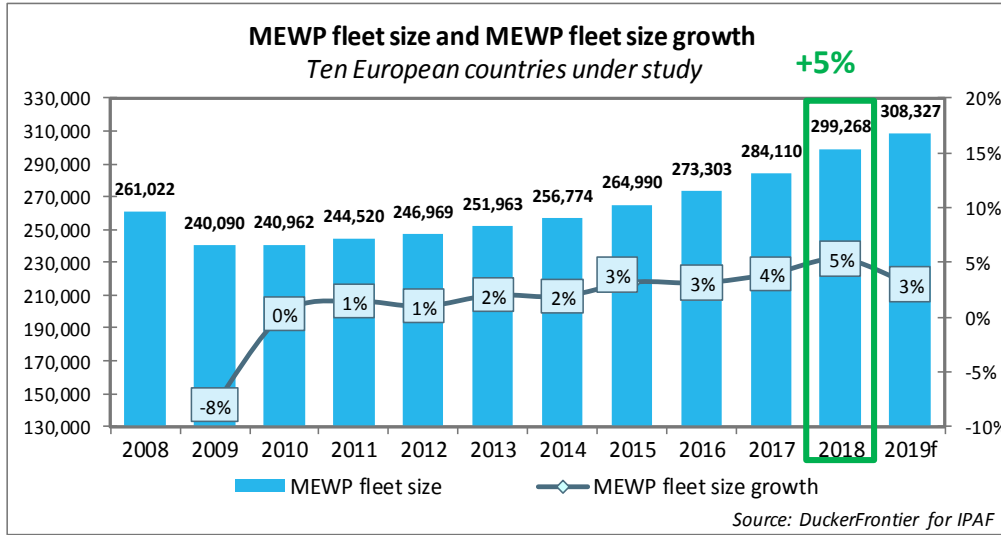
- The European MEWP rental market as a whole began to show growth in 2015, this was sustained in 2016 and 2017, and the latest figures for 2018 confirm that this trend has continued.
- In 2018, the European MEWP rental market revenue was equal to €2.8Bn (\$3.3Bn). The market grew significantly in 2018 (6%). Several factors underpin this market evolution: The overall economic situation is good and both construction and non-construction sectors generated increasing demand.
- Rental companies expanded fleets significantly (5% growth rate; 299,200 units) and increased their average utilisation rate (up by 1 percentage point – to stand at 66%).
- As in 2017, rental companies managed to increase average rental rates (1% European average; 3% in France, 2% in Spain, the Netherlands and Norway).
- Nevertheless, this overall improvement hides a number of variances across the ten European countries under study. For instance, intense competition and uncertainty linked to Brexit in the UK forced rental companies to decrease their rental rates (-2%). In Nordic countries, especially Denmark and Finland, rental companies faced strong overall pressure on rental rates, which remained static (0%).
- The level of investment remained significant as MEWP rental companies focused on both expanding and renewing their fleets with more capable, specialist or more sophisticated and generally greener equipment.
- The market outlook in 2019 and beyond shows uncertainty prevails, driven by two main elements: The unclear Brexit outcome for the UK and neighbouring markets, and the trade war between China and the US, which is starting to impact the exports of some European markets, such as Germany.
- Though markets are expected to continue to grow, MEWP rental revenue is likely to develop at a more moderate pace while rental companies intend to limit their capital expenditures and future fleet expansion.

EXECUTIVE SUMMARY – EUROPE

Revised



The European market experienced significant (6%) growth in 2018, driven by an increase across all major indicators. Outlooks for 2019 are more moderate as the European market enters a phase of higher macro-economic uncertainty.

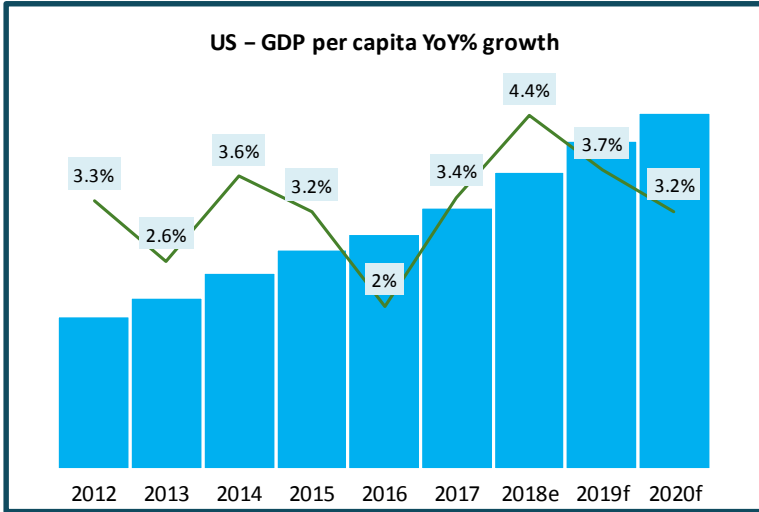


EXECUTIVE SUMMARY – USA

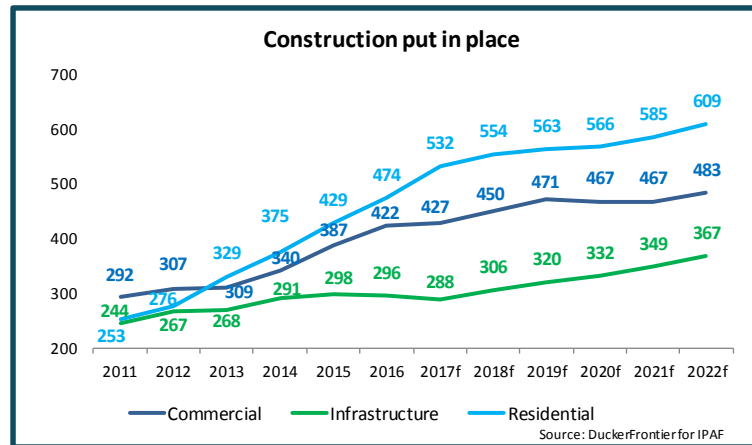
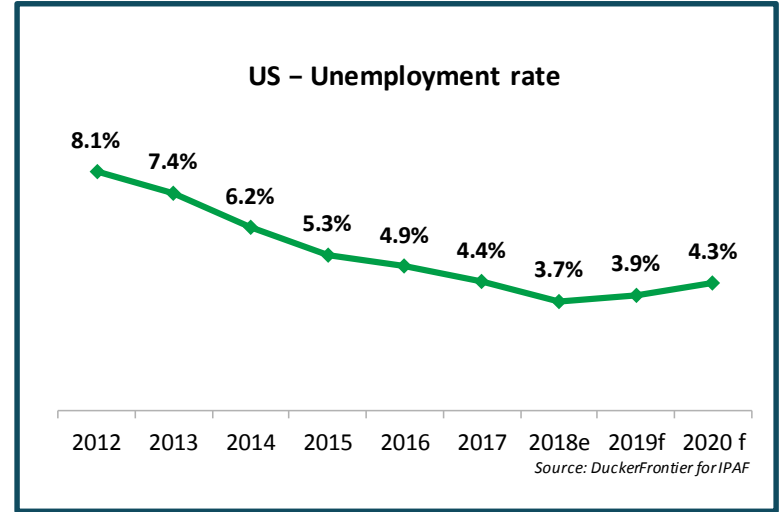


While the US economy is expected to be less volatile in coming years, growth of GDP per capita and commercial construction activity will slow, and unemployment is expected to start increasing again.

Compound Annual Growth Rate (CAGR) 18-20 = 3.46%



Source: FrontierView – March 2019.



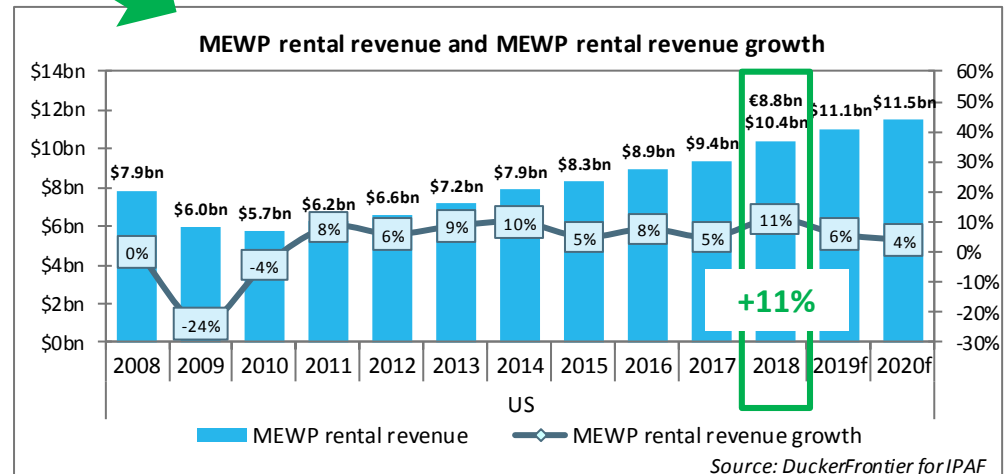
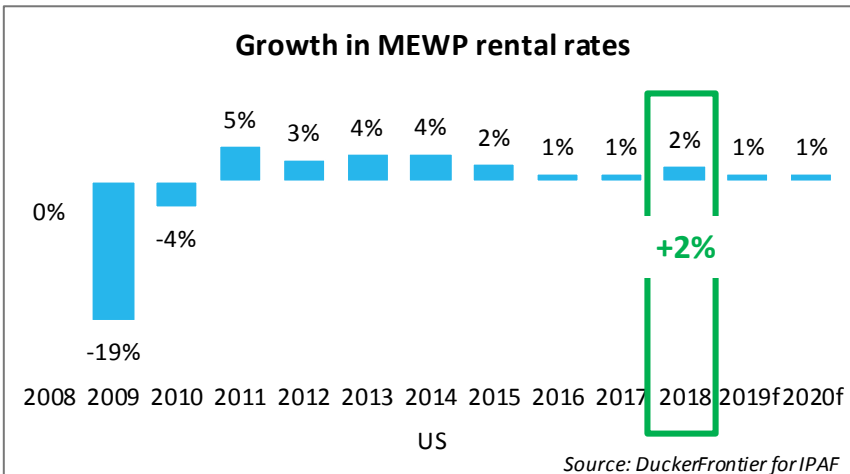
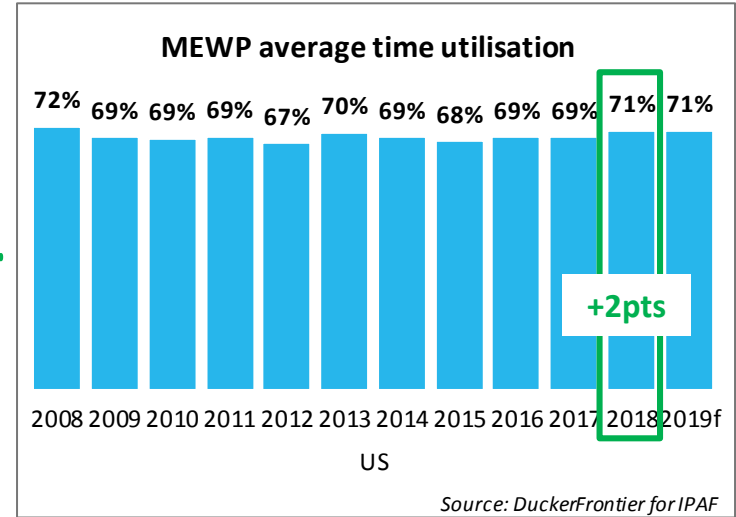
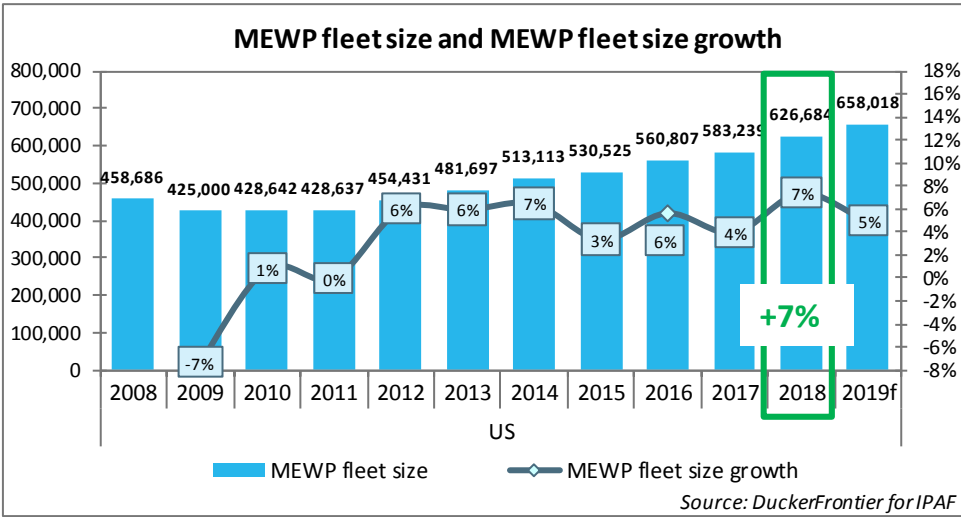
Source: FMI Construction Outlook. Millions of current dollars. 4th quarter 2018 forecasts.

- The MEWP rental market continued to develop significantly, with double-digits growth reported in 2018 (+11%). Total market value exceeded \$10Bn (\$ 10.4Bn - €8.8Bn), encouraged by growth in all construction sectors and an overall favourable economic context.
- The total number of MEWPs in the rental fleet was more than 626,000 units, a rise of 7%, in 2018. Scissors lifts are still the dominant type of equipment in the market.
- MEWP rental companies' revenue increase was driven mainly by fleet expansion, but also by additional growth of the utilisation rate (+2pts – 71%) and rental rates (+2%).
- Although MEWP rental companies expect 2019 to be another good year, the outlook remains uncertain as the electoral year in 2020 is likely to drive more caution in the market. In addition, a potential recession is envisioned, which MEWP rental companies need to get prepared for.

EXECUTIVE SUMMARY – USA



All major indicators show positive, sustained growth for the US MEWP rental market in 2018. The market is driven by strong demand over supply. Growth is expected to slow as higher market uncertainty is expected from 2019 on.



EXECUTIVE SUMMARY – EUROPE VS USA

Revised

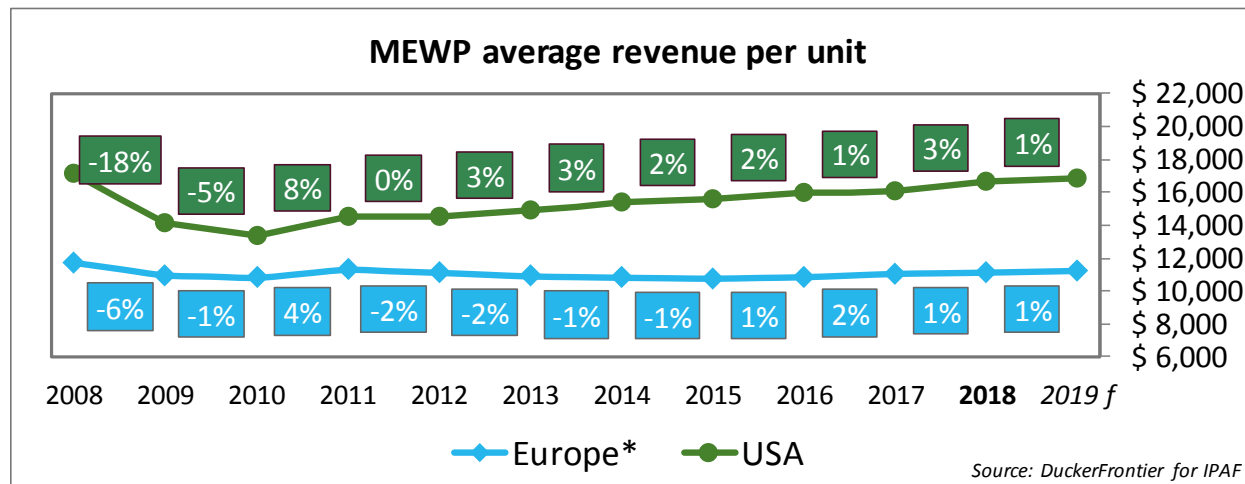


Both the European and US markets experienced growth in 2018: The US market finished slightly ahead of Europe, with double-digit revenue growth.

Region	2018 revenue growth	2018 revenue	2018 fleet size growth	2018 fleet size	Utilisation rate growth	Rental rate growth
Europe*	+ 6%	€2.8 / \$3.3 Bn	+ 5%	299,268	+ 1 pt	+ 1%
USA	+11%	\$10.4 / €8.8 Bn	+ 7%	626,684	+ 2 pts	+ 2%

Exchange rate \$1 = €0.847

- The US MEWP rental market grew for the seventh year in a row, while the trend for growth has begun more recently in Europe and remains relatively stable. Relative uncertainty is expected to slow growth in both markets from 2019 onwards.
- Average revenue per unit also grew at a faster pace in the US than in Europe in 2018: However both regions are expected to experience comparable growth in average revenue per unit in 2019.



*Ten countries under study – representing approx. 85% of the entire European market revenue.

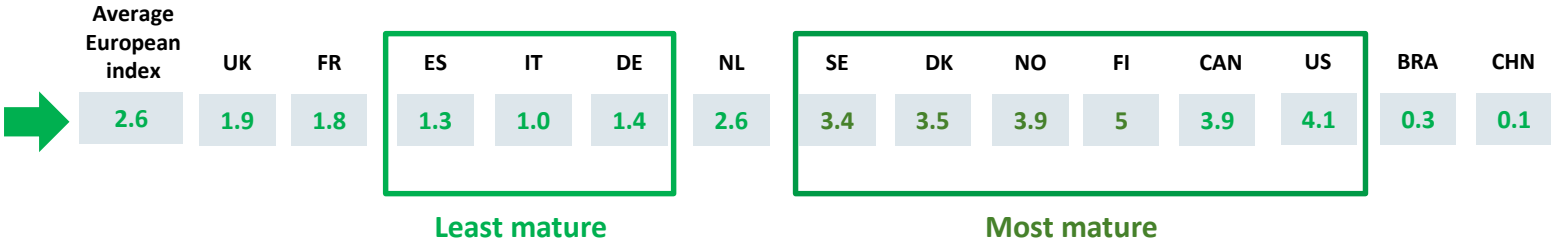
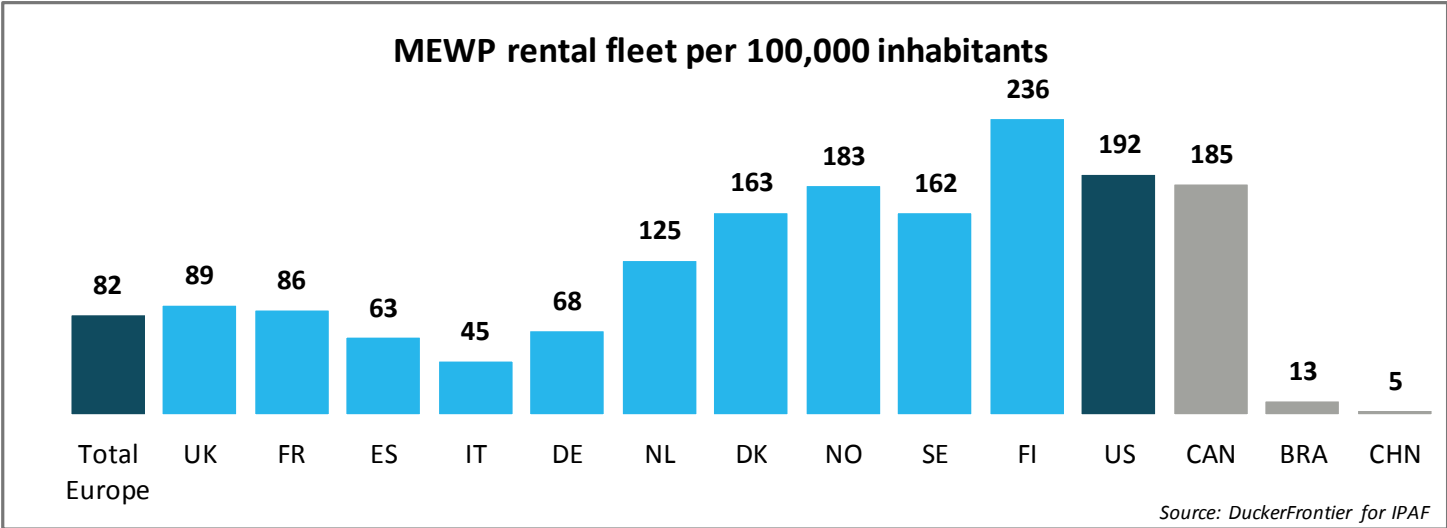
EXECUTIVE SUMMARY – EUROPE VS USA

Revised



In 2018, the MEWP penetration index in each country under study changed little. Nordic countries show the highest penetration index, while southern European countries and Germany show the lowest.

- The market penetration is calculated using the following ratio: MEWP rental fleet vs population by country.

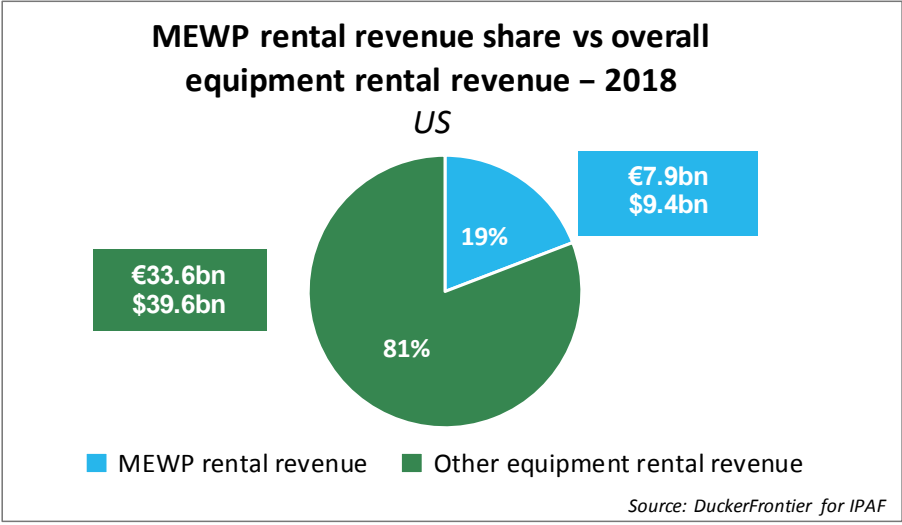
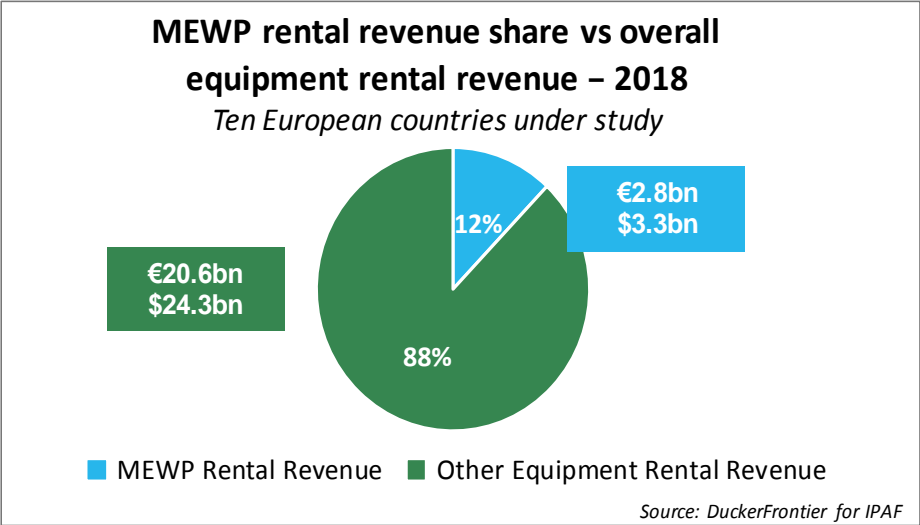


EXECUTIVE SUMMARY – EUROPE VS USA

Revised



Similar to last year, MEWP rental market penetration of the total rental market is more significant in the US, standing at around 20%. It is more limited in Europe, at 12% on average (source ERA).



ERA overall equipment rental revenue includes:

1. General plant
2. Tools & general equipment
3. Access
4. Power generation & temperature Control
5. Accommodation & fencing
6. Industrial machinery
7. Crane

ARA overall equipment rental revenue includes:

1. Party & event
2. General tools
3. Construction & industrial equipment

Exchange rate: \$1 = €0.80084

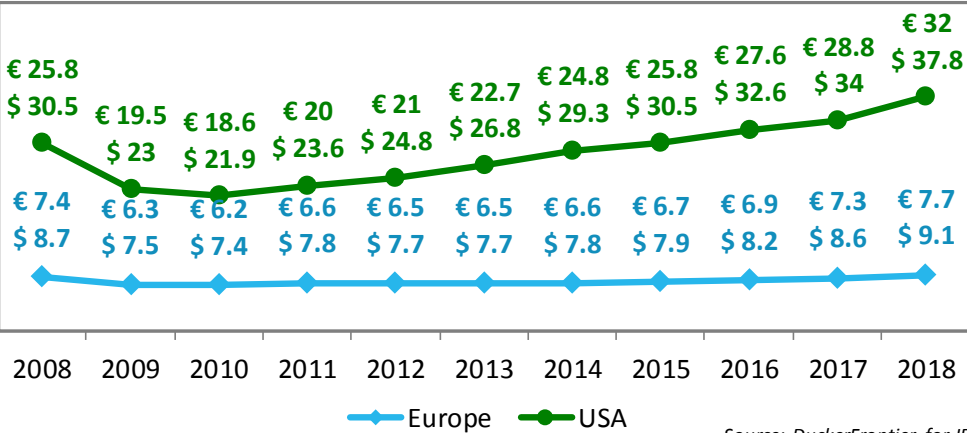
EXECUTIVE SUMMARY – EUROPE VS USA

Revised



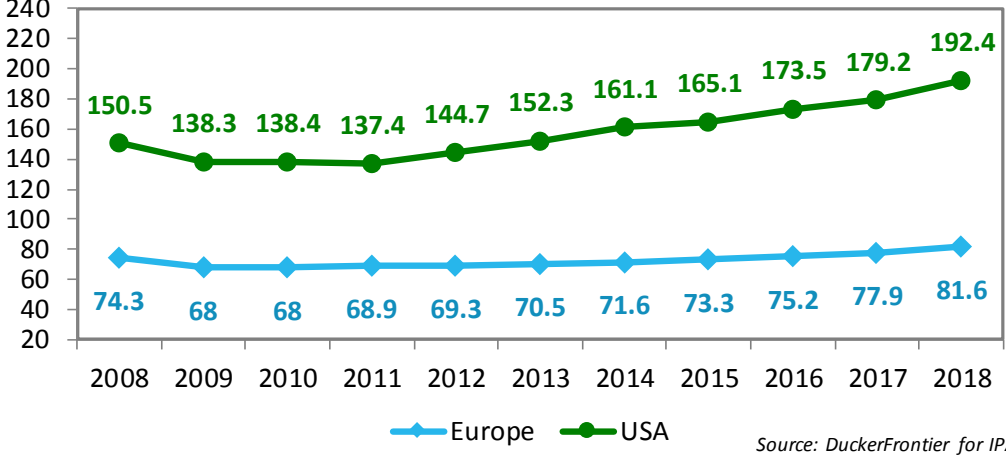
As in 2017, the US rental revenue per inhabitant and fleet size per capita both rose at a faster rate than in Europe.

MEWP rental revenue per inhabitant



- Average MEWP rental revenue per inhabitant has been increasing in both the US and Europe since 2010. Throughout that period the US has shown stronger growth than in Europe.
- Rental fleet size has increased in both the US and Europe, but at a markedly faster rate in the US.

MEWP rental fleet per 100,000 inhabitants



EXECUTIVE SUMMARY – EUROPE VS USA

Revised



In 2018, the worldwide rental MEWP fleet size reached 1.47m units. Strong growth in Asia is being driven mainly by China. Growth was reported in all regions.

North America

Articulated booms	144,100
Straight booms	123,900
Scissors	399,100
Others	31,500
Total	698,600

Latin America*

Articulated booms	25,700
Straight booms	4,000
Scissors	22,700
Others	4,500
Total	56,900

*Includes Mexico

EAME

Articulated booms	116,000
Straight booms	37,500
Scissors	191,300
Others	47,700
Total	392,500

Overall Europe (28 countries) accounts for 94% of total EAME fleet

ASIA - PAC

Articulated booms	33,300
Straight booms	45,900
Scissors	200,900
Others	48,400
Total	328,500

Note: Included are powered access booms, scissor lifts and vertical masts;
Excluded: Low-level access equipment (<10ft/3m high), telescopic material handlers, forklifts, cranes, Mast-Climbing Work Platforms (MCWPs).

Others include: Vertical lifts, vertical masts, vehicle-mounted booms owned by rental companies with self-propelled fleets.

A large, dark teal diagonal shape that starts from the top-left corner and extends towards the bottom-right corner, creating a split background.

EUROPE INFORMATION

IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019

Region	Market Situation 2018	GDP	Overall construction	MEWP Rental Market	Key Indicator
UK	Limited construction demand.	↑ 1.4%	↓ -1%	↑ 1%	Strong competition driving rates down.
Denmark	Favorable construction demand.	↑ 2%	↑ 3%	↑ 2%	Stable rental and utilisation rates. Fleet increase.
Norway	Temporary construction slow down but positive outlooks.	↑ 2.1%	↓ -3%	↑ 3%	Rental rates increase and fleet expansion.
Sweden	Moderate growth. Limited outlooks.	↑ 2.4%	↑ 1%	↑ 3%	All indicators growing slightly.
Finland	Moderate growth. Limited outlooks.	↑ 2.6%	↑ 4%	↑ 3%	Fleet expansion.
Italy	Rapidly growing market fuelled by increased demand.	↑ 1%	↑ 2%	↑ 7%	All indicators positive.
France	Strong market growth. More moderate growth outlooks.	↑ 1.5%	↑ 3%	↑ 7%	Rental rates increase and fleet expansion.
Netherlands	Rapidly growing market fuelled by increased demand.	↑ 2.8%	↑ 6%	↑ 8%	Rental rates increase and fleet expansion.
Germany	Strong market growth. More moderate growth outlooks.	↑ 1.5%	↑ 1%	↑ 9%	All indicators positive.
Spain	Strong growth confirmed, and positive outlook	↑ 2.5%	↑ 6%	↑ 10%	All indicators positive.
Europe (Ten countries)	Confirmed growing demand. Uncertain outlooks.	↑ 2%	↑ 2%	↑ 6%	Fleet expansion Improvement of rental rates

A large, dark teal diagonal shape that starts from the top-left corner and extends towards the bottom-right corner, creating a split background.

MARKET SIZE 2008-2020

**IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – EUROPE**

MARKET SIZE 2018 – RENTAL MARKET VALUE

Revised



The MEWP rental market (ten European countries under study) is estimated at approximately €2.82bn in 2018. Total European* market value is estimated at €3.3bn.

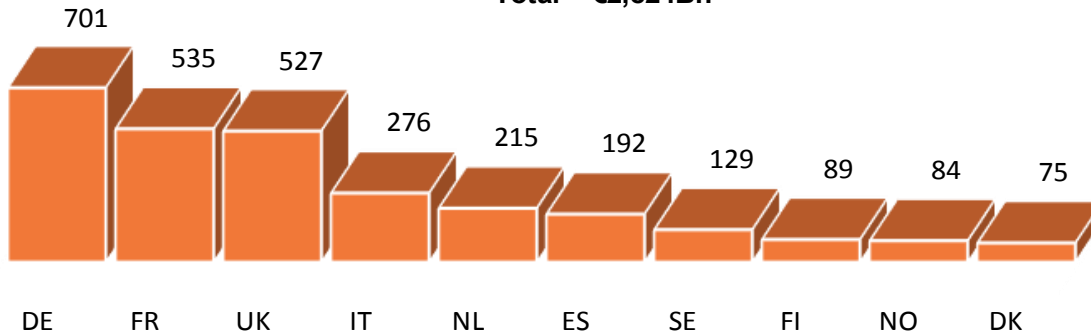
- Three markets dominate the European MEWP rental market. Germany, the UK and France account for 64% of the revenue generated by MEWP rental activity in the ten countries under study.
- Market values grew in all countries in 2018. The market in France outgrew the UK market in 2018.

- In 2017, the overall European market experienced similar growth to the previous year.
- Favourable economic conditions helped fuel demand for MEWP rentals.
- Rental revenue as a percentage of total company revenue remained stable (57% in 2018) however MEWPs lost share among total rental revenue (65% in 2018, versus 71% in 2017).
- All of the ten European markets under study grew in 2018, sometimes by double digits (Spain: 10%). UK is the market where market value experienced the lowest growth rate (1%).

MEWP rental market (m€) – 2018

Ten European countries under study

Total = €2,824Bn



Source: DuckerFrontier for IPAF

2018	Total	UK	FR	ES	IT	DE	NL	DK	NO	SE	FI
Rental Revenue as % of Total Company Revenue	57%	53%	65%	50%	51%	45%	65%	72%	73%	75%	75%
MEWP Revenue as % of Total Rental Revenue	65%	85%	44%	56%	68%	73%	80%	73%	48%	31%	36%
MEWP Rental Revenue as % of Total Company Revenue	34%	45%	28%	28%	34%	33%	52%	53%	35%	23%	27%

* Defined as 28 EU countries, Norway, Switzerland, Slovenia and Macedonia

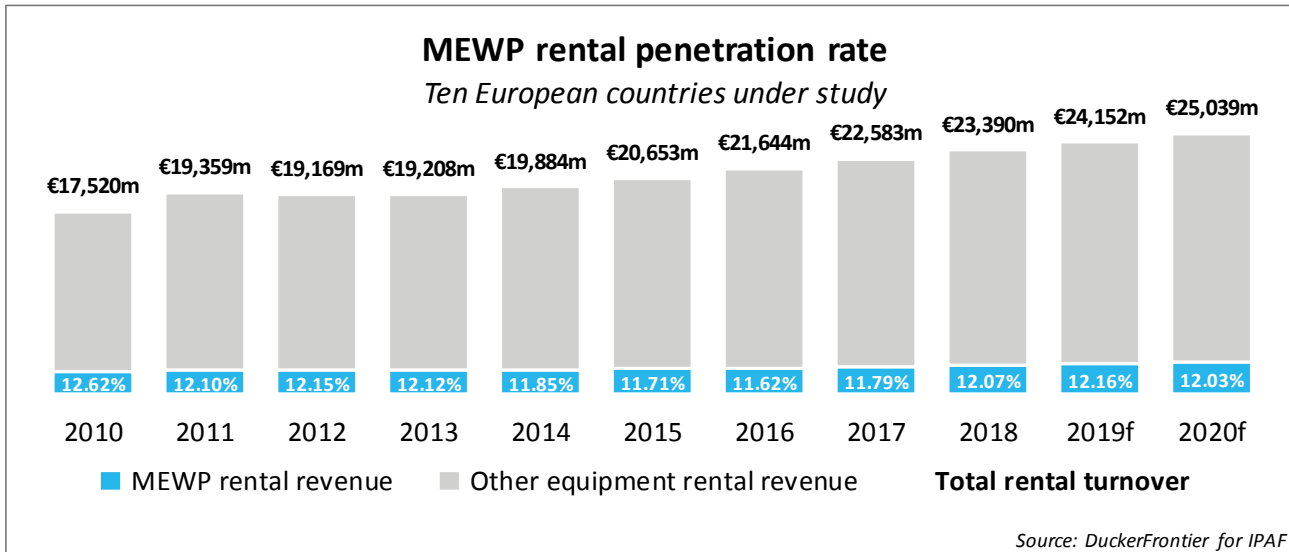
MARKET SIZE 2018 – MEWP RENTAL PENETRATION



MEWP rental market penetration remains within the usual range, with a slight increase reported in 2018.

Revised

- As forecast in last year’s report, MEWP rental market penetration has continued to increase. The trend is expected to be sustained in 2019.
- In 2020, MEWP rental penetration rate is expected to plateau or decrease slightly, remaining slightly above 12%.



Source for total rental turnover: ERA 2018 Report.

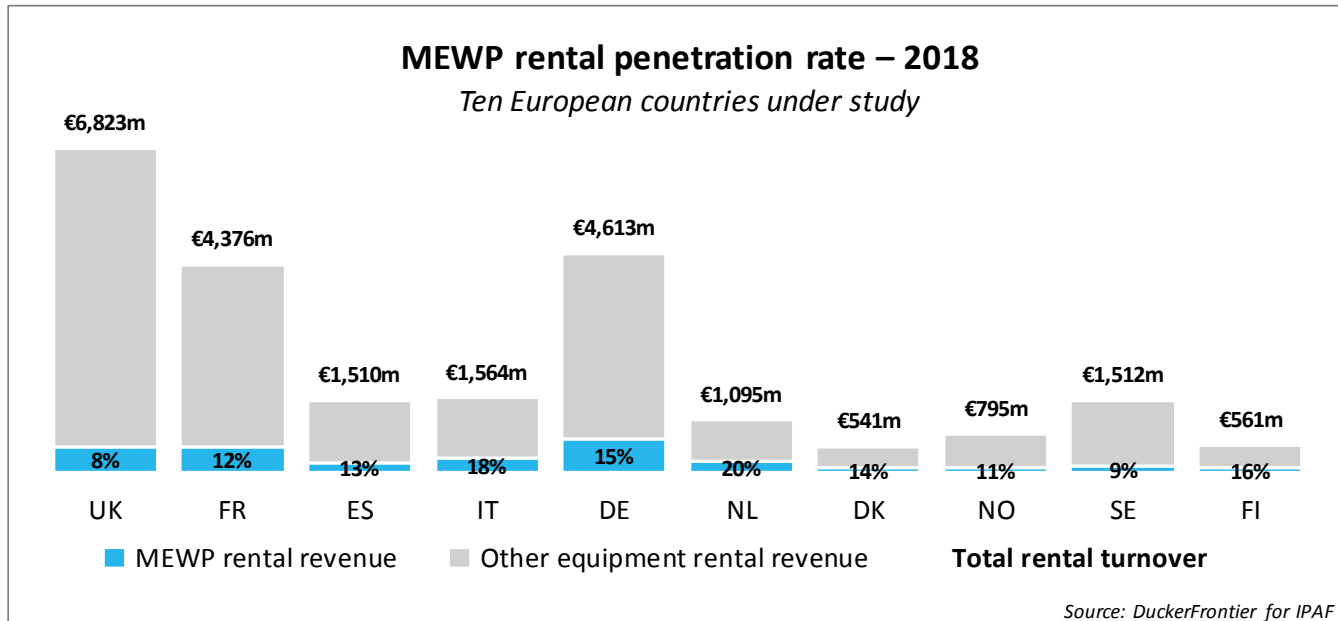
MARKET SIZE 2018 – MEWP RENTAL PENETRATION



Some significant differences can be identified between the ten European countries under study when it comes to MEWP rental penetration, which is highest in the Netherlands (20%) and lowest in the UK (8%).

Revised

- Similar to last year’s report, the highest MEWP rental penetration rates (above 15%) are found in the Netherlands, Italy, Finland and Germany. The lowest rates (below 10%) are found in the UK and Sweden.
- Penetration levels tend to change only very slightly every year.

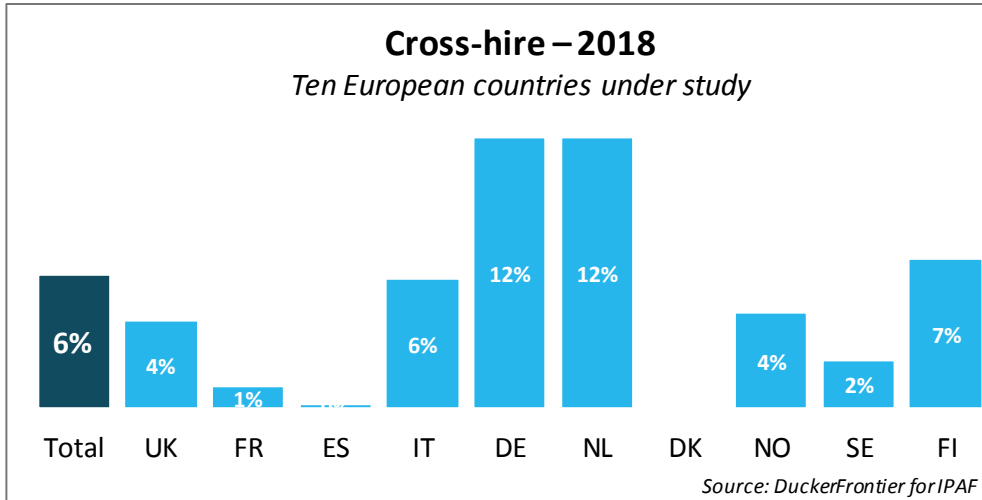


Source for total rental turnover: ERA 2018 Report.

MARKET SIZE 2018 – CROSS-HIRE

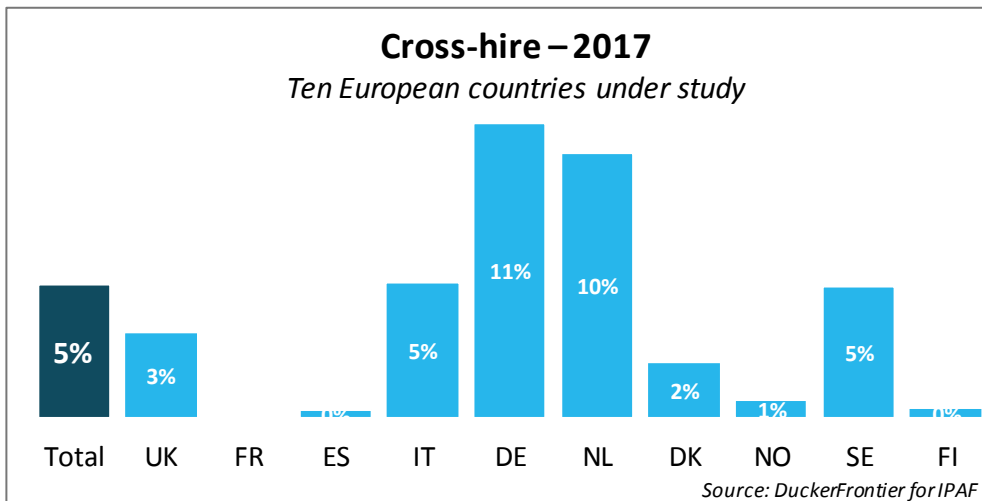
The level of cross-hire continued to rise in 2018: Market demand led to increased pressure on fleet size and utilisation rates. Cross-hire appears as a convenient short-term solution to meet specific demand.

All re-rental amounts have been eliminated from totals expressed in this report



- Similar trends to last year are reported: Germany and the Netherlands are the countries where the level of cross-hire is strongest (above 10%). Cross-hire is used in situations where demand increases strongly and the need for additional fleet rises accordingly. In addition, cross-hire is a solution for rental companies that cannot serve clients in some areas or with specific needs for niche equipment for instance.

Cross-hire = Rental by one company from another



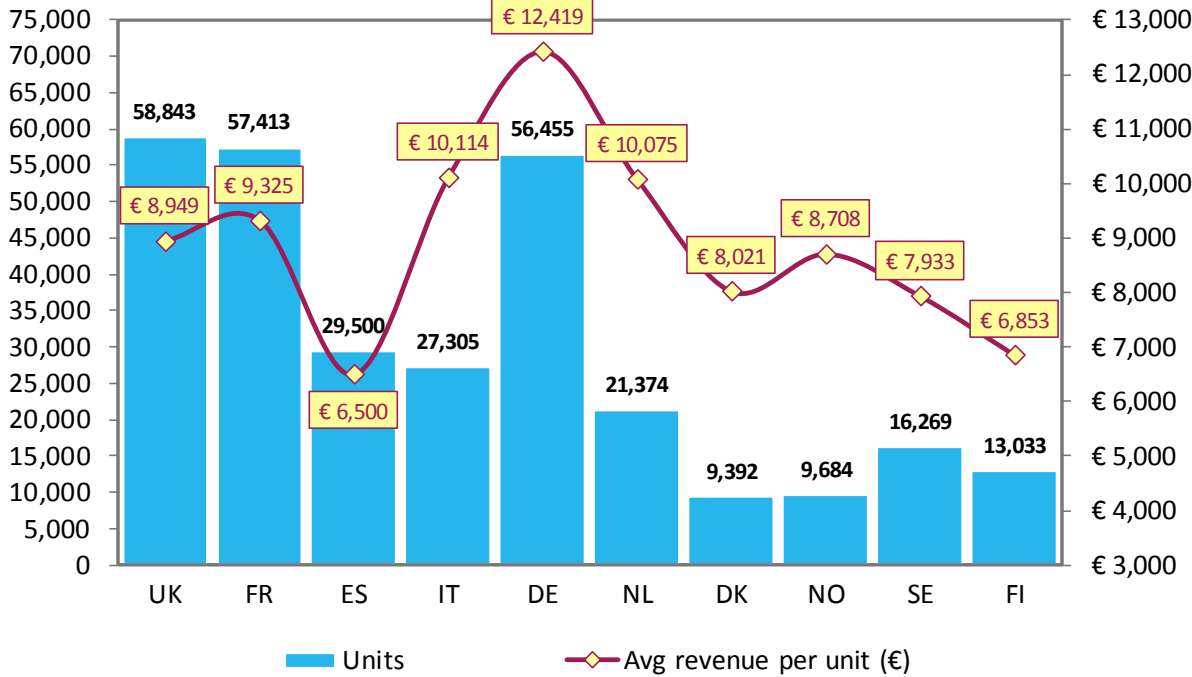
- Cross-hire increased in Finland and Norway.
- It remains negligible in France and in Spain.
- In the UK and Italy, the level of cross-hire remained relatively static, at around 5%.

MARKET SIZE 2018 – MARKET SIZE IN UNITS

MEWP fleet size is estimated at approximately 299,000 units in the ten European countries under study. Overall European* fleet size is estimated at approximately 369,000 units at the end of 2018.

Revised

MEWP fleet size and revenue per unit - 2018
 Total fleet size = 299,268 Units - Avg revenue per unit (€) = €9,437



Ten European countries under study

Source: DuckerFrontier for IPAF

End-of-year data

* Defined as 28 EU countries, Norway, Switzerland, Slovenia and Macedonia

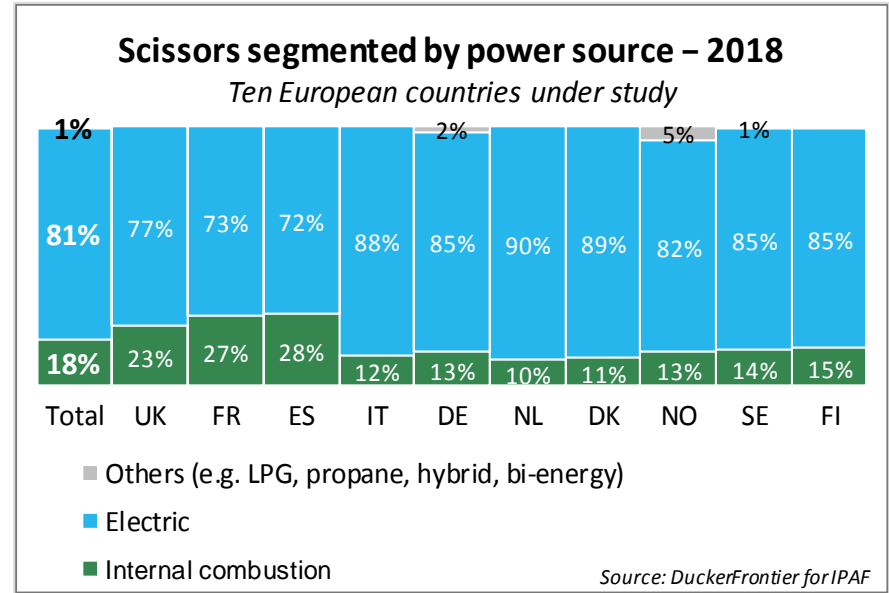
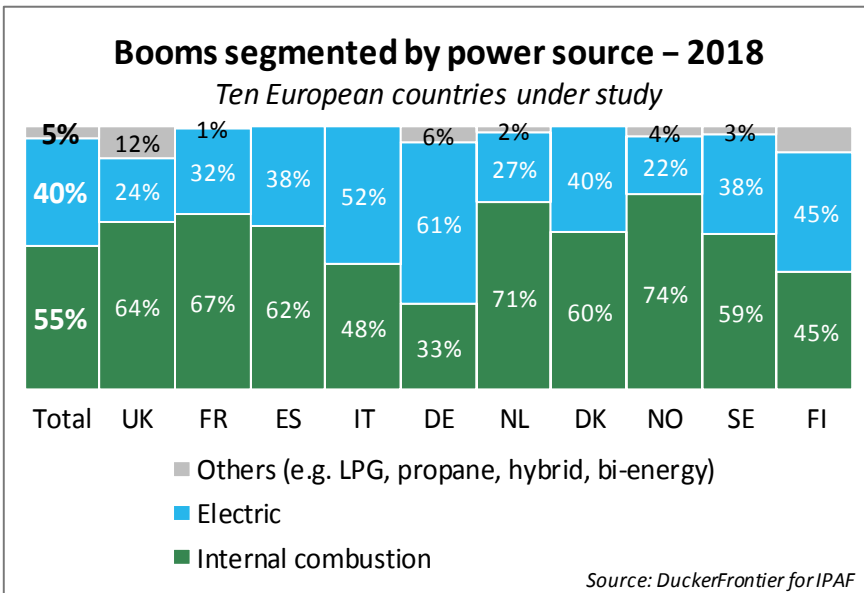
- The UK MEWP rental fleet is still the largest, followed closely by the German and French fleets. Fleet size in each of these three countries is more than 50,000 units.
- Average revenue per unit increased in 2017, and is now close to €9,400.
- Germany has the highest revenue per unit. In addition, revenue per unit in Italy and the Netherlands slightly exceeded €10,000 in 2018.
- Average revenue per unit remains lowest in Spain, where it is close to €6,500.
- Average MEWP rental revenue per unit is below the European average in the four Nordic countries under study.

MARKET SIZE 2018 – POWER SOURCES



The European MEWP rental market continues a shift towards greener machines. Total share of hybrid and electric equipment remained stable or increased in Europe across all main equipment categories.

- Scissor fleets in all European countries under study are now heavily oriented towards electric equipment. Internal combustion engines still dominate the boom fleet, due to the fact that some outdoor applications and higher heights equipment still require to use this type of power source. Electric equipment has gained some share in this equipment category as well.
- Though the penetration of hybrid equipment remains relatively low at present, rental companies do report their intention to continue to shift towards cleaner power sources. As part of this strategy, the penetration of hybrid equipment is expected to continue to increase in the next few years.



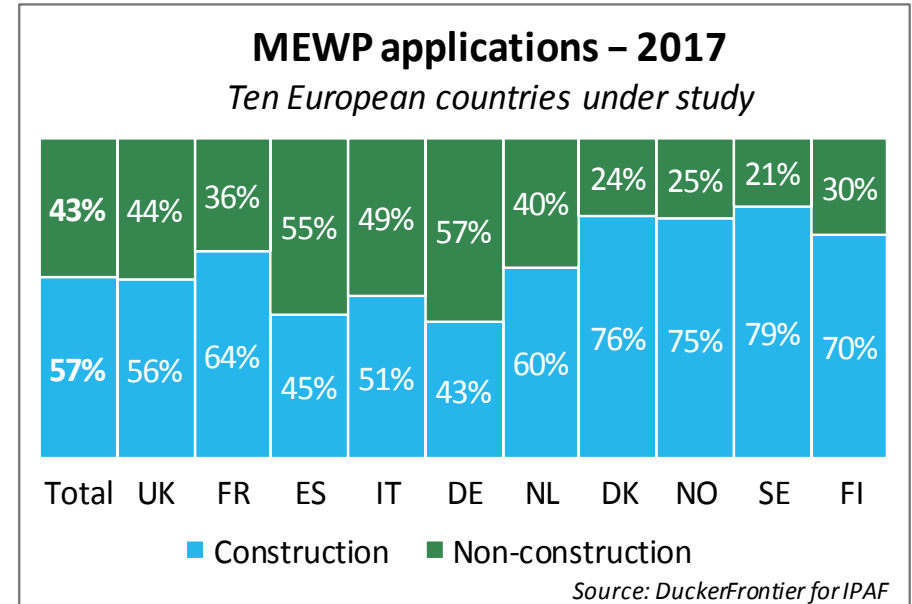
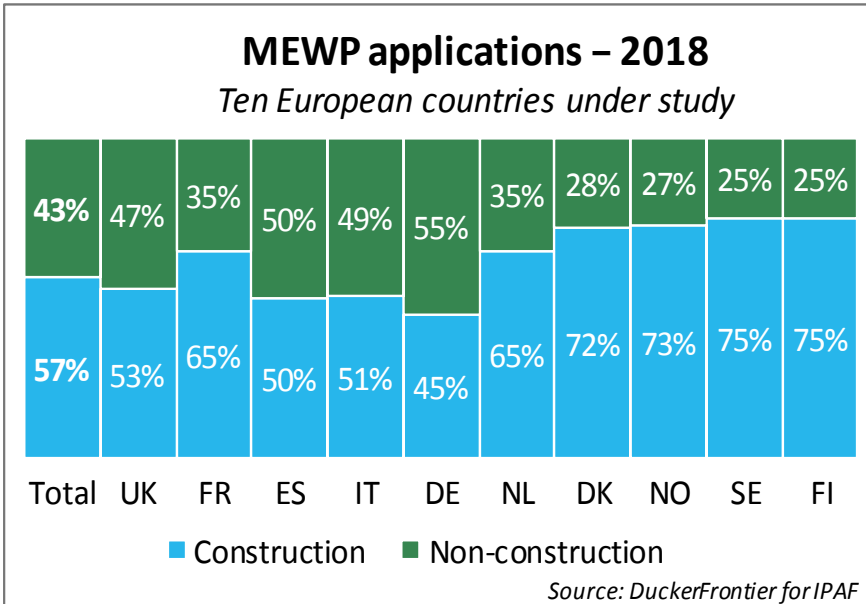
Percentage of fleet powered by electric vs internal combustion.

MARKET SIZE 2018 – APPLICATIONS



Similar to last year, the split between construction and non-construction applications remains at 57% in favour of construction. In Spain, the Netherlands and Finland, construction applications grew significantly.

- Construction applications grew rapidly, fuelled by dynamic construction markets in several European countries.
- MEWP rental companies in the largest markets (Germany, the United Kingdom) still exhibit a healthy share of non-construction applications, since these represent a stable source of revenue, sometimes with an opportunity for higher rental rates.



Non-construction includes property and infrastructure maintenance, cleaning, utilities, events.

Construction includes new-build and renovation work, across commercial, residential and infrastructure projects.

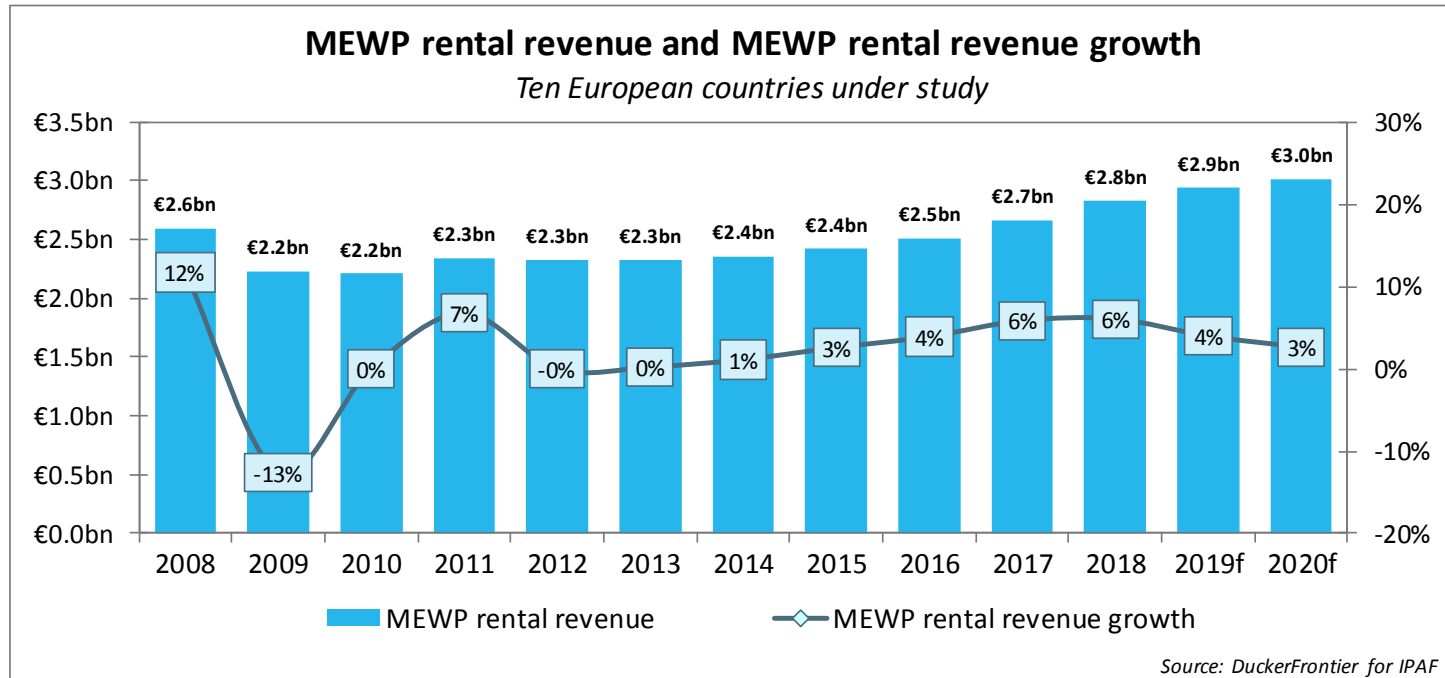
MARKET DYNAMICS 2008-2020

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2019 – EUROPE

In 2018, European MEWP rental revenue grew at a similar strong pace to 2017, and reached a total value of €2.8bn.

Revised

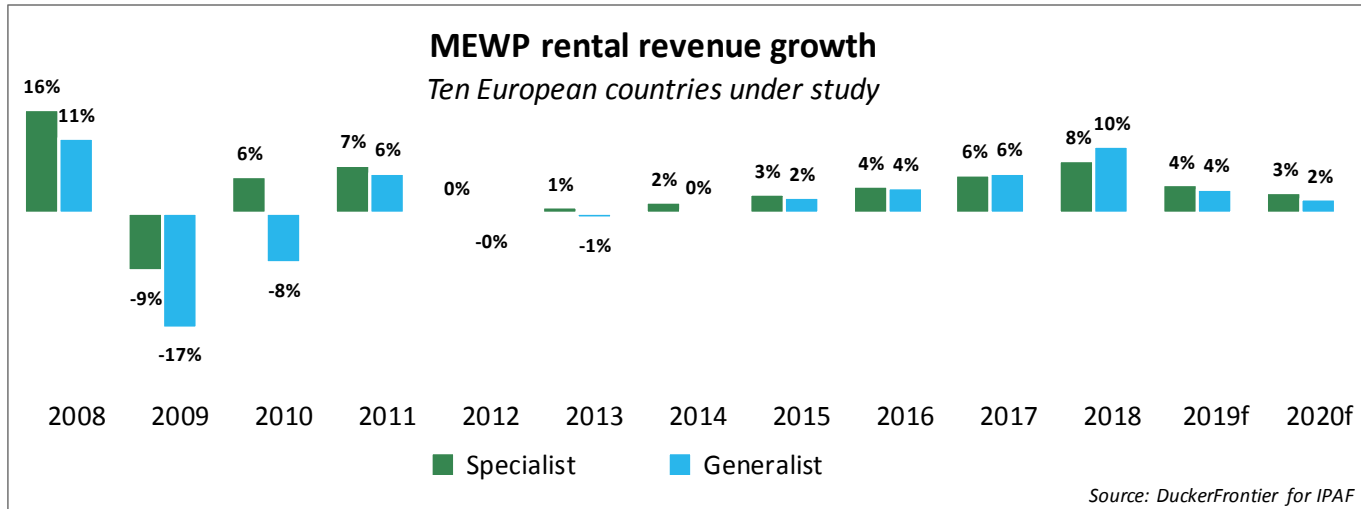
- As forecast in last year’s report and similar to 2017, the European MEWP rental revenue grew significantly in 2018 (6%).
- This was fuelled by positive macro-economic indicators in the European countries under study and strong construction activity, driving optimism across the markets: MEWP rental companies were able to expand fleets and increase rental rates in all countries.
- Though outlooks remain positive, higher uncertainty prevails for the next few years: The likes of Brexit and the trade war between China and the US, currently impacting German exports to China, raise concerns regarding European markets’ health beyond 2019.



MARKET DYNAMICS 2008-2020 – BY COMPANY TYPE

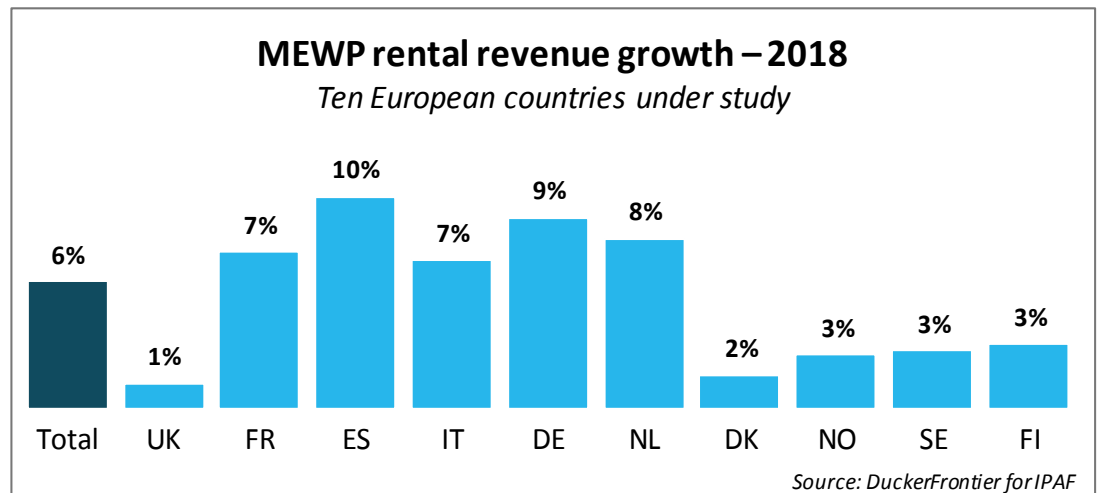


In 2018, all ten European MEWP rental markets under study grew. Growth rates varied from one country to another and ranged between relatively slight revenue growth in the UK and 10% in Spain.



- In 2018, MEWP rental revenue growth was similar for generalist and specialist companies, for the fourth year in a row.
- Trends are expected to remain similar in 2019, with limited difference between generalist and specialist companies.

- Spain experienced the strongest revenue rise in 2018, seeing double-digit growth.
- Germany, The Netherlands, Italy and France experienced a significant increase (>5% growth) as well.
- Growth remained more limited in the Nordic countries overall (<5% growth) where companies had more difficulties increasing their rental rates.
- Contrary to past years and owing to uncertainty around Brexit, UK market growth slowed (1% revenue growth).



MARKET DYNAMICS 2008-2020 – MARKET SIZE IN UNITS



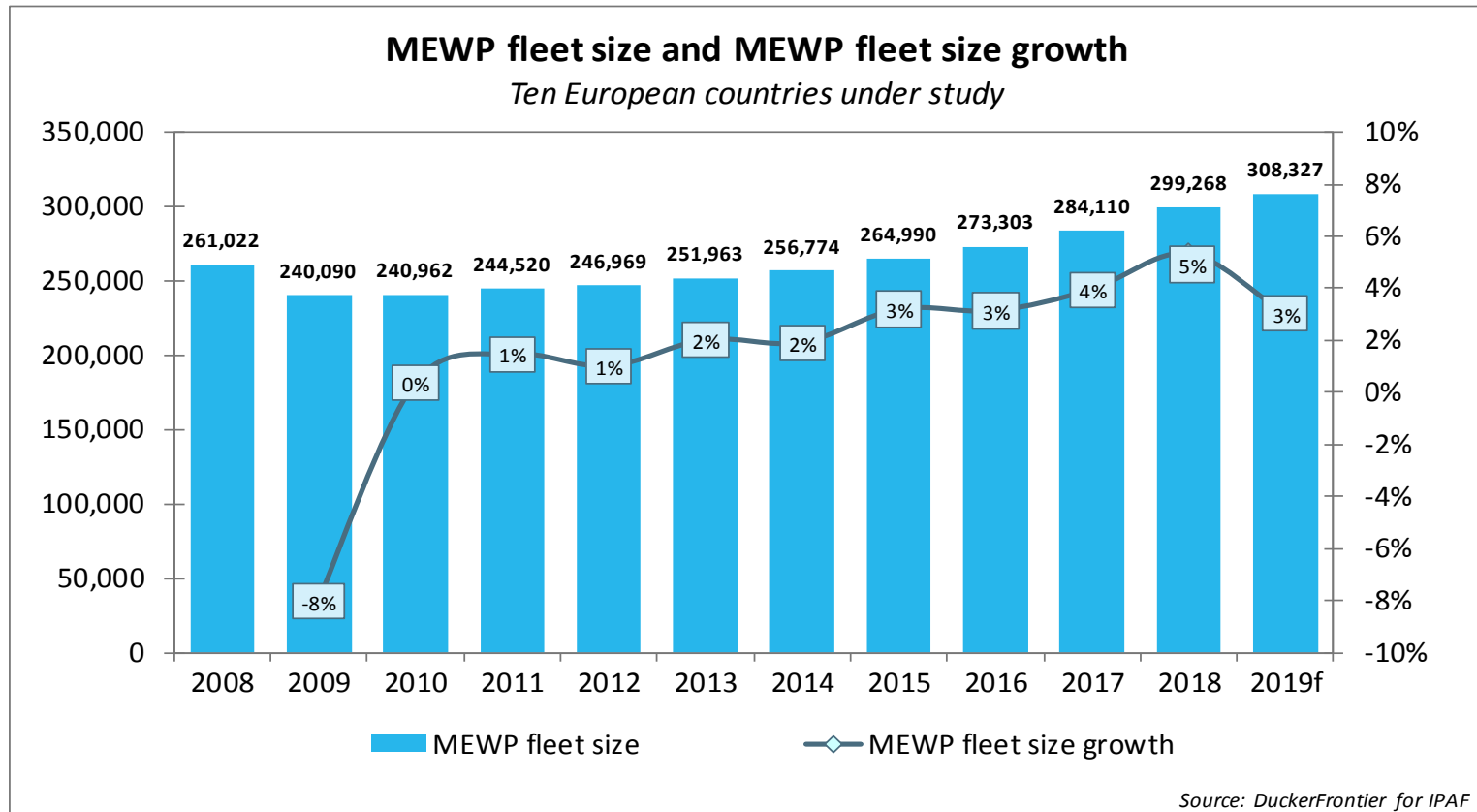
Revised

As forecast in last year’s report, fleet size of the ten countries under study grew significantly in 2018, to reach almost 300,000 units.

- MEWP rental fleets kept expanding in 2018 to an unprecedented level since the 2008-09 downturn thanks to strong demand.
- Though rental fleets are expected to continue growing, growth should be more moderate in 2019. The total fleet size of the ten European countries under study is expected to exceed 300,000 units by the end of this year.

*Note: Included are powered access lifts: All booms, scissor lifts and vertical masts
Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs*

The number of units was revised due to the identification of a higher number of used equipment than previously estimated present on the Spanish MEWP rental market. Other linked indicators have been revised too



Source: DuckerFrontier for IPAF

End-of-year data

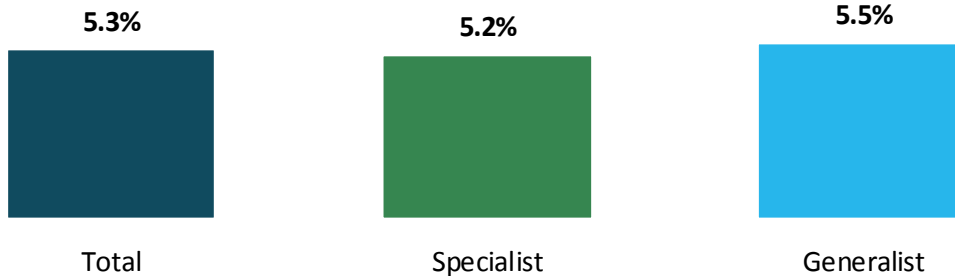
MARKET DYNAMICS 2008-2020 – MARKET SIZE IN UNITS



MEWP rental fleets grew in all ten countries under study with minimum 3% growth rate. Both specialist and generalist companies reported strong fleet-size growth rates in 2018.

MEWP fleet size growth – 2018

Ten European countries under study



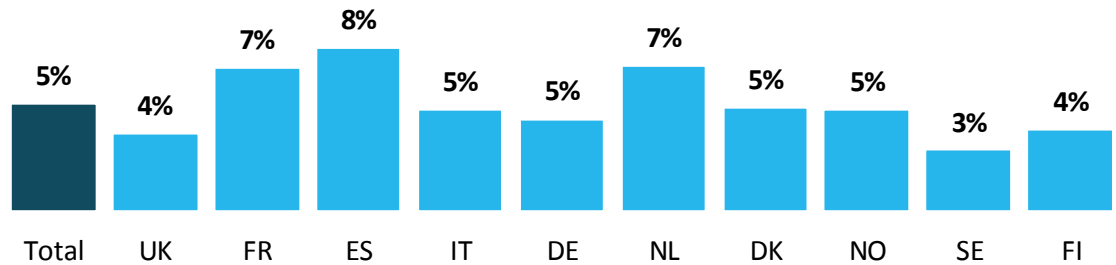
Source: DuckerFrontier for IPAF

- In 2018 fleet expansion was a trend among both generalist and specialist companies.
- Fleet size growth was roughly the same for both generalist and specialist companies.

- Fleet size grew significantly in all ten European countries under study, with minimum growth rate (3%) encountered in Sweden.
- Spain, France and the Netherlands reported the strongest fleet growth rates (>5%).

MEWP fleet size growth – 2018

Ten European countries under study



Source: DuckerFrontier for IPAF

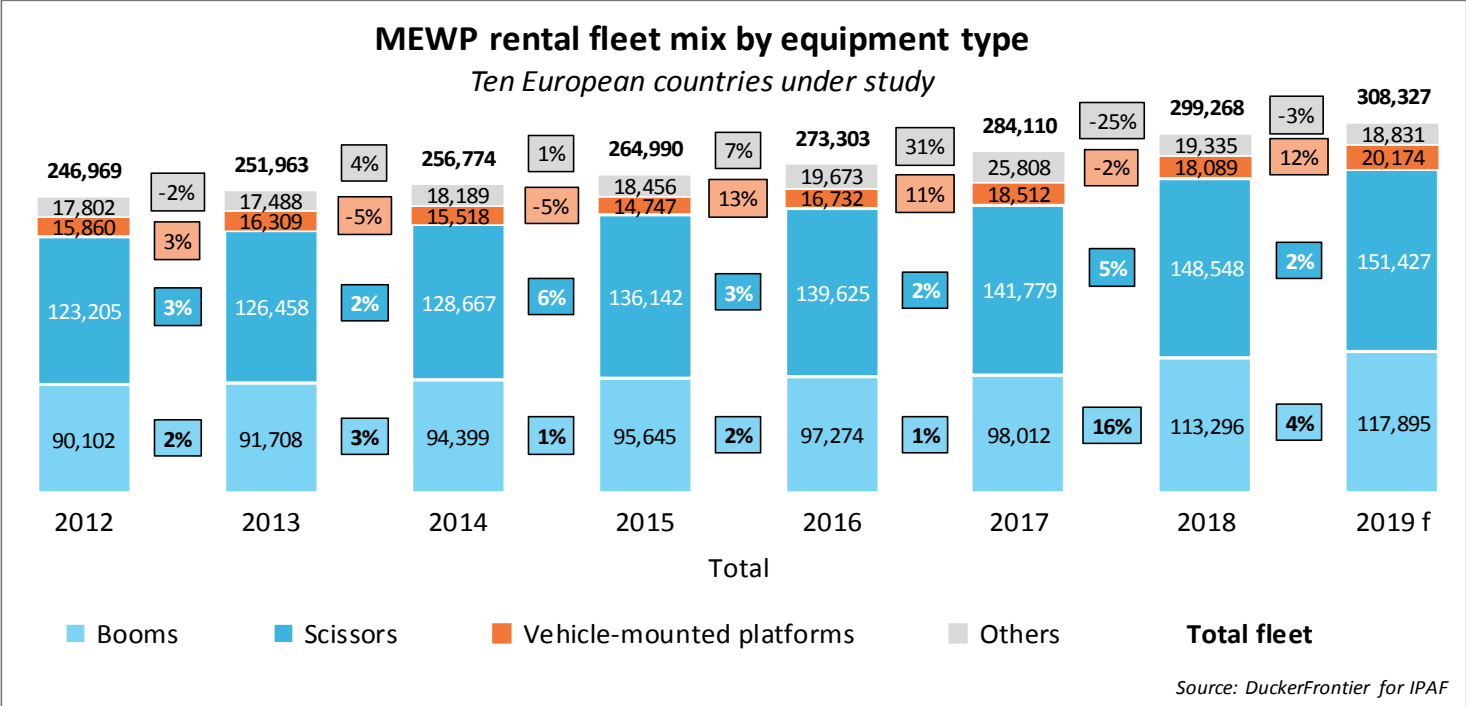
MARKET DYNAMICS 2008-2020 – MARKET SIZE IN UNITS



Typical European MEWP fleet mix comprises 50% scissors, 38% booms, 6% vehicle-mounted equipment and 7% other types of equipment.

Revised

- Scissors accounted for the lion's share of the European MEWP rental market, though the proportion of booms did increase in 2018.
- Fleet mix is not expected to change significantly in 2019.



Included are powered access lifts: All booms, scissor lifts and vertical masts.
 Excluded are low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.

+X%

% unit growth, e.g. booms fleet increased by 16% from 2017 to 2018.

Others include: Vertical lifts, vertical masts, push-around, trailer mounted/towable.

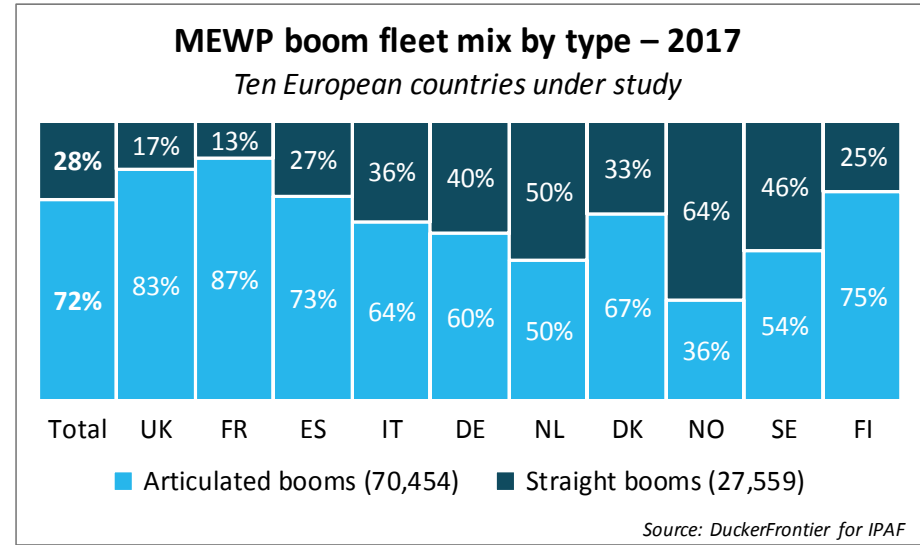
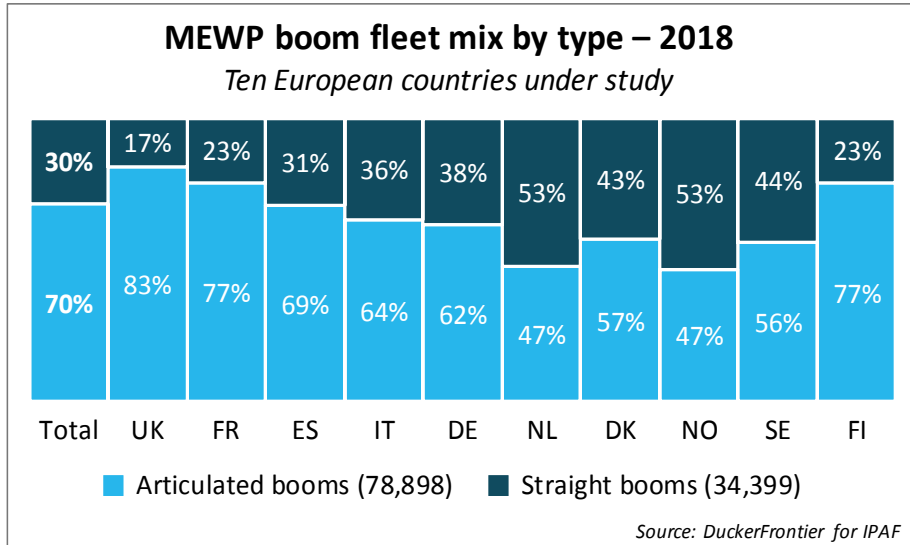
MARKET DYNAMICS 2008-2020 – MARKET SIZE IN UNITS



Revised

The split between articulated and straight booms slightly shifted in favour of straight booms in 2018, thanks to their capacity to reach greater heights.

- Several rental companies across the ten European countries under study expanded their fleets with a view to offering both the most in-demand equipment and niche machines to differentiate them from competition. As part of their fleet expansion strategy, they purchased more straight booms able to reach higher heights.
- Nevertheless, articulated booms still dominate: They are seen as a “safe and rational choice”, as the equipment is highly versatile and able to work in various applications and environments.
- Articulated booms account for more than 75% of the boom fleet in the UK, France and Finland.

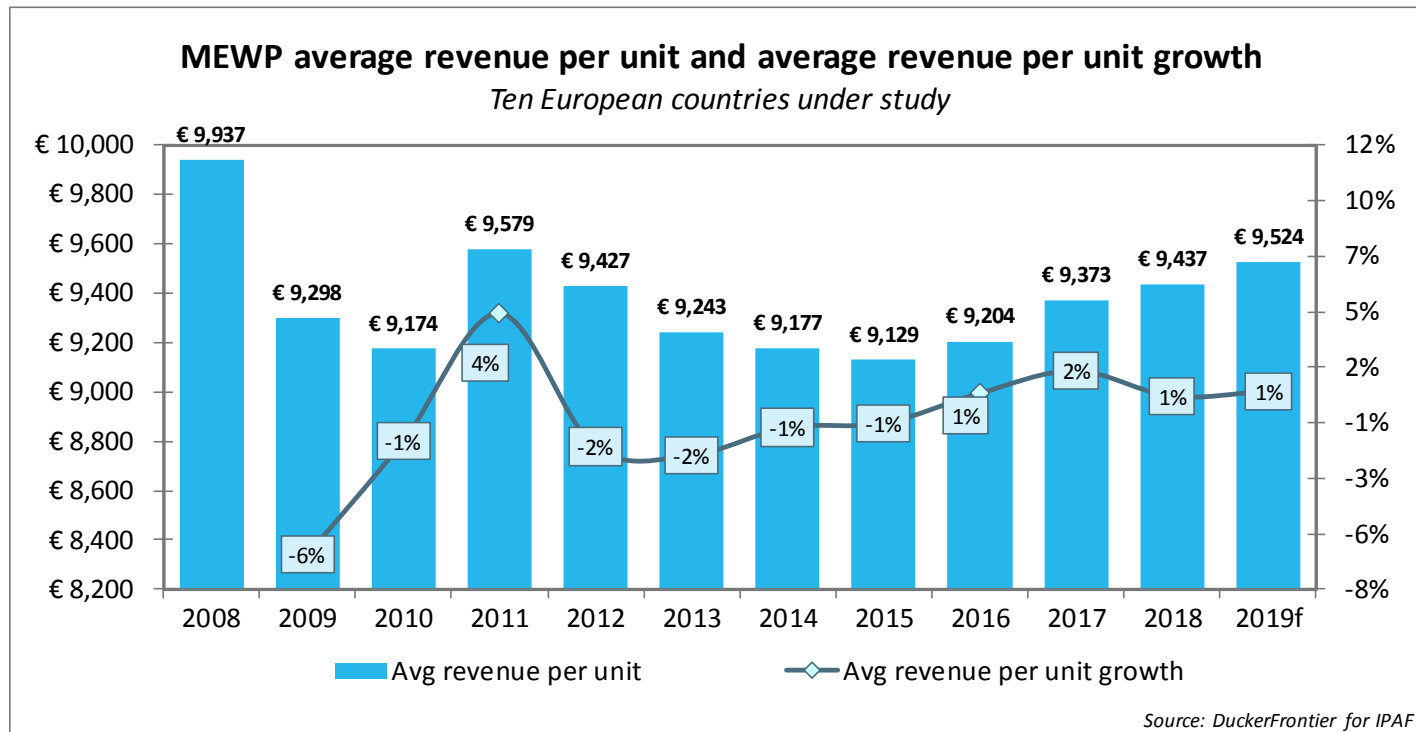


End-of-year data

MARKET DYNAMICS 2008-2020 – REVENUE PER UNIT

Average revenue per unit rose more slowly in 2018 than in 2017. Average revenue per unit is now close to €9,400 in Europe, though that is still below pre-recession levels.

- The trend has remained similar since 2016 under the combined effect of utilisation and rental rate rises, while MEWP rental companies significantly expanded their fleets.
- A similar trend is expected in 2019 as growth is forecast across all main market indicators.

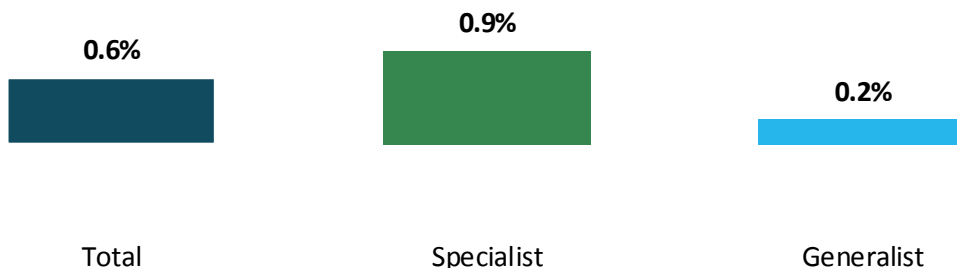


MARKET DYNAMICS 2008-2020 – REVENUE PER UNIT

Major variations were seen in average rental revenue growth between the ten European countries under study. Average rental revenue increased more significantly for specialist rental companies.

MEWP average revenue per unit growth – 2018

Ten European countries under study



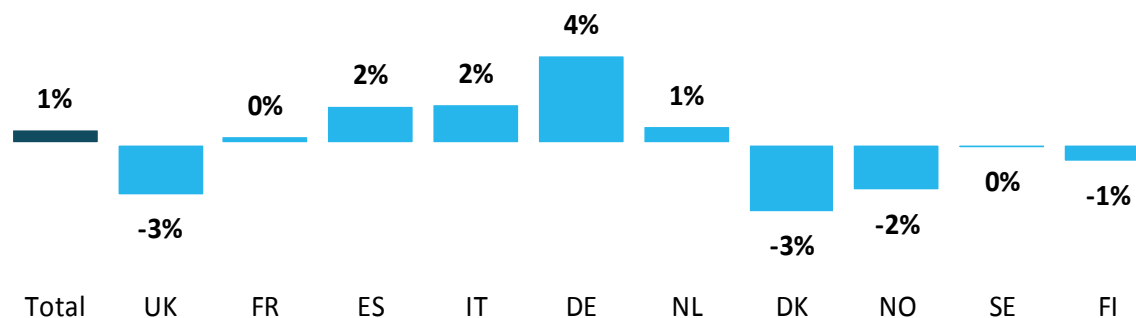
Source: DuckerFrontier for IPAF

- Average revenue per unit increased more significantly for specialist companies than generalist companies, for which it remained almost flat.

- Average revenue per unit growth differed from one country to another. While it grew in countries such as Germany, Spain and Italy, it decreased in all the Nordic countries and in the UK, where companies held or decreased their rental rates.

MEWP average revenue per unit growth – 2018

Ten European countries under study



Source: DuckerFrontier for IPAF

A large, dark teal diagonal shape that starts from the top-left corner and extends towards the bottom-right corner, creating a split background of dark teal and white.

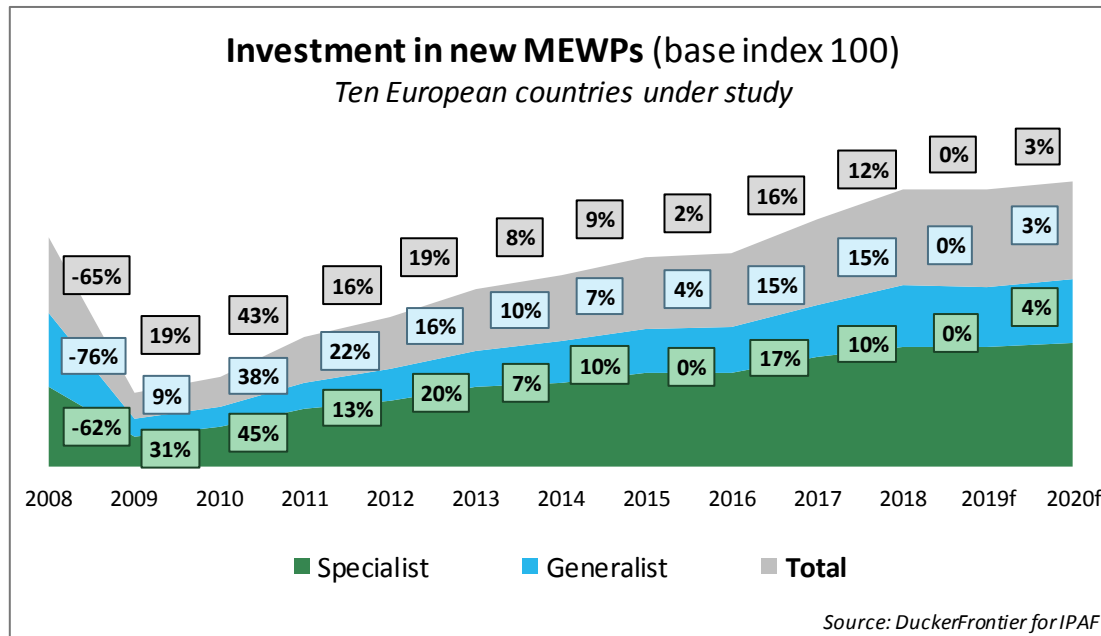
INVESTMENT 2008-2020

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2019 – EUROPE**

INVESTMENT

As forecast in last year's report, total investment in equipment purchases increased significantly in 2018. Investment will vary from country to country in 2019, which overall means the outlook for Europe is stable.

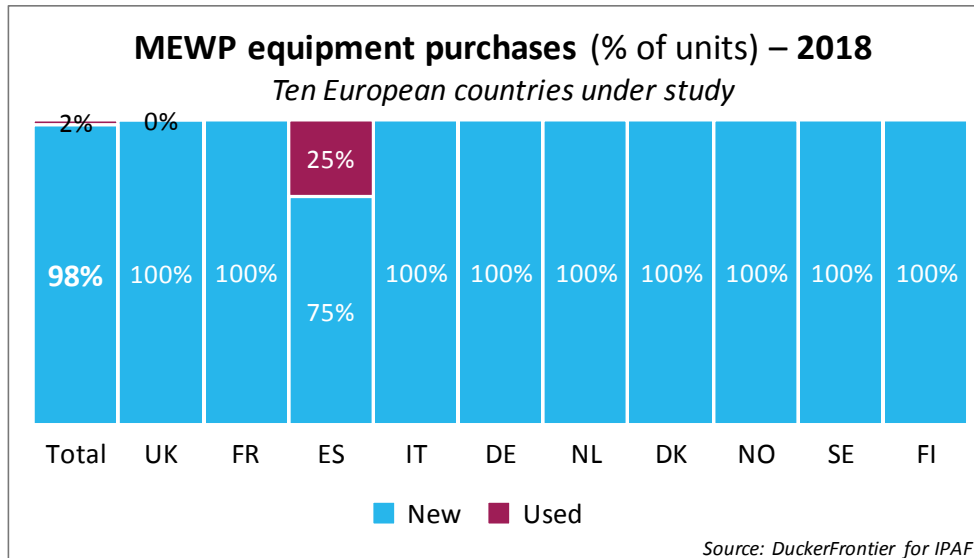
- In 2018, investment grew significantly and for the ninth year in a row MEWP rental companies reported that they are both expanding and renewing their fleets.
- Since European MEWP rental companies are focused on having “green” equipment, they report purchasing of machines is becoming more expensive.
- Growth in investment was similar for both generalist and specialist companies in 2018.
- Nevertheless 2018 appears as a turning point and investment is expected to stabilise from 2019 onwards: Rental companies expect more moderate fleet growth in the coming years and plan to adopt a more cautious attitude, limiting capital expenditures in the countries with the greatest uncertainty in terms of economic outlook.



EQUIPMENT PURCHASES

MEWP rental companies tend to buy new equipment in the ten European countries under study, except in Spain where around 25% of the rental fleet is purchased used.

- With growing competition in all the European MEWP rental markets under study, an increasing emphasis is placed on maintaining the quality and performance of equipment in order to retain a competitive edge by offering the most attractive rental fleet possible.
- Spanish rental companies that buy used equipment are typically smaller companies buying second-hand machinery from larger rental companies that are frequently renewing their fleet and therefore have newer equipment to sell on.

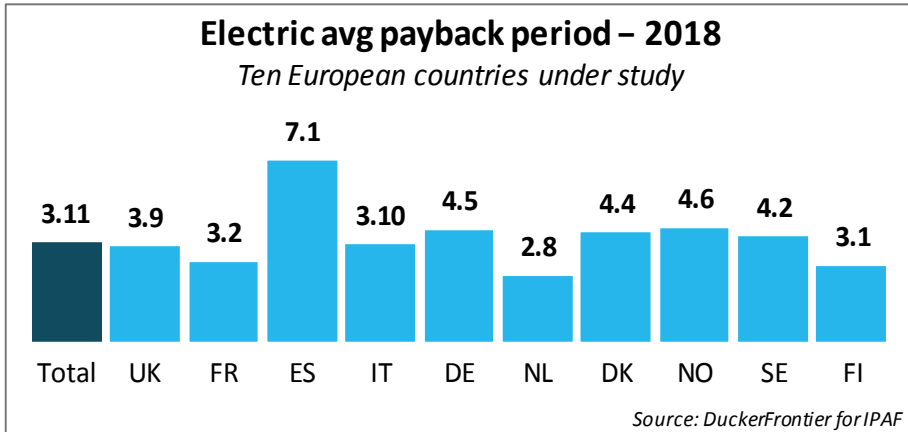


Note: The number of units was revised due to the identification of a higher number of used equipment than previously estimated present on the Spanish MEWP rental market. Other linked indicators have been revised too

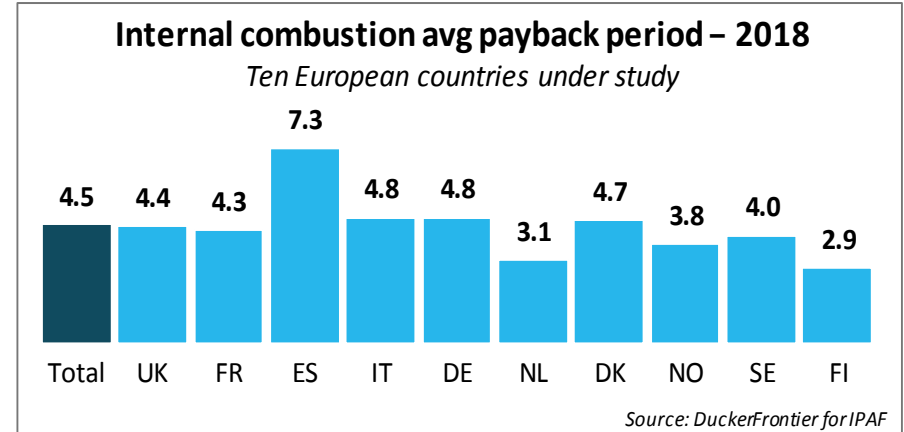
INVESTMENT – TYPICAL PAYBACK PERIOD

With electric equipment in high demand from end-users, the average payback period is reported to be shorter for this type of power source than for equipment using internal combustion engines.

- Some differences exist by country: Spain is the market where average payback period is longest, though it decreased in comparison with 2017.



3.11= 3 years, 11 months



4.5 = 4 years, 5 months

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OPERATIONAL ASPECTS 2008-2020

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2019 – EUROPE**

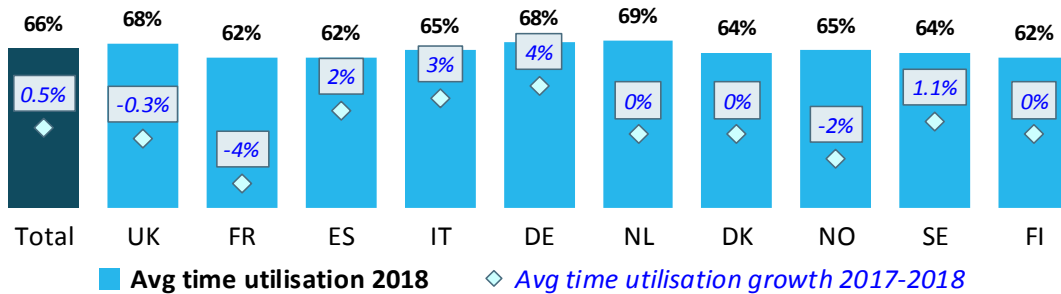
OPERATIONAL ASPECTS – TIME UTILISATION RATES



MEWP utilisation rates increased slightly overall in Europe in 2018, to stand at an average of 66%.

MEWP average time utilisation and average time utilisation growth

Ten European countries under study



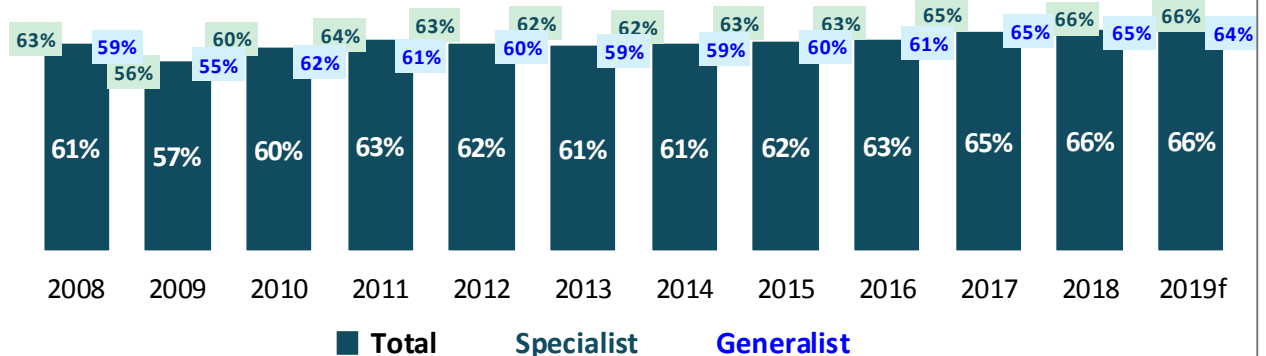
Source: DuckerFrontier for IPAF

- Utilisation rate rose in various countries under study: Germany, Italy, Spain and Sweden.
- It decreased significantly in France after a strong increase in 2017: MEWP rental companies have been able to invest in fleet expansion to meet growing demand.

- Utilisation rates remain higher for specialist companies than for generalist ones.
- Specialist companies benefited more from the slight increase of utilisation rate than generalist ones.

Total – Average time utilisation

Ten European countries under study

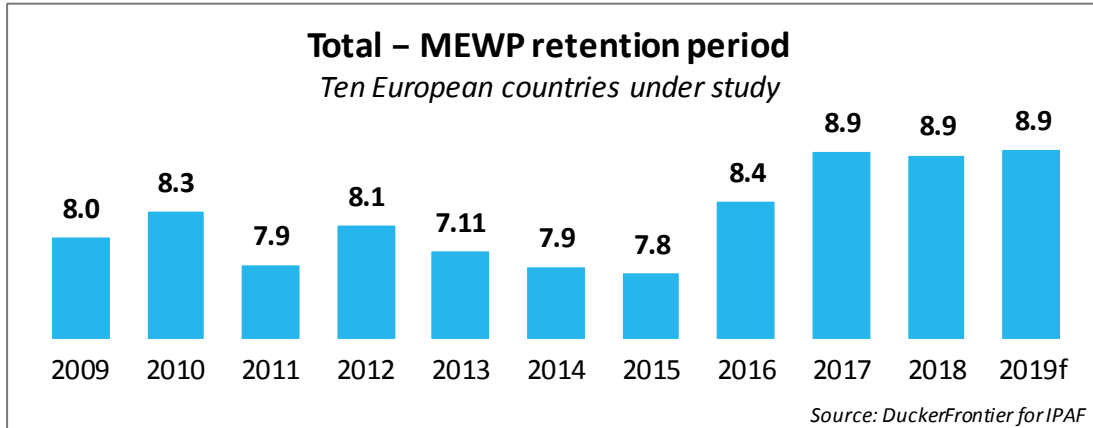


Source: DuckerFrontier for IPAF

OPERATIONAL ASPECTS – AVERAGE RETENTION PERIOD



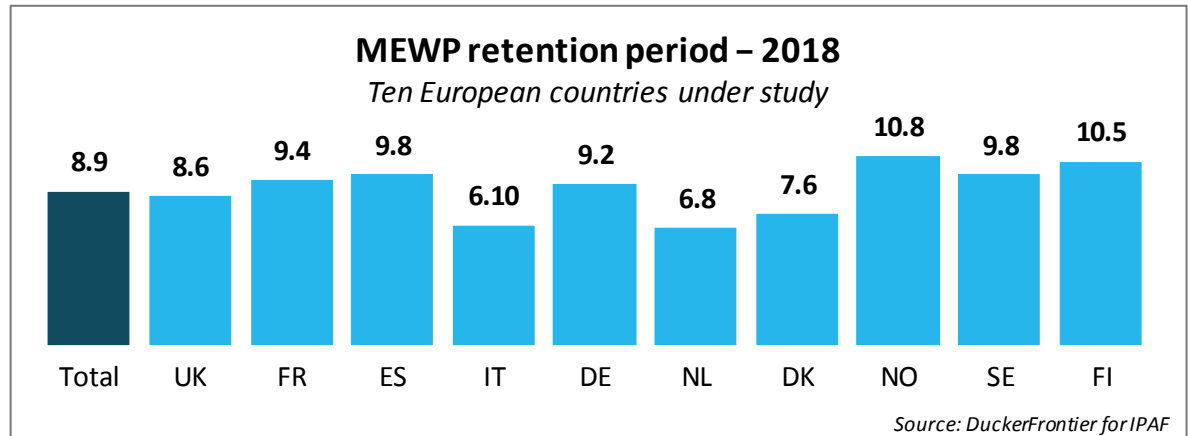
In 2018, the average retention period remained at the same level as in 2018, close to nine years.



8.9 = 8 years and 9 months

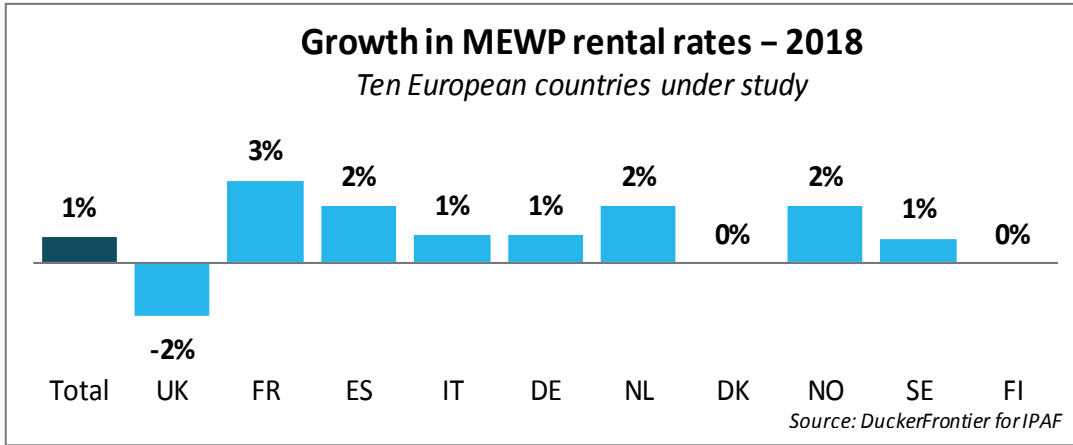
- After increasing during two years, the average retention period remained stable in 2018, close to nine years.
- It is expected to be maintained at the same level in 2019.

- The average retention period is longest in some Nordic countries (Norway and Finland), where it is slightly more than ten years.
- It is the shortest in Italy and the Netherlands.

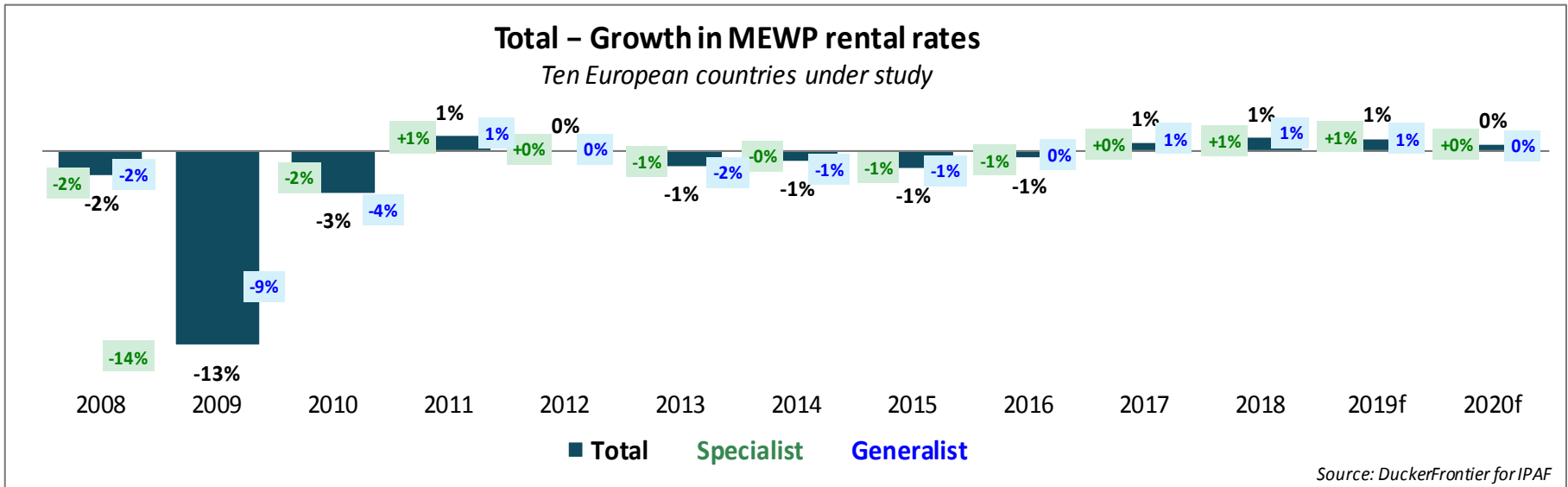


OPERATIONAL ASPECTS – RENTAL RATES

Rental rates in Europe show contrasting changes: Rates increased significantly in France and Spain, but stagnated in Denmark and Finland and decreased in the UK, highlighting competitive pressure in those markets.



- Countries such as France, Spain, the Netherlands, Norway, Italy, Germany and Sweden benefitted from favourable market conditions and increased rental rates.
- Rental rates fell in 2018 in the UK under the effect of fierce competition in an uncertain market.
- Rental rates remained flat and under pressure in some Nordic markets, such as Denmark and Finland, owing mainly to fierce competition.



MARKET TRENDS AND DRIVERS

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MARKET TRENDS AND DRIVERS



The MEWP rental market in Europe showed similar trends as the ones identified last year: Both safety and clean engines were characteristics of prevailing fleet management strategies.

Greener equipment

- Most rental companies are moving towards “greener” equipment, such as electric and hybrid machines, allowing them to serve rising customer demand for cleaner machines and to comply with new and upcoming ultra-low-emissions regulations.
- All rental companies are now investing in these technologies:
 - So-called “green” MEWPs are predominantly fully electric.
 - A number of rental companies have started investing in hybrid machines, though some delays regarding the delivery of these machines are reported, leading to lower penetration than expected.

Safety as key MEWP market driver

- Safety is the key driver behind the increased use of MEWPs. MEWPs are increasingly being selected in preference to scaffolding and ladders for conducting temporary work at height.
- Rental companies are universally intent on delivering well-maintained equipment, which maximises safety and reliability when on hire with clients.
- The amount of both operator and manager training being delivered in Europe is increasing each year.

Market consolidation

- Market consolidation continues to be the trend in Europe: A number of acquisitions took place in European countries under study (the UK, France, Germany, Italy, Spain) across 2018.
- Rental companies anticipate that this consolidation trend will continue as the market becomes more competitive.

Use of tracking devices

- Rental companies continue to report that the use of tracking technology is likely to increase in the next few years:
 - Security, preventing unauthorised use and real-time usage data are benefits that all rental companies can use to manage their fleets more efficiently via telematics.
 - Tracking technology also allows end-users to check if they are using the equipment efficiently and secure it against unauthorised use or use in restricted locations on site.

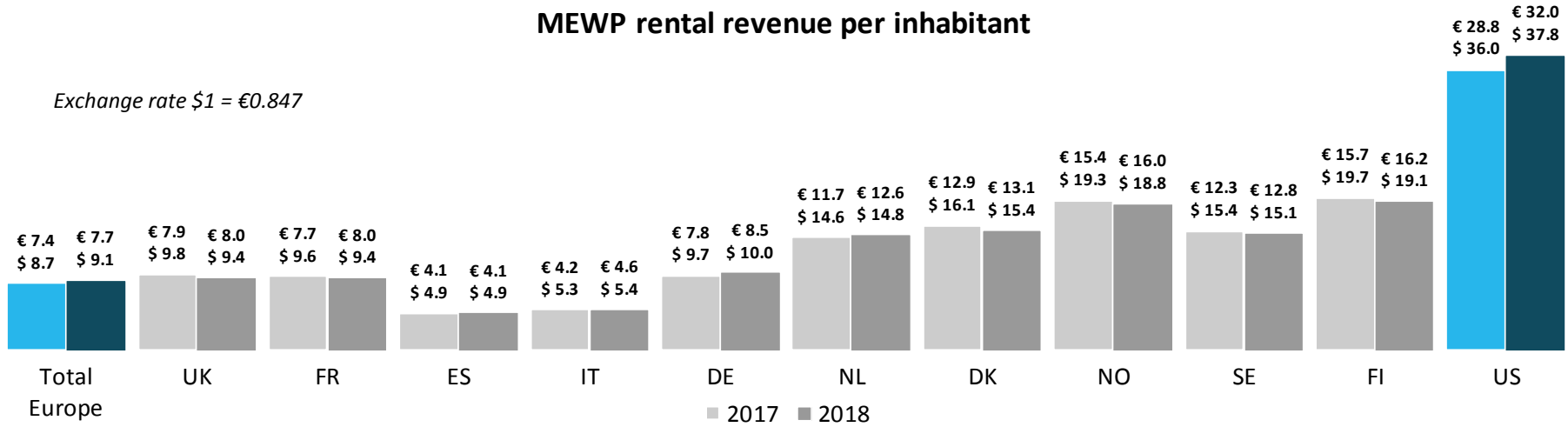
MARKET TRENDS AND DRIVERS

MEWP rental revenue per inhabitant and MEWP rental fleet size per 100,000 inhabitants.

Revised

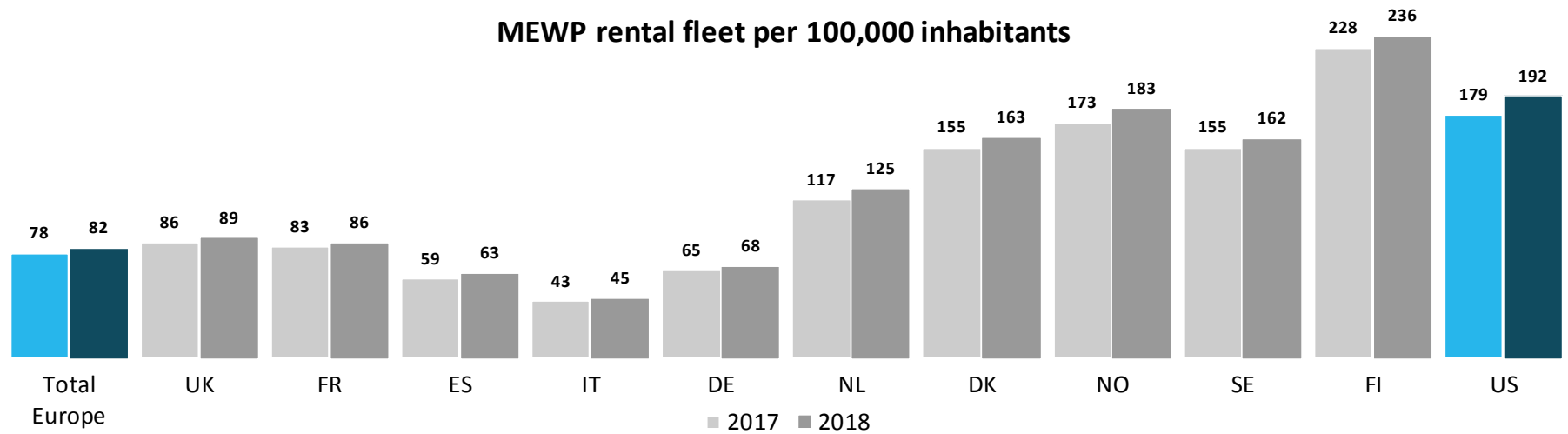
MEWP rental revenue per inhabitant

Exchange rate \$1 = €0.847



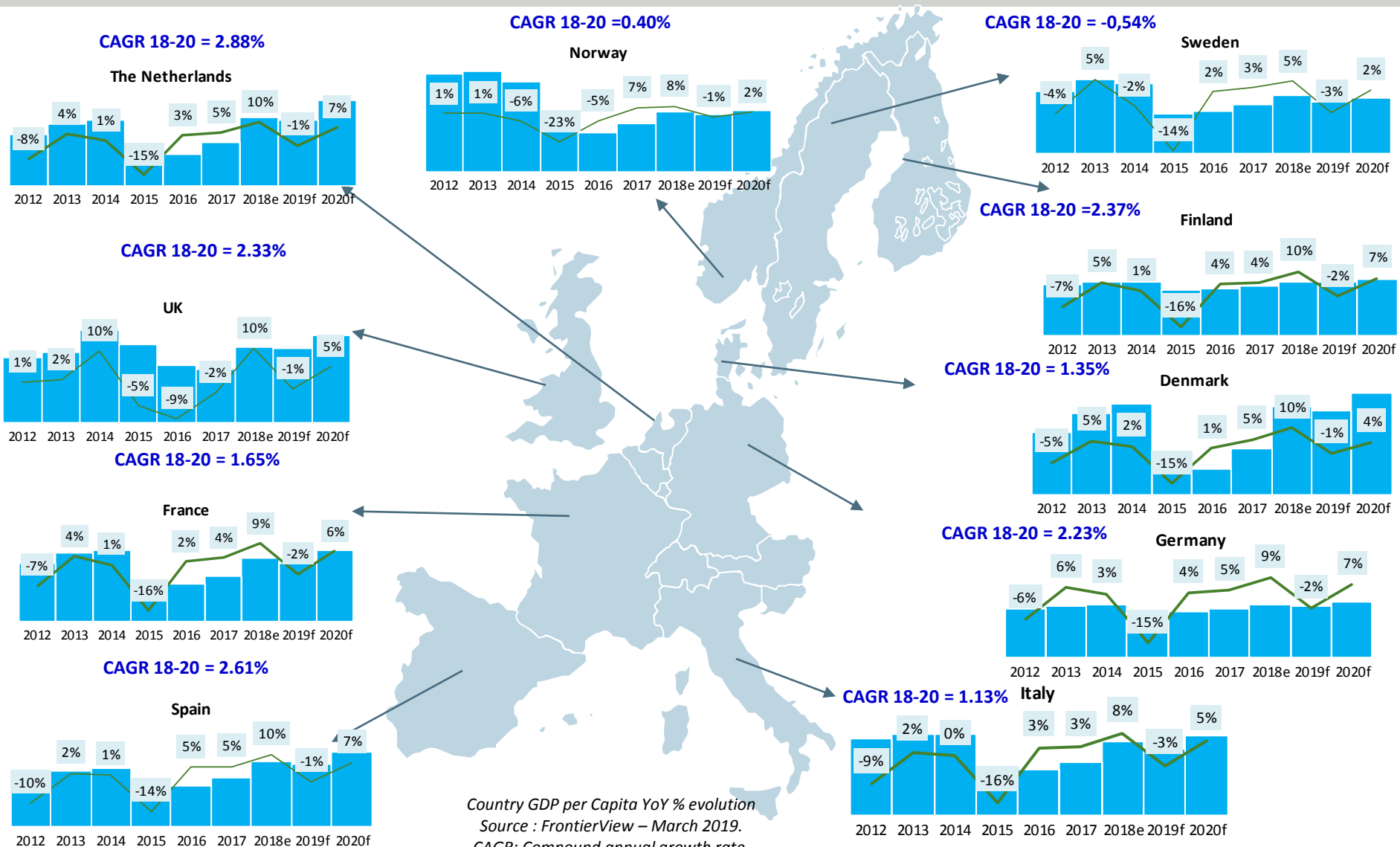
Source: DuckerFrontier for IPAF

MEWP rental fleet per 100,000 inhabitants



Source: DuckerFrontier for IPAF

MARKET TRENDS AND DRIVERS – GDP PER CAPITA



Country GDP per Capita YoY % evolution
Source : FrontierView – March 2019.
CAGR: Compound annual growth rate.

MARKET TRENDS AND DRIVERS

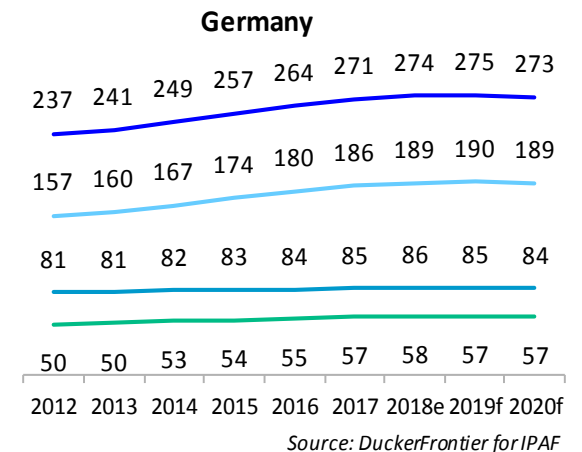
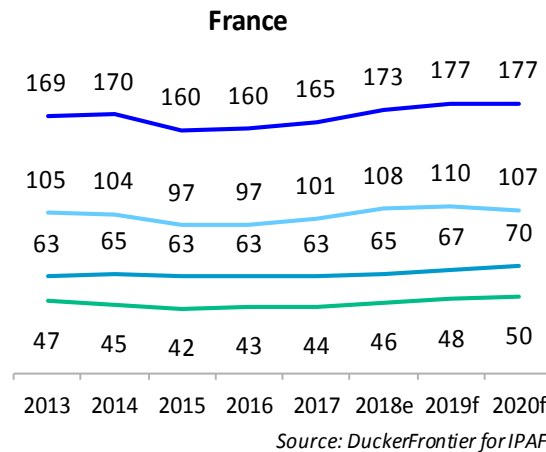
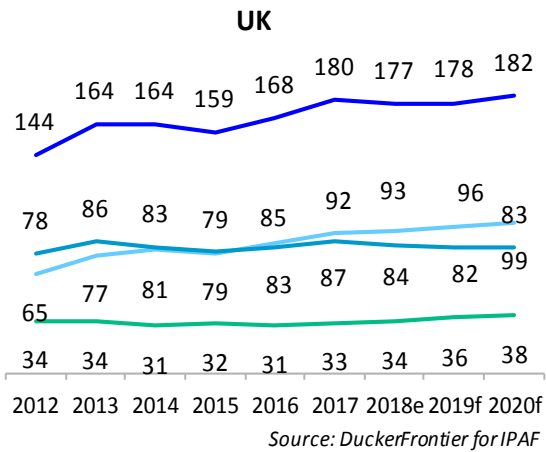


Construction outlook is positive for the UK, stable in France and indicating little or no growth in Germany. Uncertainty over Brexit and limited construction-market optimism is influencing European market growth forecasts.

CAGR 18-20 = 1.35%

CAGR 18-20 = 0.06%

CAGR 18-20 = -0.20%



Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

CAGR: Compound annual growth rate

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

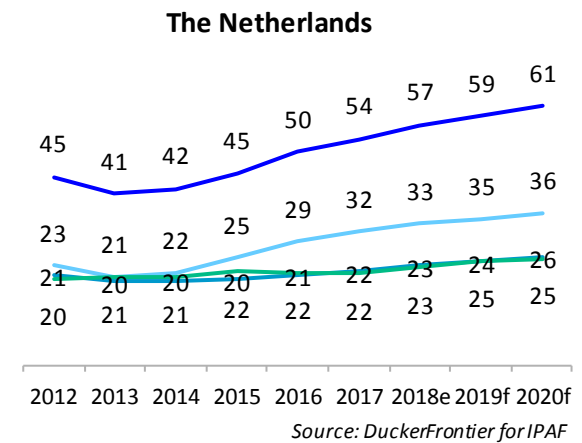
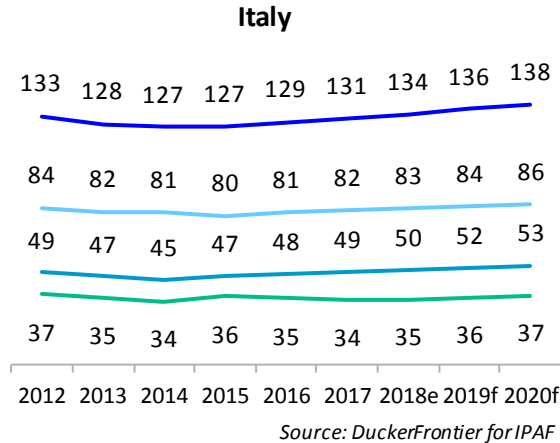
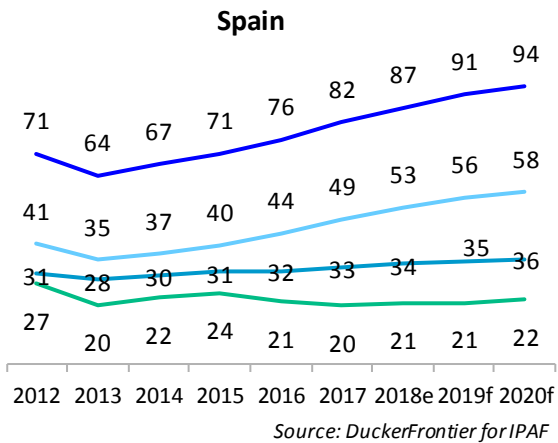
MARKET TRENDS AND DRIVERS

Similar to last year, of the countries under study, Spain and the Netherlands experienced the fastest growth in construction. Construction sector outlook is also positive for Italy.

CAGR 18-20 = 4.05%

CAGR 18-20 = 1.80%

CAGR 18-20 = 3.86%



Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

CAGR: Compound annual growth rate

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

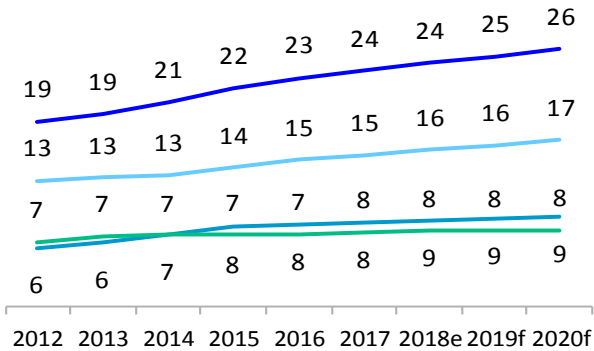
MARKET TRENDS AND DRIVERS



The Nordic countries differ markedly when it comes to construction-market outlook: While Denmark is forecast to see growth of almost 3%, in Norway growth will stagnate and falls are expected in Finland and Sweden.

CAGR 18-20 = 2.83%

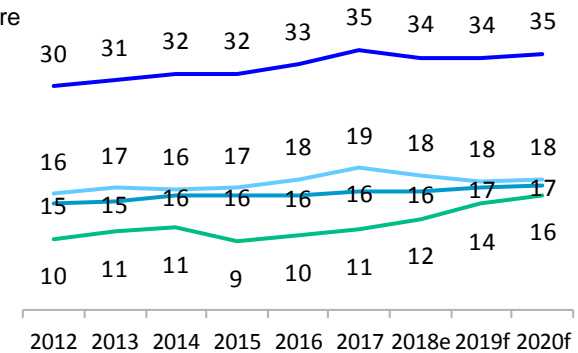
Denmark



Source: DuckerFrontier for IPAF

CAGR 18-20 = 0.68%

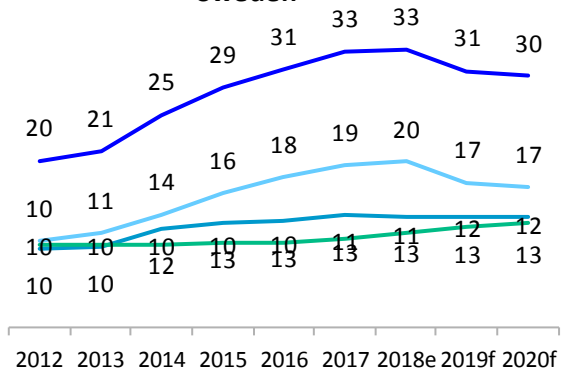
Norway



Source: DuckerFrontier for IPAF

CAGR 18-20 = -4.87%

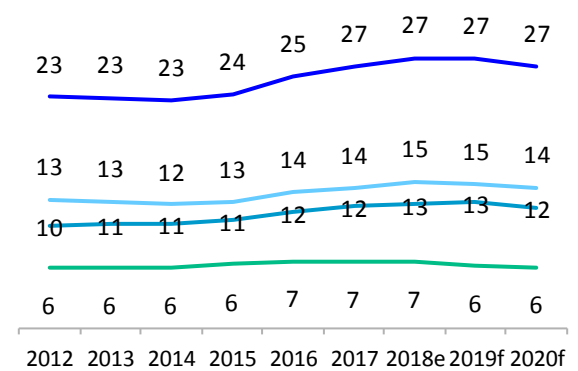
Sweden



Source: DuckerFrontier for IPAF

CAGR 18-20 = -1.69%

Finland



Source: DuckerFrontier for IPAF

CAGR: Compound annual growth rate

Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

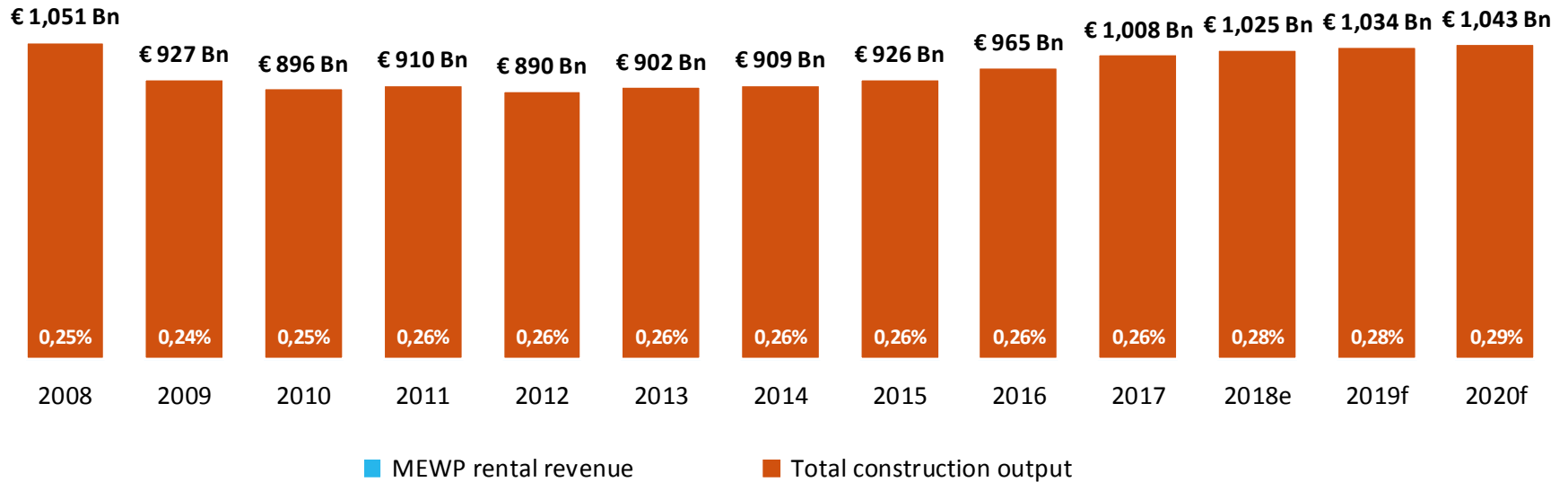
MARKET TRENDS AND DRIVERS

European MEWP rental revenue as a proportion of the total construction market value is increasing incrementally each year.

Revised

MEWP rental penetration rate out of total construction output

Ten European countries under study



Source: DuckerFrontier for IPAF

Construction put in place in billion Euros based on Euroconstruct 2018.

APPENDIX TO EUROPE

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RENTAL MARKET REPORT
2019 – EUROPE

Ten countries under study

- France
- Germany
- Italy
- Netherlands
- Nordic region (DK, NO, SE, FI)
- Spain
- UK

Total European market

- Austria
- Belgium
- Bosnia
- Bulgaria
- Croatia
- Cyprus
- Czech Republic
- Estonia
- Greece
- Hungary
- Ireland
- Latvia
- Lithuania
- Luxembourg
- Macedonia
- Malta
- Poland
- Portugal
- Romania
- Slovak Republic
- Slovenia
- Switzerland

A large, dark teal diagonal shape that starts from the top-left corner and extends towards the bottom-right corner, creating a split background of dark teal and white.

NORTH AMERICA INFORMATION (USA AND CANADA)

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RENTAL MARKET REPORT
2019**

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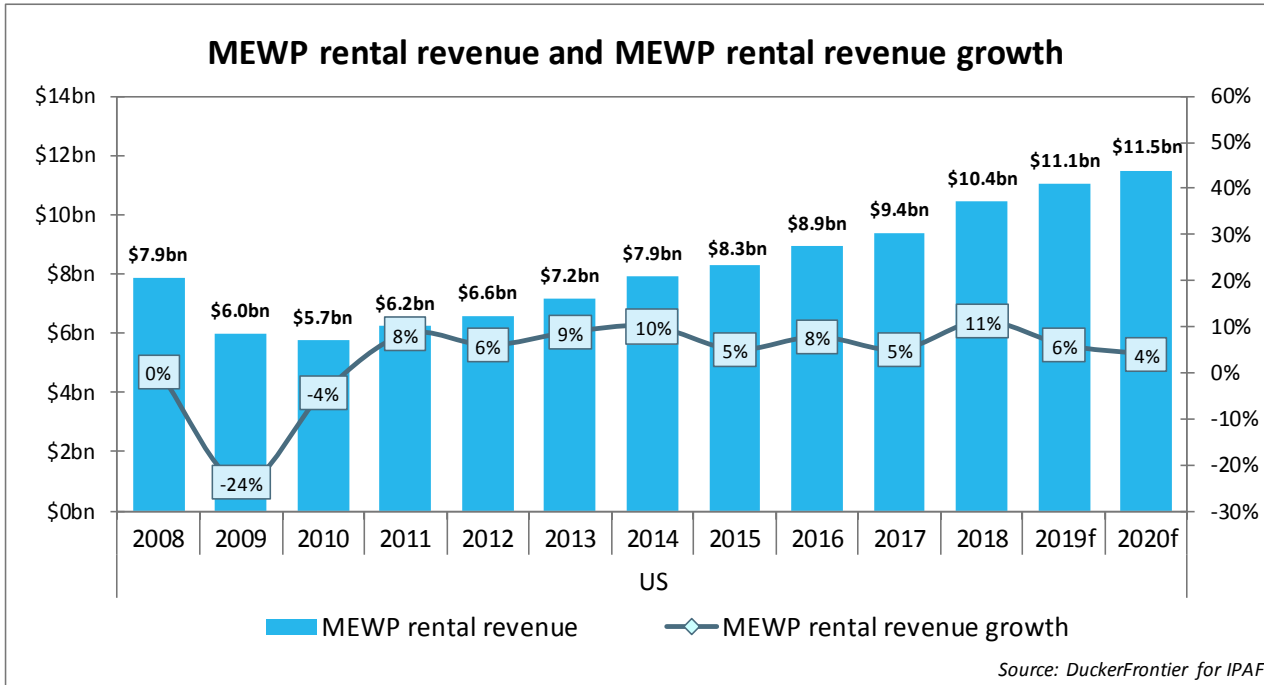
MARKET SIZE AND DYNAMICS 2008-2020

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RENTAL MARKET REPORT
2019 – USA**

MARKET SIZE & DYNAMICS – MARKET VALUE GROWTH

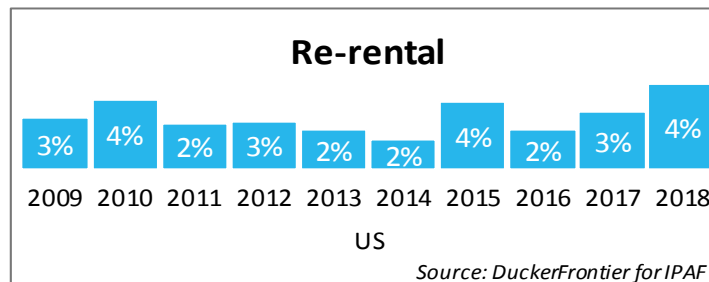


The MEWP rental market experienced double-digit growth in 2018, fuelled by demand and positive macro-economics. The outlooks remains largely positive, despite relative market uncertainty for 2020 and beyond.



- 2018 was another great year for the US market, with stronger-than-expected growth.
- Double-digit growth in MEWP rental revenue was recorded and total value exceeded \$10 billion.
- Although MEWP rental companies expect 2019 to be another good year, outlooks remain uncertain as the Presidential electoral year in 2020 is likely to lead to caution in the market. In addition, a recession is possible, which MEWP rental companies need to be prepared for.

Re-rental, ie cross-hire, increased and represented around 4%, back to its 2010 level.



- The level of cross-hire increased in 2018, caused by strong ongoing market demand.

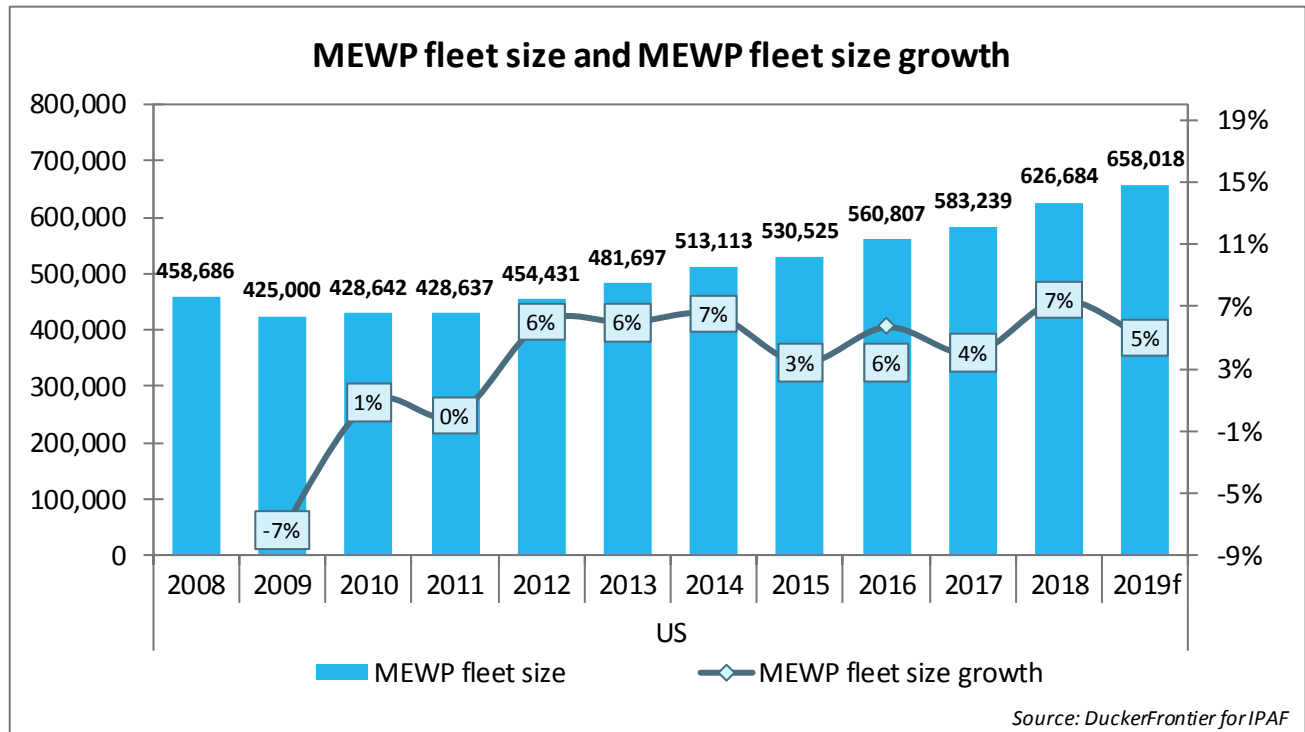
End-of-year data

MARKET SIZE & DYNAMICS – MARKET SIZE IN UNITS



After nine years of sustained fleet expansion, MEWP rental companies expect to maintain a relatively stable fleet size in 2019 and start to shift focus towards fleet renewal.

- As forecast in last year’s report, sustained fleet expansion continued in 2018 and total MEWP fleet size now exceeds 600,000 units in the US.
- MEWP rental companies expect to scale back fleet expansion in the next few years and potentially focus on fleet renewal or inorganic fleet increase more than organic growth.



Note: Included are powered access lifts: All booms, scissor lifts and vertical masts
 Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs

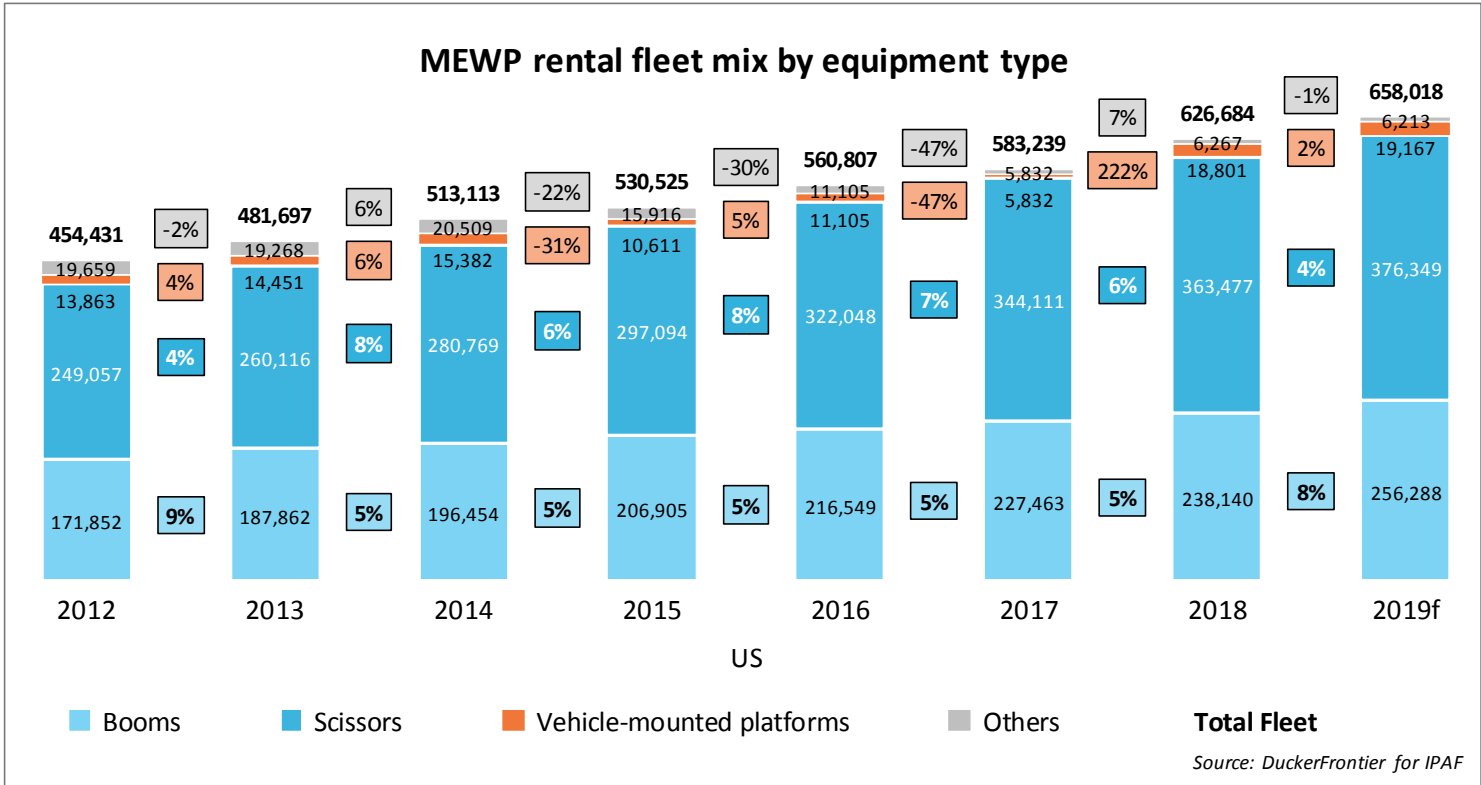
MARKET SIZE & DYNAMICS – MARKET SIZE IN UNITS



Scissors remain the dominant equipment category in the US MEWP rental market. All categories are benefiting from current fleet expansion and rental companies do not foresee any significant change in fleet mix.

Revised

- Fleet mix remained rather stable in 2018.
- MEWP rental companies focus on adding more green engine technologies (electric, hybrid) to their fleet than changing their equipment categories.



Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.

+X% % unit growth, e.g. scissors fleet increased by 6% from 2017 to 2018

Other includes vertical lifts, vertical masts.

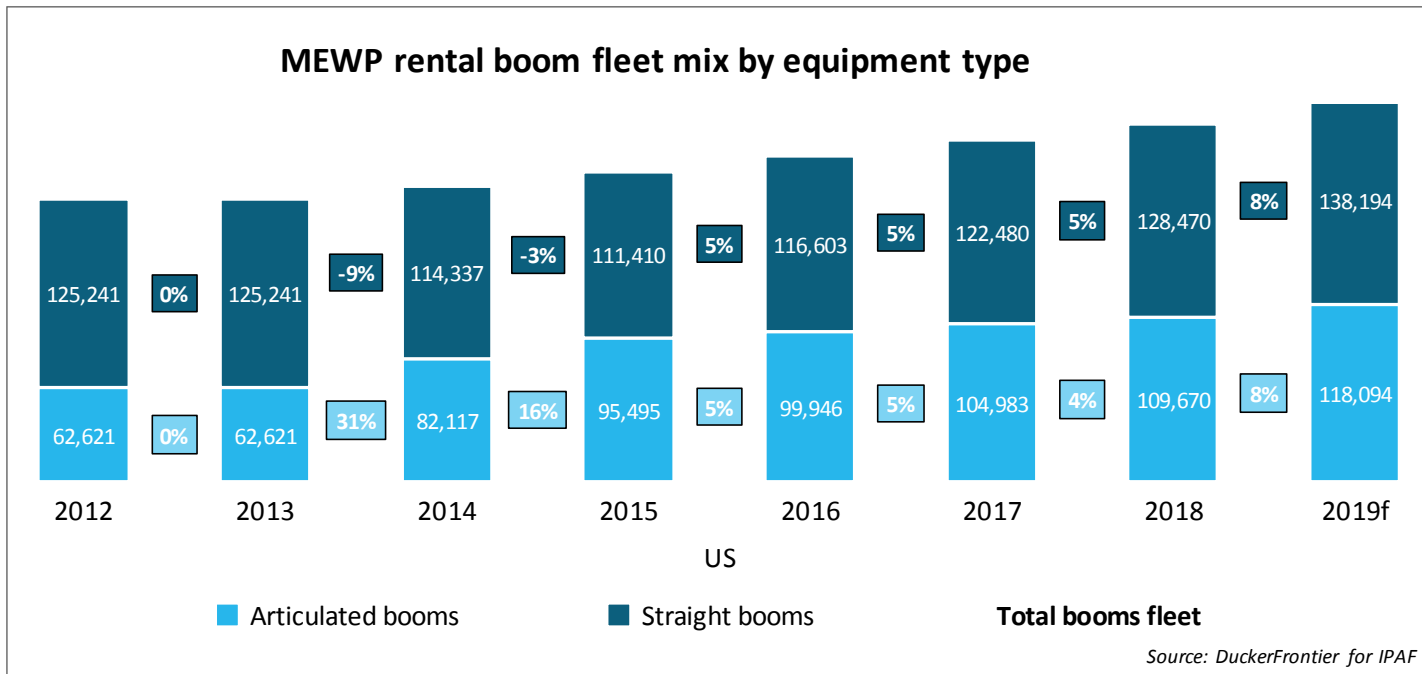
MARKET SIZE & DYNAMICS – MARKET SIZE IN UNITS



Total boom fleet size increased in 2018, with the mix of straight and articulated machines remaining relatively unchanged.

Revised

- Straight booms dominate the US booms rental fleets.
- On the one hand, job sites tend to be more spacious than in Europe and straight booms are well suited for multiple construction applications.
- On the other hand, articulated booms are more expensive but still provide additional flexibility in constricted areas where straight booms cannot be used.



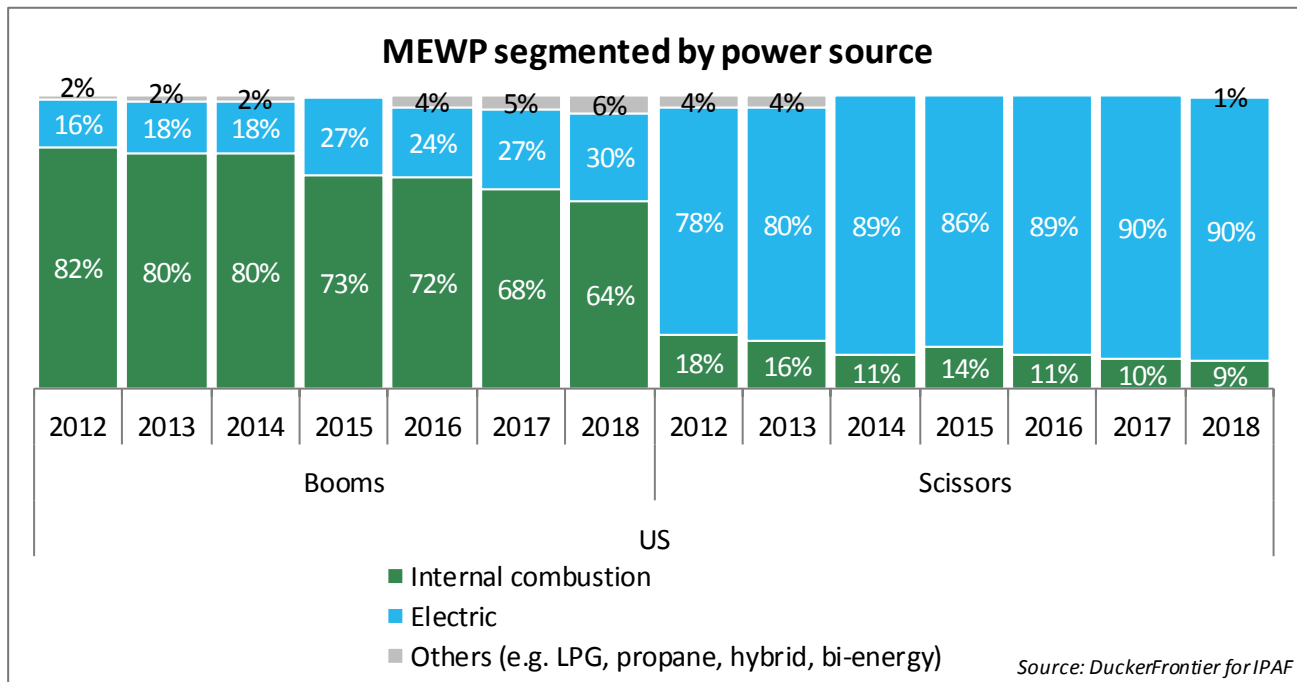
End-of-the-year data

MARKET SIZE & DYNAMICS – POWER SOURCES



Cleaner machines are gaining market share in the US MEWP rental market, as a result of increasing pressure to meet environmental requirements.

- As forecast in last year’s report, the switch towards electric power sources is expected to increase further, driven by environmental constraints.
- Scissors are traditionally more likely to be electric-powered owing to the fact that they are predominantly designed for indoor applications.
- Manufacturers continue to push hybrid technology, resulting in increased penetration in both scissor and boom categories.

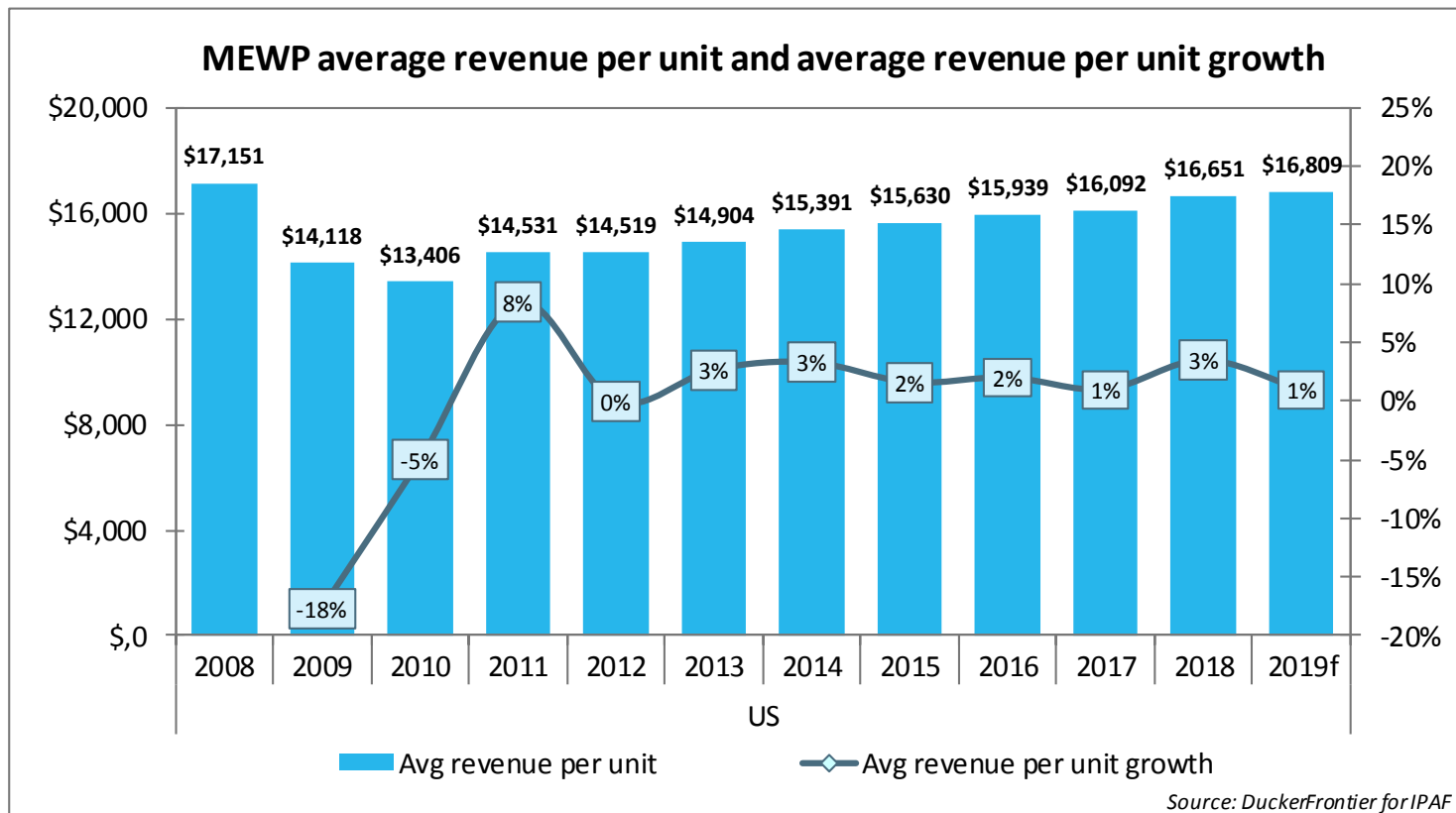


Percentage of fleet powered by electric vs diesel engine.

MARKET SIZE & DYNAMICS – REVENUE PER UNIT

Average rental revenue per unit grew in 2018 and is expected to remain stable in 2019 as the rate of increase is expected to slow.

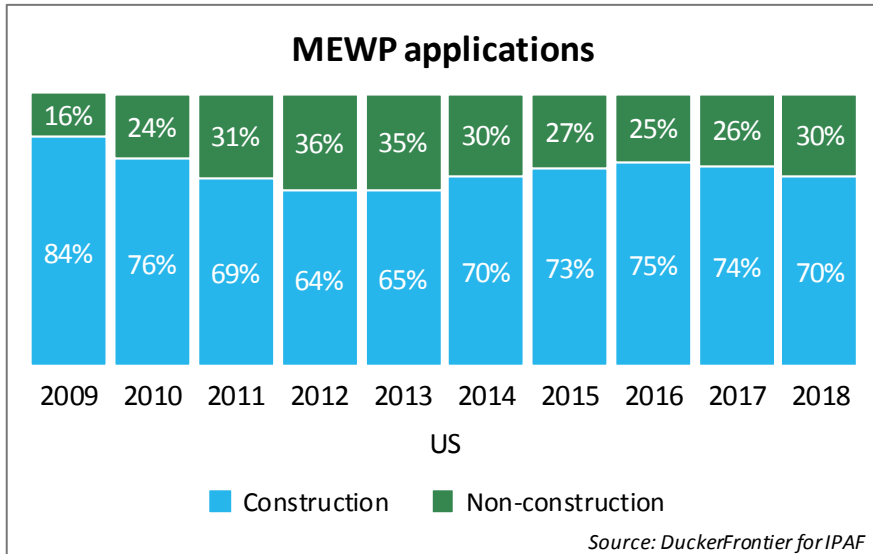
- Average revenue per unit grew in 2018, thanks to an increase of both rental and utilisation rates.
- It is expected to remain stable or increase only slightly in 2019.



MARKET SIZE & DYNAMICS – APPLICATIONS

Though the construction sector still dominates MEWP use, it lost ground against non-construction end use in 2018.

- Non-construction use gained ground as rental companies looked to expand their customer base in this less cyclical and competitive sector.
- Facilities management remains the main non-construction sub-sector.

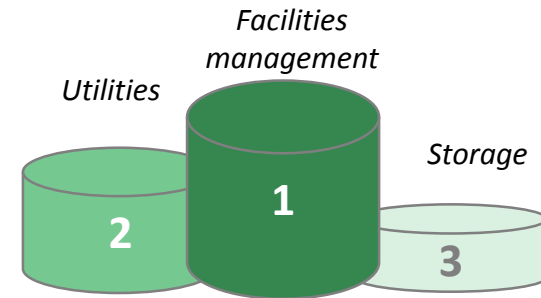


Share of rental revenues

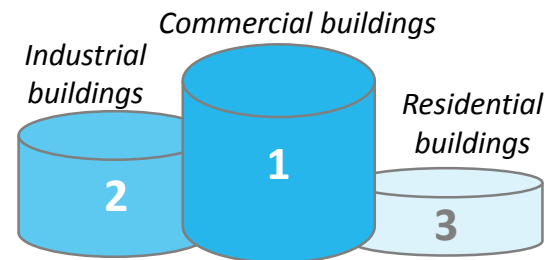
Non-construction includes industry, maintenance, cleaning, utilities, events.

Construction includes new build and renovation; including residential, commercial, retail and industrial.

Main non-construction sub-sectors



Main construction sub-sectors



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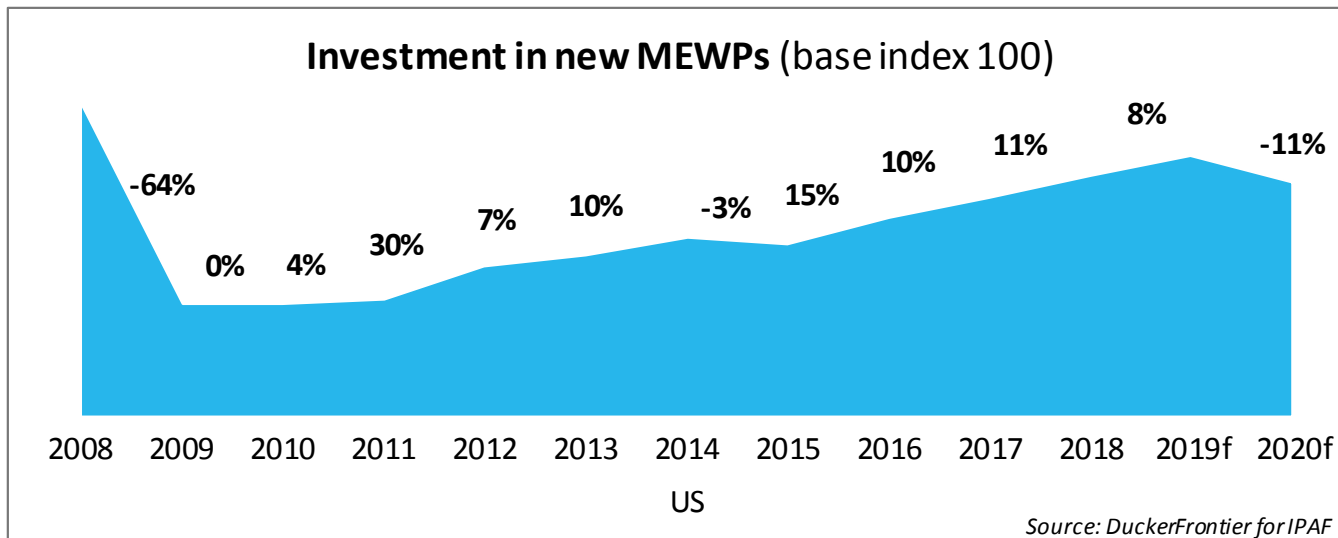
INVESTMENT 2008-2020

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RENTAL MARKET REPORT
2019 – USA**

INVESTMENT

After investing in new and more expensive equipment in previous years, US MEWP rental companies are considering limiting fleet expansion and reducing capital expenditure from 2019 onwards.

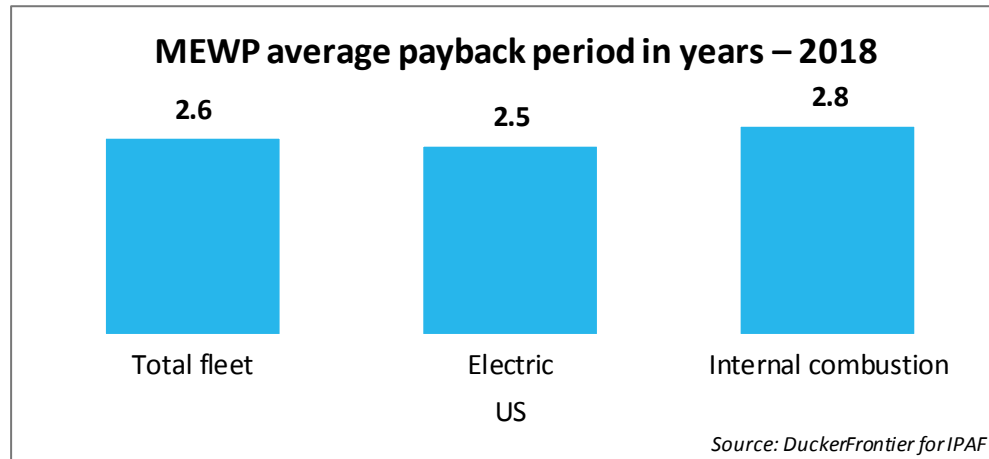
- Investment continued to increase in 2018: Future regulations and new standards are expected to impact the cost of new machines, which rental companies have to include in their investment strategy.
- Nevertheless, many rental companies are adopting a more cautious attitude towards future fleet expansion and/or intend to reduce investment from 2019 onwards.



INVESTMENT – TYPICAL PAYBACK PERIOD

Despite well-performing market indicators, payback period has not reduced, mainly owing to the increasing purchase price of new machines.

- The average payback period remained stable in 2018.
- Though rental companies managed to increase both their rental and utilisation rates, the higher initial purchase price of equipment (higher heights, clean combustion engines, technical changes driven by ANSI regulations) meant payback periods did not significantly reduce.
- Payback periods were reported to be slightly shorter for electric equipment as MEWP rental companies are able to command slightly higher rental rates for this type of equipment.



2.6 = 2 years and 6 months

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OPERATIONAL ASPECTS 2008-2019

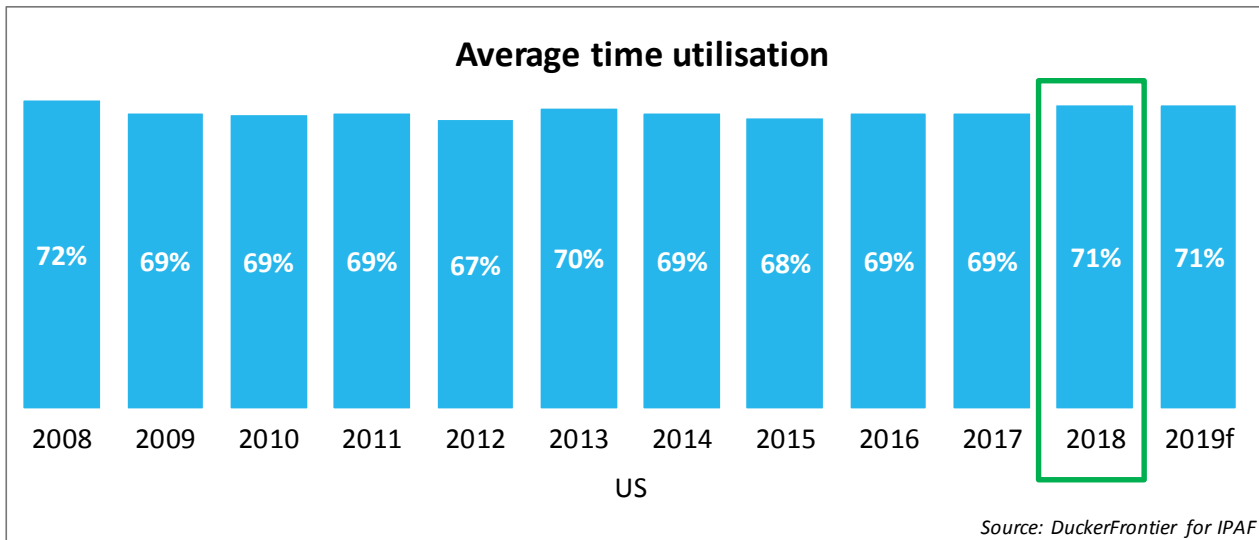
**IPAF POWERED ACCESS RENTAL
MARKET REPORT 2019 – USA**

OPERATIONAL ASPECTS – TIME UTILISATION RATES



As forecast in last year's report, US MEWP utilisation rates increased in 2018: Fleet increase wasn't sufficient to absorb additional demand from customers. Utilisation rate is expected to remain stable at 71% in 2019.

- MEWP utilisation rate in the US now exceeds 70%, a challenging threshold for completing essential maintenance and efficient equipment turnaround times.
- Further to the recent significant fleet increase, a potential downturn in the US economy and decreasing demand from 2020 onwards could lead utilisation rates to fall.



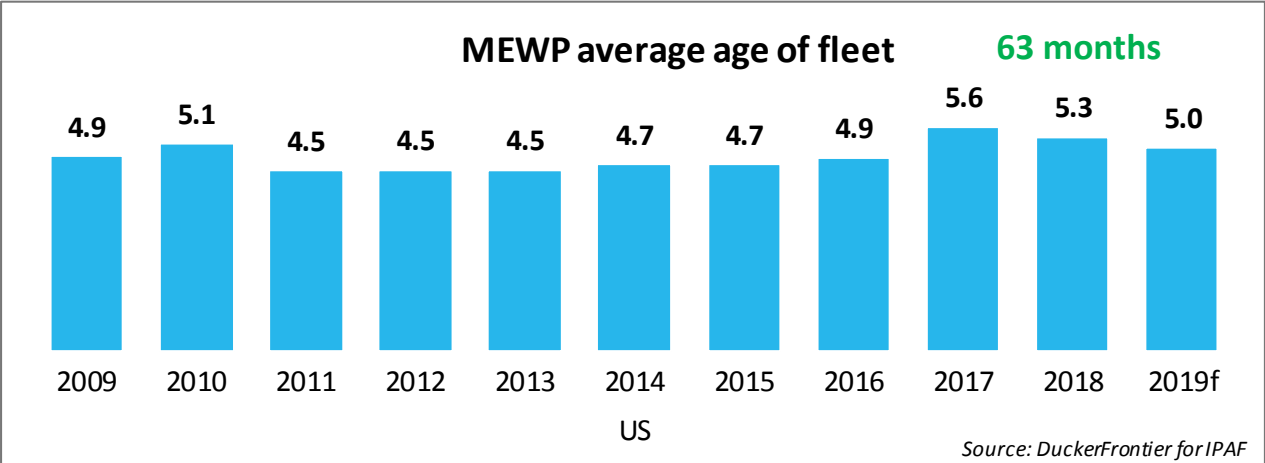
Scissors: 71%

Booms: 71%

OPERATIONAL ASPECTS – AGE OF FLEET



Most MEWP rental companies try to maintain the average age of their fleets at around five years and this in turn leads to regular fleet renewal.



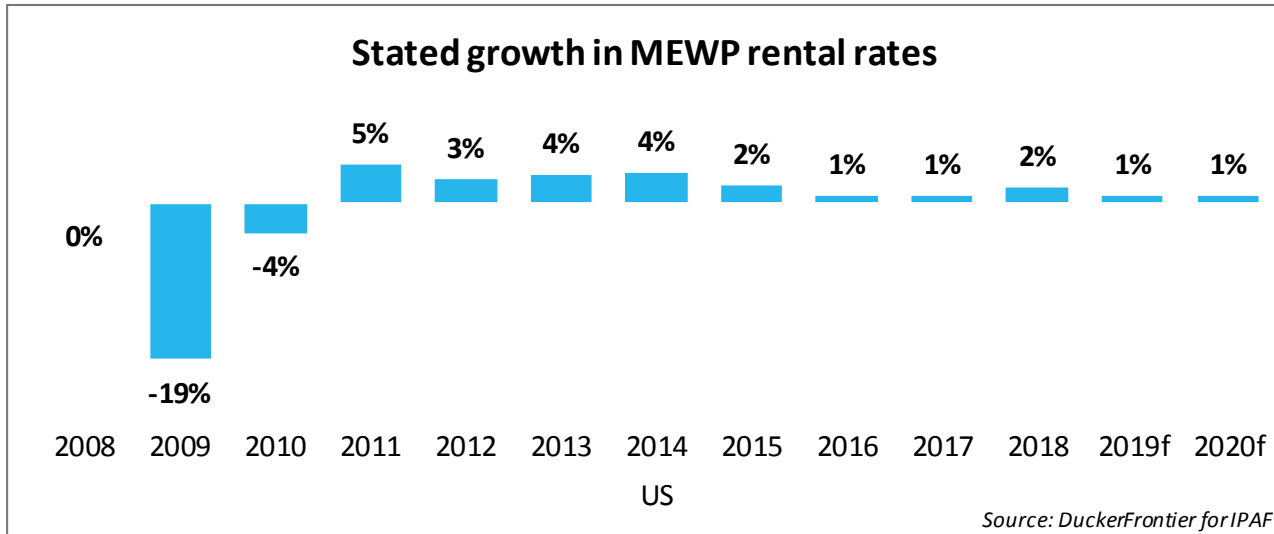
5.3 = 5 years and 3 months

OPERATIONAL ASPECTS – RENTAL RATES



MEWP rental companies managed to increase rental rates in 2018 and hope to be able to maintain this in coming years. More challenging market conditions may lead to slower increases or even stagnation.

- Though rental companies hope to increase their rental rates in the next few years, uncertainty remains regarding their actual capacity to do so.
- Rental companies expect they will be able to compensate for any increase in equipment price by an increase in rental rates.
- Fierce competition between rental companies and a potentially deteriorating economic environment may lead to stagnation rather than an increase of rental rates.



OPERATIONAL ASPECTS – MOST POPULAR FEATURES



Additional safety features, such as secondary guarding, are increasingly in demand from rental users.

- Safety features remain important in the US MEWP rental market.
- On-board generators come second for both boom and scissors lifts.

Booms

1	Safety features: secondary guarding device
2	On-board generator (for running tools or welding)

Scissors

1	Safety features: secondary guarding device
2	On-board generator (for running tools or welding)
3	Narrow width machine

Other mentioned features are:

**Remote control from the ground,
higher load capacity/additional
weight in the basket, and
alternative source to lead acid
batteries.**

**A PERSPECTIVE
FROM THE
MANAGING EDITOR
OF *INTERNATIONAL
RENTAL NEWS***

**IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – USA**

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS, MURRAY POLLOK*



- It is probably natural that, once you reach a certain age, when market conditions are going well you naturally start to anticipate the time when they won't. That would probably sum up the feeling in the US now: a collective voicing of 'the market is strong so let's enjoy it, but when will it end?'
- The point is, few are anticipating any kind of slowdown or correction. The American Rental Association (ARA) and its consultants IHS Markit are forecasting robust equipment rental growth of 5% this year and in the following four years. That qualifies as a bullish outlook.
- Even if the political climate – with presidential elections in 2020 – requires a degree of uncertainty to be factored in, the present moment still sees the market benefitting from decent economic growth and the cash haul from last year's tax cuts.
- These tax cuts have helped rental companies (United Rentals booked a US\$689 million net benefit in its fourth quarter of 2017) but also provided the wider business community with funds to invest.
- One rental industry veteran, Don Ahern, said late last year that the North American rental market was as good as it's ever been: "We have statistics that we have tracked for decades, and one of the primary statistics is the average rental rate and it's at an all-time high. Utilisation is very good too.
- "I feel like we are on the front side of the bell curve, but we do feel that we are on the top, or towards the top. I don't think we are going to have a downturn, but 2019 could possibly become the top of that curve. Things will level out."

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*



- Levelling out is fine if that level is high, of course, and it is surely significant that the number two player in the US rental market, Sunbelt Rentals, is similarly optimistic. Brendan Horgan, Group COO of Sunbelt's owner, Ashtead Group, said in December 2018: "We see good end markets, and on the ground, we continue to see growing backlogs. Nonetheless we watch closely key lead indicators and sure the pace of growth will at some point and inevitably slow. We just don't believe there is evidence of that being anytime soon."
- Both United Rentals and Sunbelt – the numbers one and two of North American rentals respectively – are investing heavily in their fleets on the back of these good conditions. In Sunbelt's case, its capital investment for growth of the fleet at around \$1billion this year is significantly higher than its \$500 million replacement CapEx. United will spend more than \$2 billion this year, which is a bit more than in 2018.
- It is also interesting to note that in acquiring BakerCorp last year (a non-access business) United Rentals also gained depots in France, Germany, UK and the Netherlands. The bigger part of that deal was to do with what Baker offered in the US, but it still represented for United a first dipping of its toes in Europe.
- It isn't just large businesses that are finding conditions favourable. Kevin Hoffman, President of the ARA and owner of A to Z RentAll in Wisconsin, said in February that his business and many other small and medium-sized rental companies – the 'mom and pops' as they are known – are also bullish about 2019. In fact, growth is creating problems, with severe labour shortages being reported by many in the industry, particularly for technical roles.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*



- Hoffman reported that 70% of the US rental market is made up of smaller businesses like his, but that doesn't mean that the long-term process of consolidation is slowing down. United Rentals acquired BlueLine Rentals in a \$2.1 billion deal – the big acquisition of 2018 – adding around 46,000 MEWPs in the process. Sunbelt, on the other hand, may be making fewer 'big time' acquisitions, but is steadily adding three or four smaller companies almost every quarter. Many of these are added to its 'speciality' rental divisions, an area in which United is also investing.
- And there is also another feature of the US market, which is the rise of companies operating a slightly different rental model. The online rental portals, like Big Rentz, have been around for a few years, but last year saw a significant new player on the market, EquipmentShare. This business is incorporating the latest telematics and Internet of Things (IoT) technology into its rental model, aiming to convince contractors that they can not only provide a smooth rental service, but give added information itself on fleet management, equipment usage and preventive maintenance. The company is investing heavily in its own fleet and expanding its depot network at a dramatic rate.
- And finally, as far as MEWPs are concerned, with the extent of fleet investment over the past five years there should be a burgeoning replacement market in the years ahead. The OEMs at least will be hoping that this replacement stream will provide a steady demand for their machines, even in the event of a cooling off.

MARKET TRENDS AND DRIVERS

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2019 – USA

MARKET TRENDS AND DRIVERS



MEWP rental companies are adjusting strategies, rental rates and training organisation to adapt to new safety standards. Mergers and acquisitions remain attractive as a means of expansion in the US market.

MEWP new safety standards

- The market is aware of the new ANSI and CSA safety standards.
- New standards are having a significant impact on both machine manufacturers and rental companies.
- Manufacturers are proactively working on implementing new requirements.
- All market players are convinced that these changes are beneficial in the long run and actively support them, though these may have some negative impacts during the earliest stages of implementation (higher equipment purchase price, longer machine handover to customers, increased service support needs etc.).

Rental companies' market concentration

- Many large companies continue to acquire smaller players in order to consolidate market share.
- Several major acquisitions took place last year, as leading players confirmed their dominant position in the market.
- For some rental companies, future fleet increase is expected to be driven by inorganic growth, more than by additional MEWP units purchases.

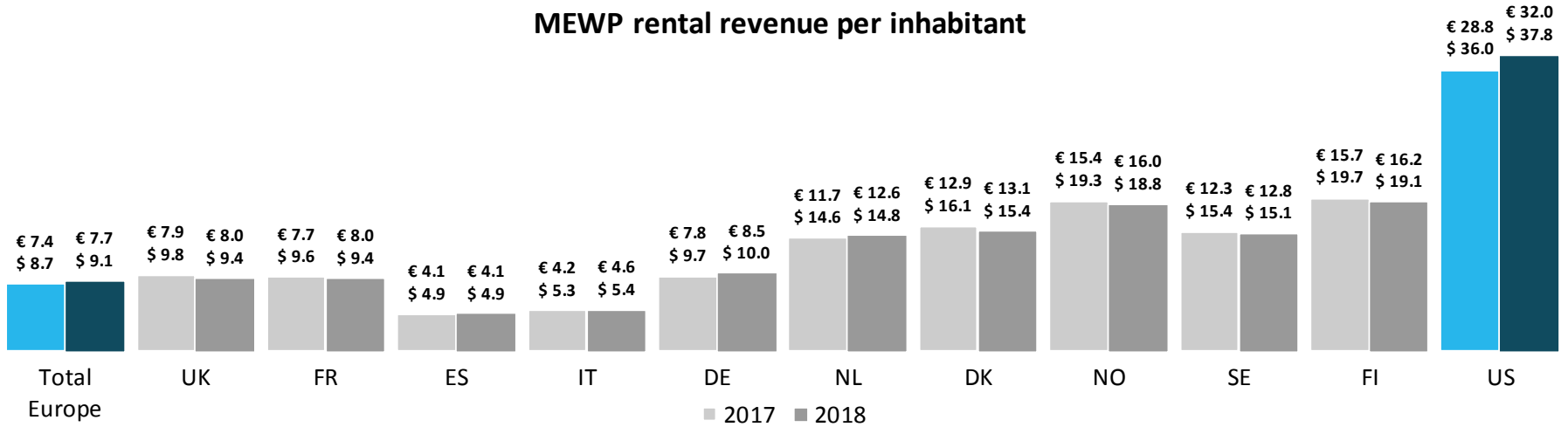
MARKET TRENDS AND DRIVERS

Revised



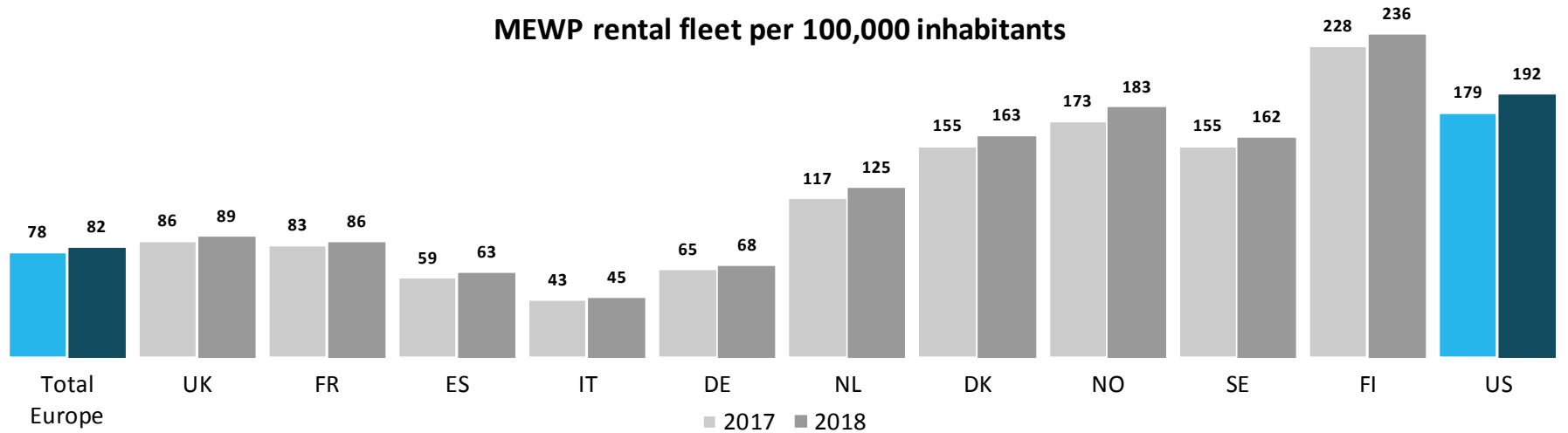
Country population penetration – MEWP rental revenue per inhabitant.

MEWP rental revenue per inhabitant



Source: DuckerFrontier for IPAF

MEWP rental fleet per 100,000 inhabitants



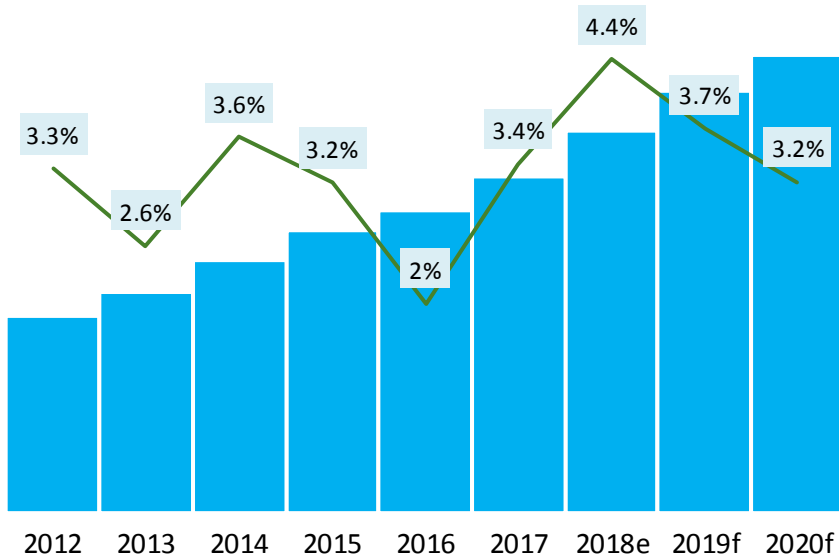
Source: DuckerFrontier for IPAF

MARKET TRENDS AND DRIVERS

2018 appears a turning point regarding main US macro-economic indicators. From 2019, GDP growth is expected to slow while unemployment will increase, driving uncertainty in coming years.

Compound Annual Growth Rate CAGR (2017-2019): 3.46 %

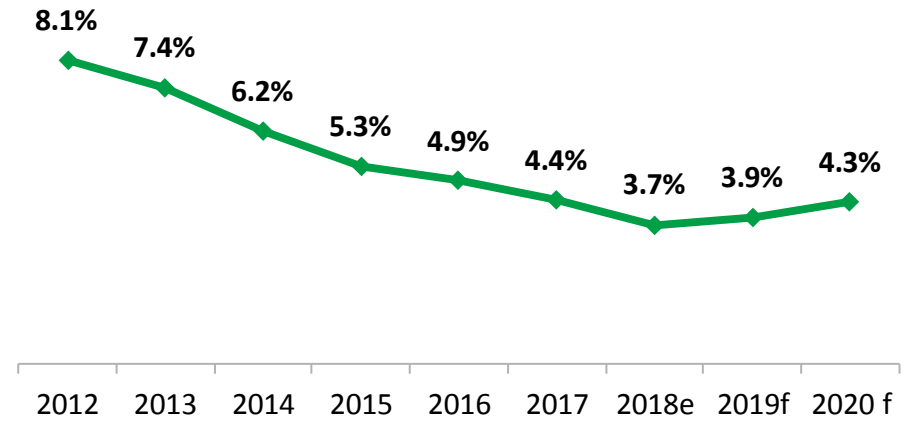
US – GDP per capita YoY% growth



US GDP per Capita YoY % evolution

Source: FrontierView – March 2019.

US – Unemployment rate

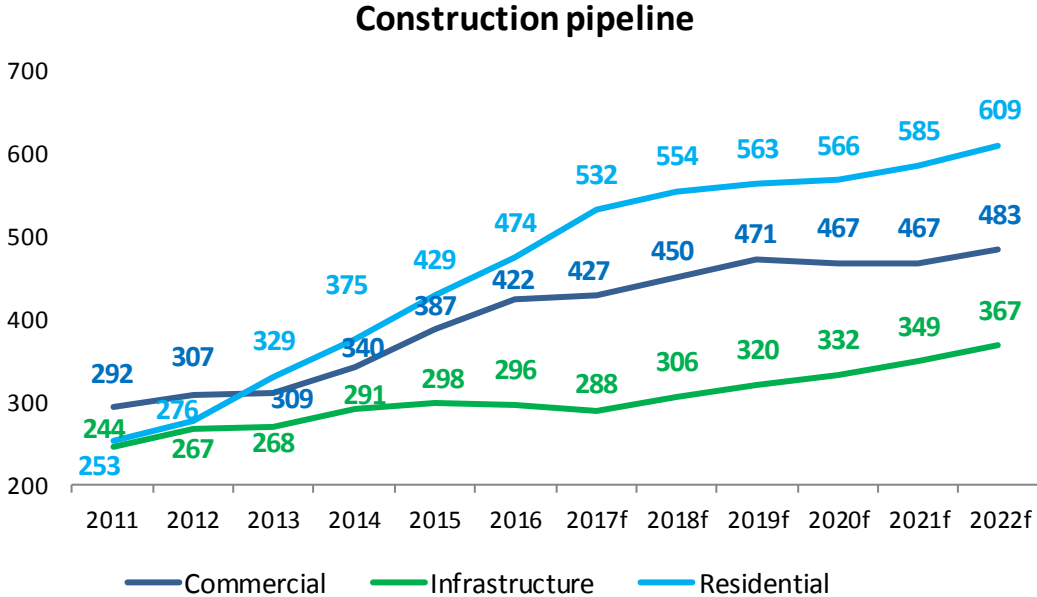


Source: FrontierView, March 2019

MARKET TRENDS AND DRIVERS



At the time of publication, latest construction data show positive outlooks for the construction sector, except for the commercial end sector, which is expected to shrink then remain flat until 2022.



Source: DuckerFrontier for IPAF

Source: FMI Construction Outlook.
 Millions of current dollars.
 4th quarter 2018 forecasts.

CANADIAN MEWP MARKET

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2019 – CANADA

CANADIAN MEWP RENTAL MARKET



As forecast in last year's report, the Canadian MEWP rental market continued to grow steadily in 2018, fuelled by strong residential construction activity.

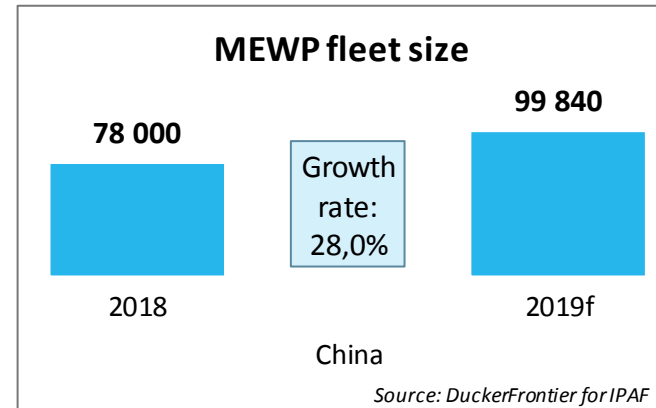
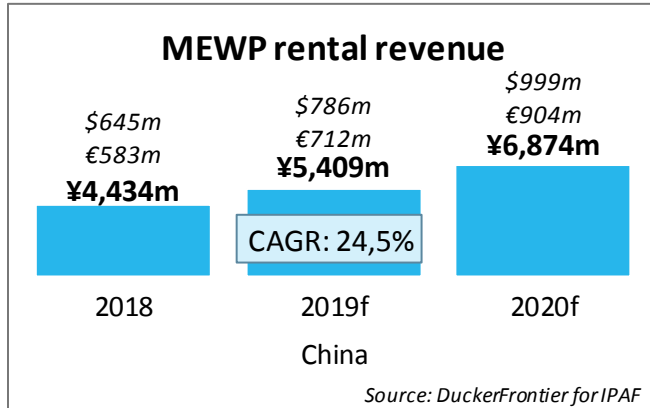
- Similar to last year, MEWP rental revenue growth was reported for the Canadian market in 2018, though at slightly less than the 5% growth rate reported in 2017.
 - The construction sector is doing well. More specifically, residential construction remains strong, with positive outlooks for the next few years.
 - In addition, US MEWP rental companies (Sunbelt, for instance) have continued their acquisition process and extended activities in Canada.
- MEWP rental fleet size continued to increase in 2018 (5% growth), after its strong increase in 2017 (8%). The current fleet now exceeds 71,000 units.
 - MEWP rental companies reported that their fleet development was driven mainly by inorganic growth and the acquisition of other companies.
 - Additional organic fleet expansion is expected from 2019 onwards.
 - As forecast in last year's report, the share of booms increased slightly in 2018: Residential construction and roofing jobs for instance, drive additional demand for articulated booms.
 - Current split between main MEWP equipment categories is approximately at 65:35, with scissors still accounting for the larger share.
- Utilisation rate stabilised at 69%, which is considered a satisfactory level by MEWP rental companies to allow maintenance and inspection regimes.
- Optimism returned to the market in 2017 and MEWP rental companies managed to increase their rental rates. In 2018 again, an increase of rental rates (2-3%) was identified as the main driver of revenue growth.

CHINA FOCUS

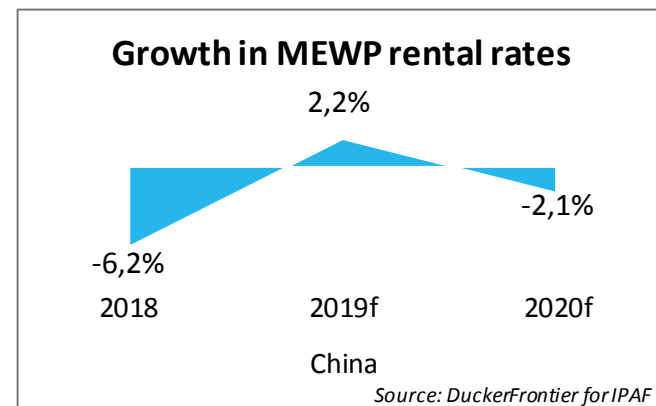
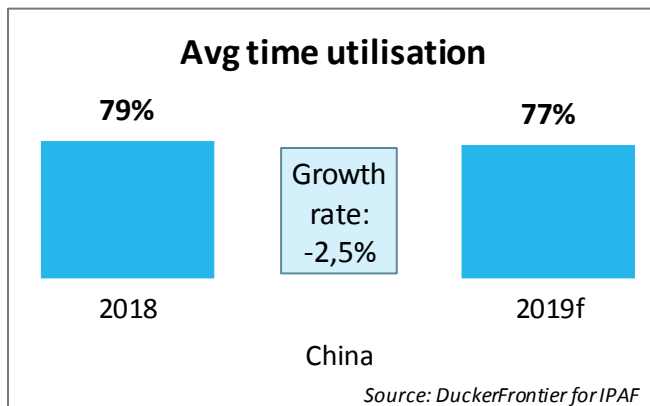
IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019

CHINA – KEY FINDINGS

China's MEWP rental market is growing rapidly: A number of major construction projects, the extension of MEWP applications and the promotion of safety are all driving this strong market growth.



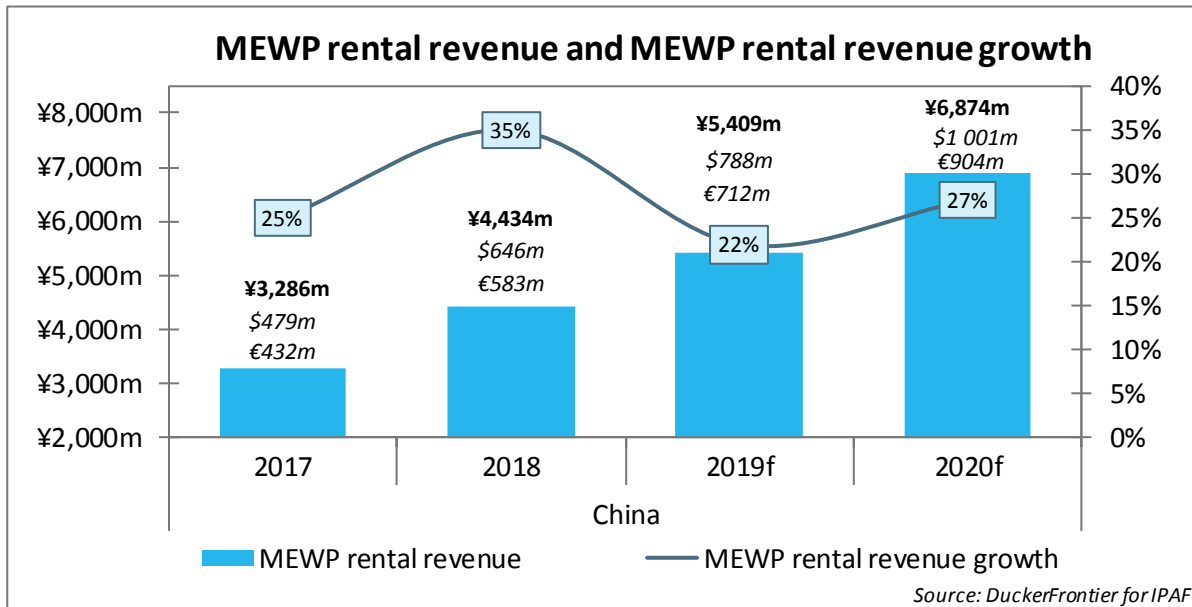
- The Chinese MEWP rental market is not yet mature and is growing exponentially: MEWPs are being heavily promoted as a safe way to work at height in a fast-developing market.
- Fierce competition is reported on the Chinese MEWP rental markets: Overall fleet growth is mainly linked to new players entering the market, which will eventually have a negative impact on rental rates.



CHINA – RENTAL MARKET VALUE AND GROWTH

Chinese MEWP rental revenue has experienced tremendous growth in the past few years (30% CAGR).

Outlooks are positive as the market is considered at an early stage of development, with plenty of scope for growth.



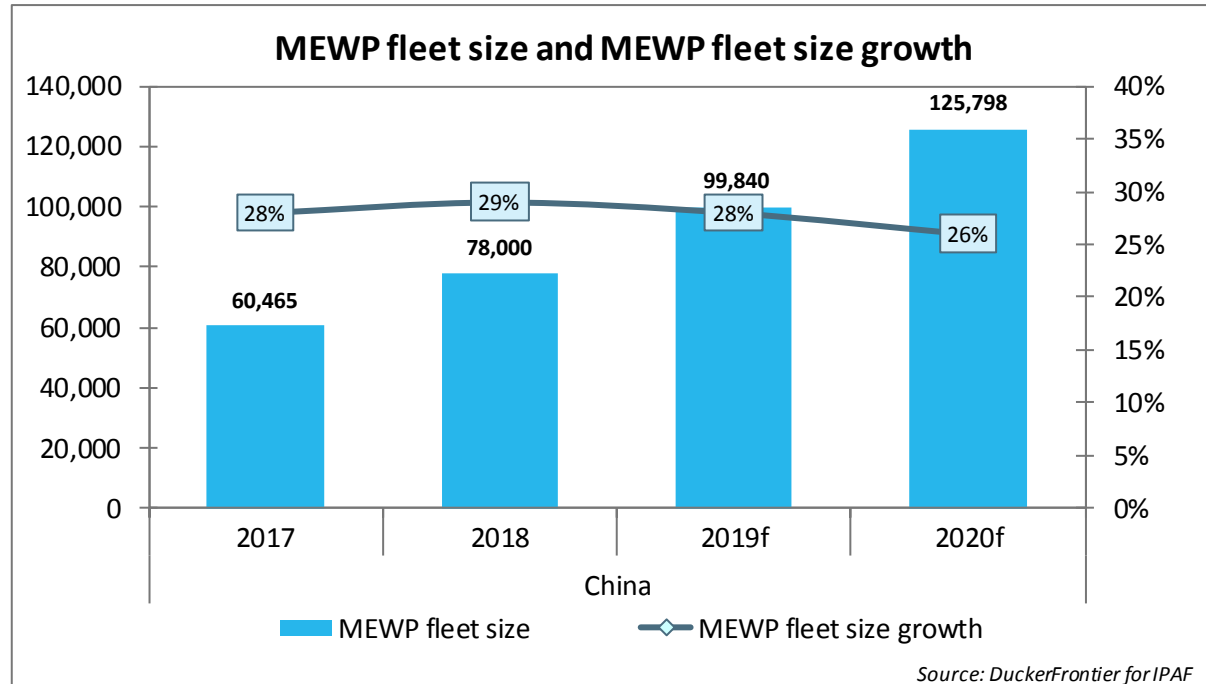
Exchange rate ¥1 = €0,132

- In 2018, the Chinese MEWP rental market value was \$646 million, or €583 million.
- 2018 was considered a particularly good year for the MEWP rental market in China: Several major projects started during the second half of 2017 and positively impacted market growth in 2018 (“One belt, one road” project and other national strategic investments, such as the Hong Kong-Zhuhai-Macao bridge).
- Overall outlook for the market remains positive for the next few years, despite challenges linked to increased competition and to the country overall economy: Many rental companies think downward pressure on the economy will sooner or later be reflected in the MEWP rental market, impacting growth.

CHINA – MARKET SIZE IN UNITS

The Chinese MEWP rental fleet was close to 80,000 units in 2018. Strong growth is predicted to continue and total fleet is expected to be around 100,000 units by the end of 2019.

- Growth in total fleet size is being driven by new players entering the Chinese market, a trend which is expected to continue in 2019.
- Large players reported expanding fleets. The fleet size of Horizon, the largest MEWP rental company in China, is expected to exceed 10,000 units in 2019.
- Equipment leasing companies are encouraging newcomers by offering favorable terms on MEWP equipment, allowing smaller companies to offer low rental rates.



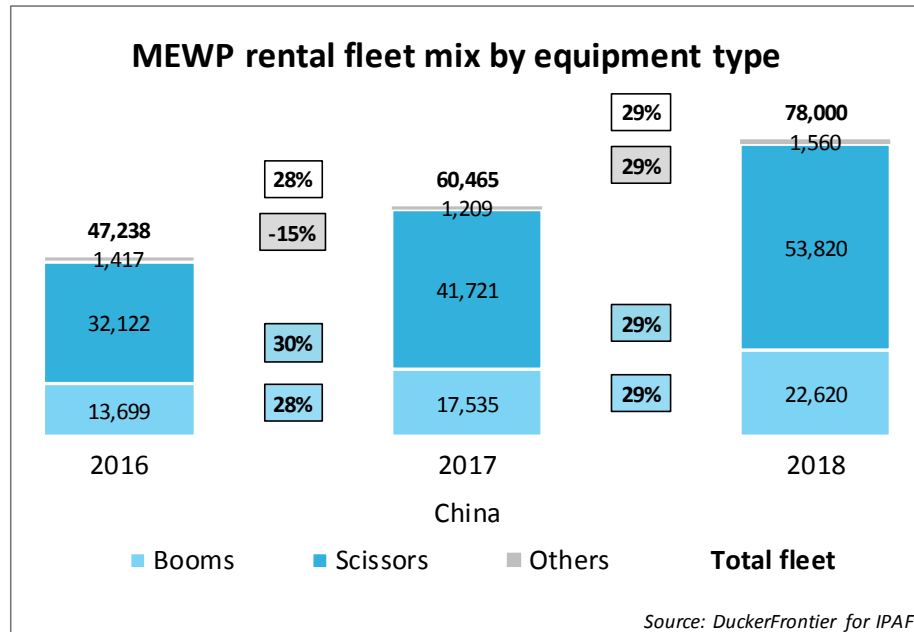
*Note: Included are powered access lifts: All booms, scissor lifts and vertical masts
Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs*

CHINA – MARKET SIZE IN UNITS



The scissors to booms ratio is approximately 70:30. Local MEWP manufacturers are proving serious challengers to more established international manufacturers in terms of market share.

- Scissors and booms are perceived as complementary equipment for a variety of applications. As a result, the overall fleet mix is expected to remain stable as fleets grow.
- Scissors account for the larger share with almost 70% share of the total MEWP fleet.
- Local MEWP manufacturers’ market share is steadily increasing: Competition between local and overseas manufacturers is already strong for scissors and becoming fiercer in the booms segment.



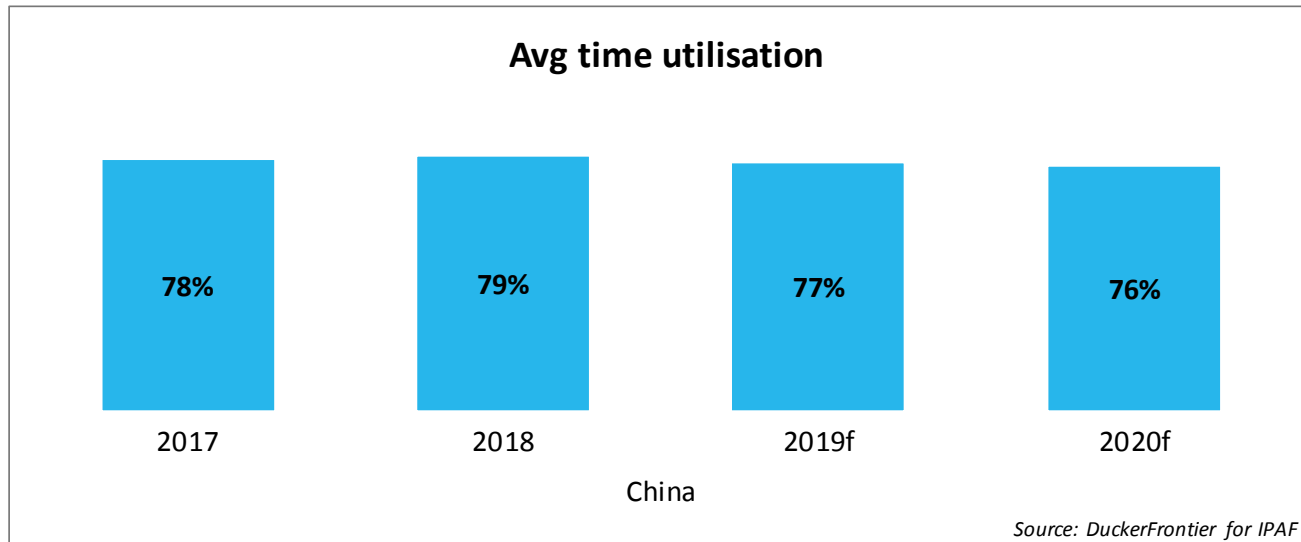
Note: Included are powered access lifts: all booms, scissor lifts and vertical masts; Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, and MCWPs.

+X% **% unit growth, eg booms fleet increased by 29% from 2017 to 2018.**
 Others include: Vertical lifts, vertical masts, push-around, trailer mounted/towable.

CHINA – UTILISATION RATES

The average utilisation rate in China was 79% in 2018. It is expected to decrease slightly as some major construction projects come to an end.

- Average MEWP utilisation rates in China range between 65% and 70%.
- Some regional differences are reported, depending on typical climate conditions in the various Chinese regions: For instance, a lower utilisation rate is encountered in the northern part of China, where inclement weather conditions limit outside works during some months.
- 2018 was a particularly good year with strong demand for MEWP rental. As some major projects that started in 2017 came to an end in 2018, utilisation rates are expected to decrease slightly.

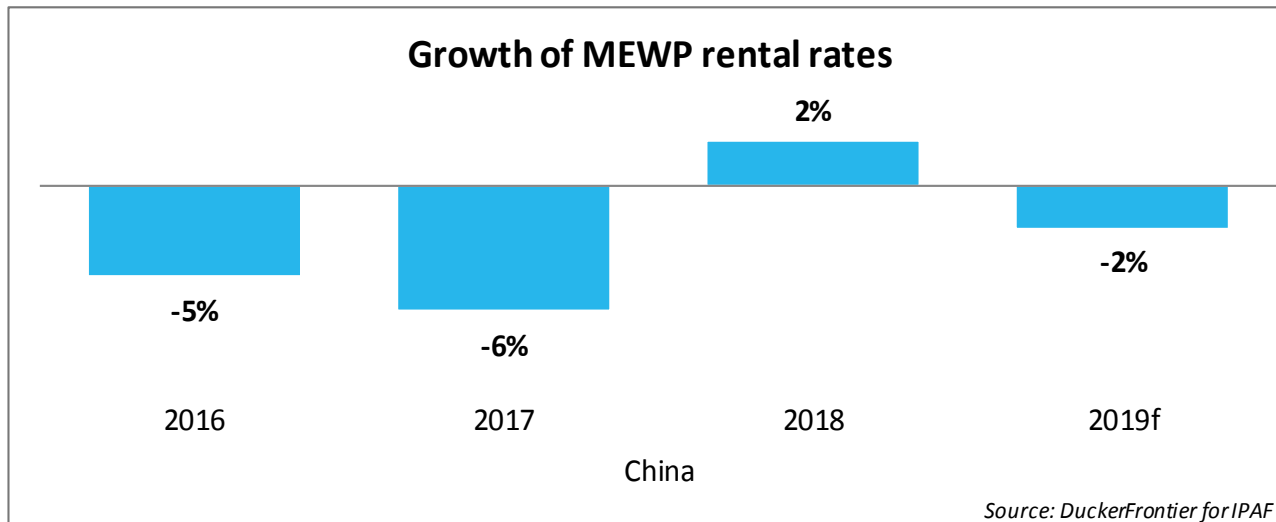


Definition: Physical number of machines out on hire as % of total number in fleet at any given time.

CHINA – RENTAL RATES

Rental rates have been decreasing over the past few years, due to strong competition. MEWP rental companies were able to increase rates in 2018 as several major projects drove exceptionally high demand.

- Newcomers are regularly entering the market and benefit from attractive equipment purchase or lease conditions, allowing these new companies to offer competitive rates and push prices down.
- As a result, and due to fierce competition in the market, MEWP rental companies report decreasing rental rates. In 2018 the “One belt, one road” project and other national strategic investments allowed rental companies to benefit from a heightened demand to increase rates slightly. However most of these projects ended in 2018, leading to an expected decrease in rates in 2019.



**A PERSPECTIVE
FROM THE
MANAGING EDITOR
OF *INTERNATIONAL
RENTAL NEWS***

**IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – CHINA**

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*, MURRAY POLLOK



- In years to come, access industry folk will look back on this decade as the booming China years: The period in which the world's most populous state finally 'got' access; when manufacturers and rental companies strained to keep up with demand, and competed with each other in their increasingly optimistic growth projections.
- If we are used to hearing about growth hotspots, nothing can compare to what is materialising in China. The rental fleet there is now similar or larger in size than a major market like the UK, and it has been growing at rates of between 20 and 40% (see these pages for the latest projections).
- And, as is often the case, the access industry is walking to the beat of a different drummer. China's construction industry growth is now actually a lot lower than it has been in the past, and likewise its overall economic growth, but the discovery of access has meant an explosion in both manufacturing capacity and rental growth over the past five years.
- Genie, JLG, Haulotte and Snorkel are among the big Western suppliers manufacturing or assembling in China, and the fact that JCB is now among that number tells you everything you need to know about the scale of the opportunity. They are finding increasing competition from many domestic access-focused suppliers, including Dingli, Mantall, Sinoboom and LGMG, as well as big generalist OEMs such as Zoomlion and XCMG.
- There are hundreds of rental companies now active in access, and as elsewhere they are a wide mix of players. There are smaller, entrepreneurial firms – often former machine distributors, foreign players, such as Kanamoto; and home-grown businesses like Horizon Equipment and Zhong Neng United Rentals that might turn out to be the Chinese rental giants of the future.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*



- What is clear is that many of these companies are focused 100% on MEWPs – the distractions of generators, tools and earthmoving equipment are yet to be an issue in China – and 100% focused on growth.
- Nanjing-based Zhong Neng has created a fleet of around 3,500 units in just three years by combining the investment funds of ten individual investors (like ten start-ups in one), while Shanghai’s China Construction Bright Futures Machinery (CCBF) grew its fleet by around 40% last year to reach 1,000 units.
- Jimmy Wang, CCBF’s CEO and founder, said at the International Rental Conference in November 2018 that he could imagine China’s total access rental fleet reaching 1 million units within a decade. That may sound like hyperbole, but given the experience of the past few years he can be forgiven.
- It is also worth remembering that most of the access development has taken place in the major industrialised areas of the east, with Shanghai and Guangzhou leading the way, followed by Beijing. There are massive cities and conurbations throughout the country, so it could take decades for the market to be fully mature.
- One other issue on China is its attractiveness – or otherwise – to foreign rental players. Hertz has been operating in China for many years, mainly in the Shanghai area, but it has yet to be joined by many other big international players.
- There are some Japanese and Hong Kong-based companies operating in China, but the big names of the US and Europe have so far stayed away. South Korean-based company Korea Rental Corp, for example, said in early 2019 that, while it was operating access fleets in the Middle East and Vietnam, China was still a step too far.
- That’s another unusual feature of the Chinese access rental market: Remarkable growth, but a reluctance to invest (so far) by anyone other than domestic companies.

APPENDIX TO CHINA

IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – CHINA

CHINA – EXCHANGE RATES



The currency exchange rate used for China is shown below. The same rate has been used throughout 2018 in order to eliminate variation in growth rates due to exchange rate fluctuations.

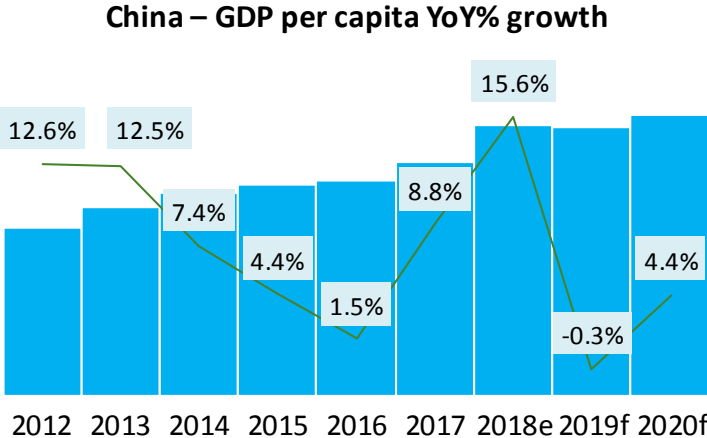
	Currency Unit	Converter to Euro	Converter to USD
RDC	¥ 1	0.132	0.145

CHINA – MACRO-ECONOMIC INDICATORS



GDP per capita is expected to decrease in 2019 for the first time in eight years, despite ambitious national development plans. Further growth can be expected from 2020 onwards.

Compound Annual Growth Rate (CAGR) 18-20 = 1.98%



China GDP per Capita YoY % evolution

Source : FrontierView – March 2019.

COUNTRY REPORT – FRANCE

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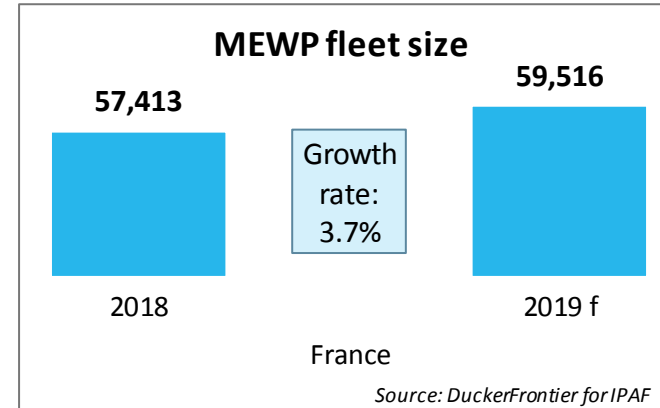
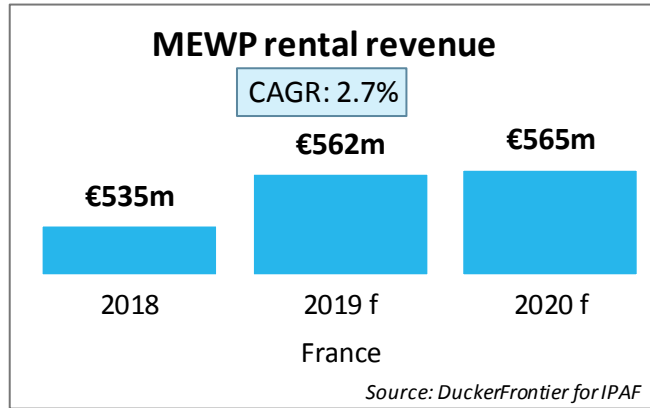
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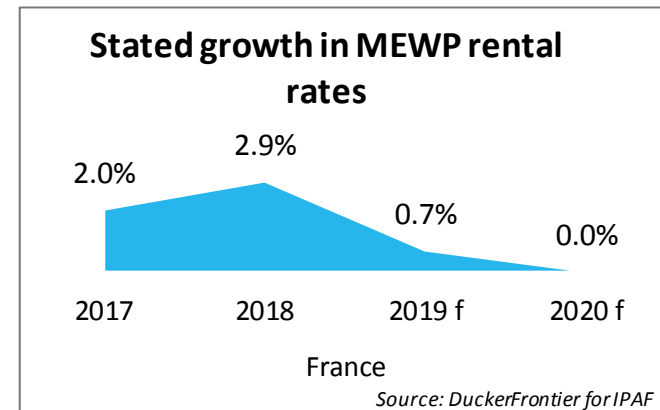
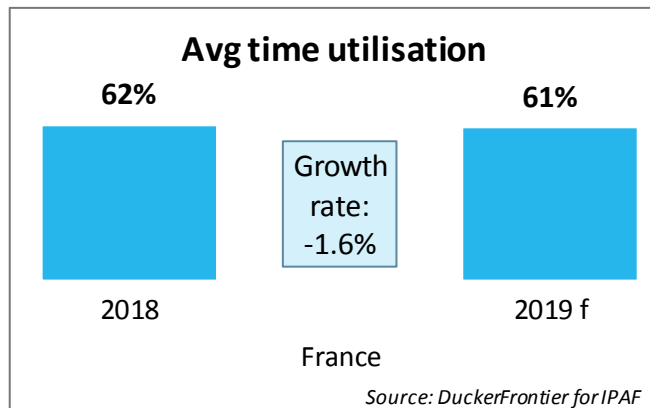
FRANCE – KEY FINDINGS

The French MEWP rental market continued to grow in 2018, within an overall positive economic context: This trend, which began in 2016, is expected to continue throughout 2019, though at a more moderate pace.



CAGR: Compound annual growth rate

- Almost all indicators increased every year in the French MEWP rental market, highlighting the solid growth of the market.
- The strong utilisation rate increase in 2017 has now been compensated by additional investment in fleet expansion.

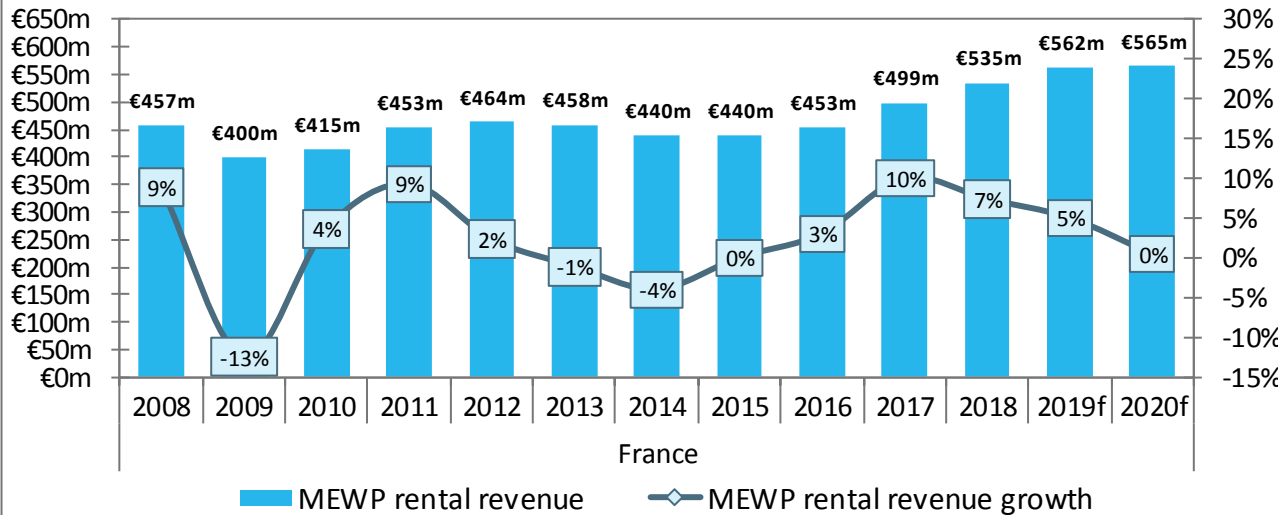


FRANCE – RENTAL MARKET VALUE AND GROWTH



French MEWP rental revenue grew significantly in 2018, supported by favourable economic conditions and increasing construction activity. Forecasts for future years are positive, although the rate of growth may slow.

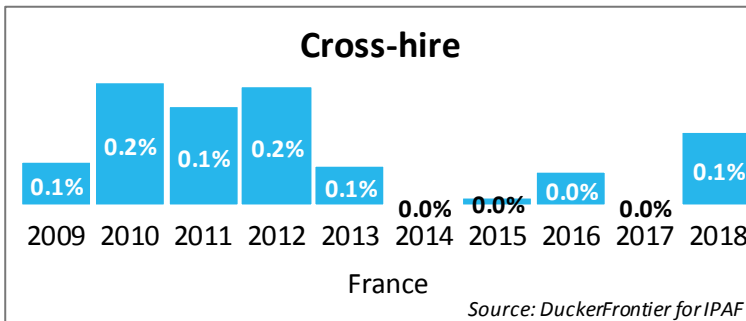
MEWP rental revenue and MEWP rental revenue growth



Source: DuckerFrontier for IPAF

- 2018 was another good year for the French MEWP rental market. The market increased by 7% compared to 2017. The French MEWP rental business looks in good shape and is expected to continue its growth in 2019, although at a more moderate rate.
- French MEWP rental revenue reached €535 million in 2018.
- The annual growth rate is expected to be 5% in 2019 and and to stabilise in 2020 to show no overall growth.
- In 2018, a limited amount of cross-hire was identified in France.

Cross-hire



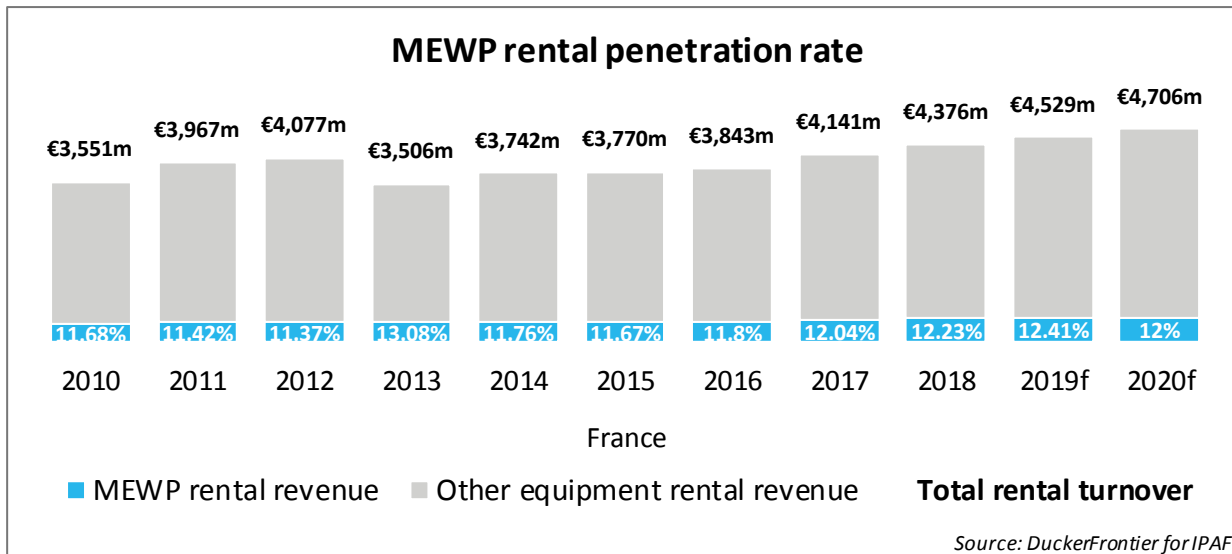
Source: DuckerFrontier for IPAF

FRANCE – MEWP RENTAL PENETRATION



French MEWP rental revenue represents 12.23% of overall equipment rental revenue (source ERA).

- Both the MEWP rental market and the overall rental market are developing in France.
- The MEWP rental market seems to be developing at a faster pace than other types of equipment rental, so MEWP rental is increasing as a proportion of the overall equipment rental market in France.



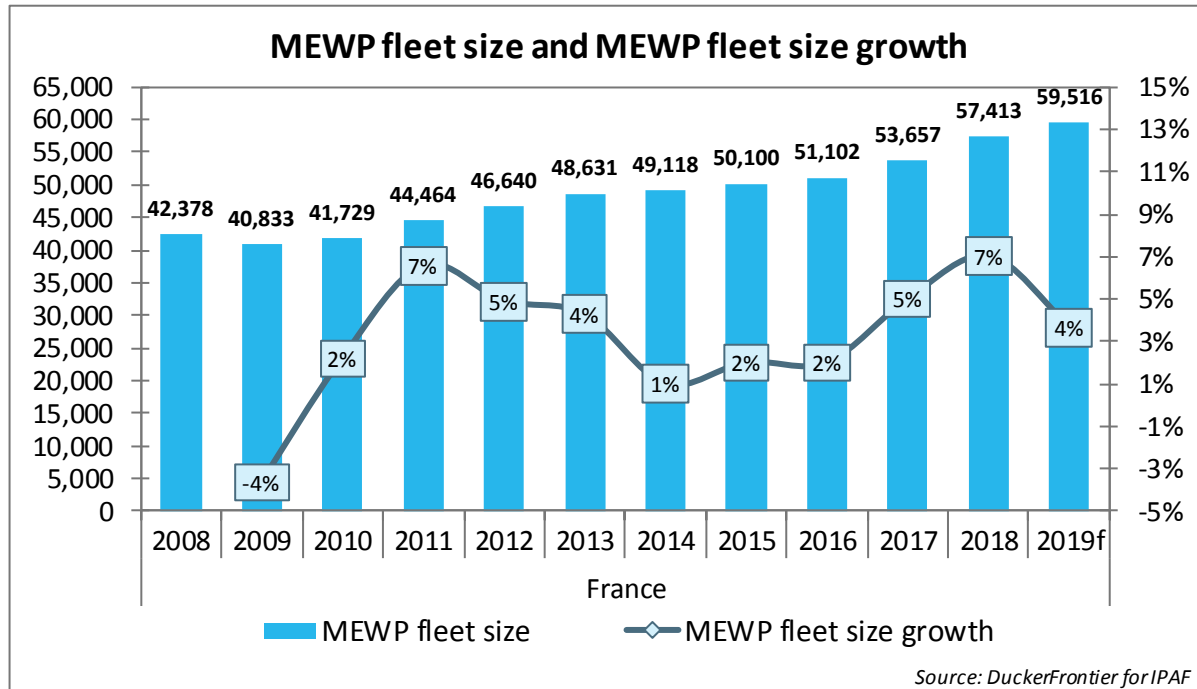
Source for total rental turnover: ERA 2018 Report.

FRANCE – MARKET SIZE IN UNITS



The French MEWP rental fleet grew for the ninth year in a row 2018, to reach almost 60,000 units in total. It is expected to follow a similar trend in 2019, though at a more moderate pace.

- French fleet size kept growing at 7% in 2018 to exceed 57,000 units.
- Companies expect to continue to expand their fleets, though at a more moderate pace as outlooks for 2020 remain uncertain.



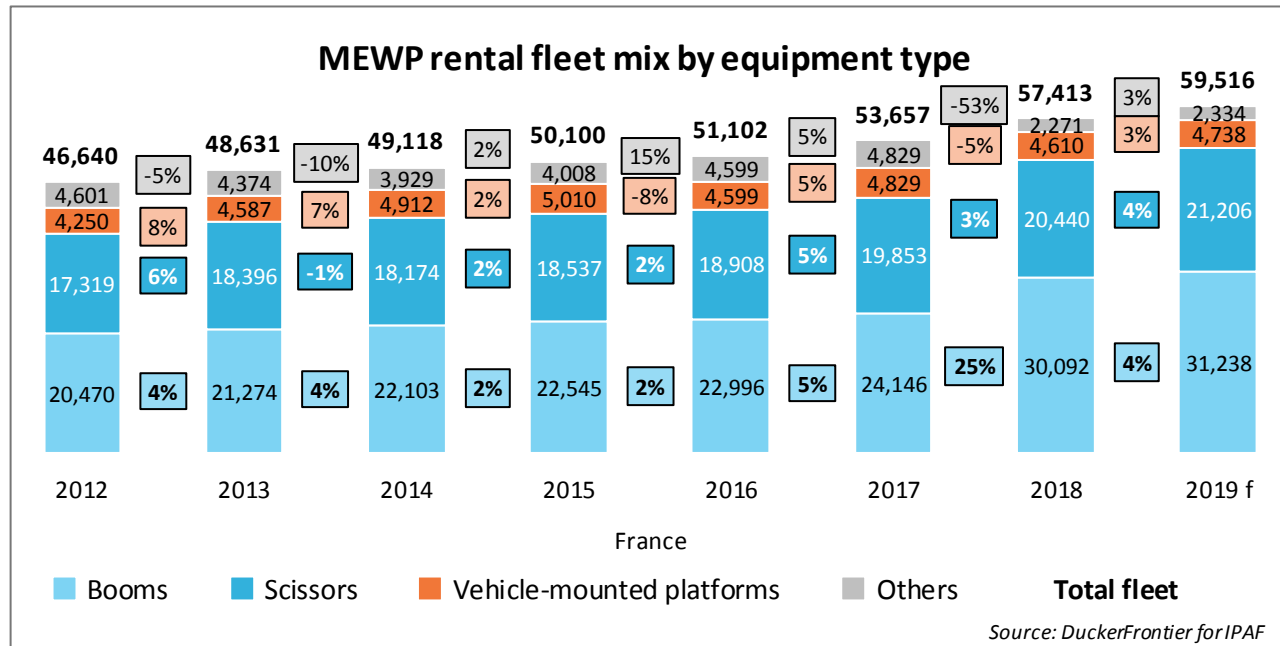
*Note: Included are powered access lifts: All booms, scissor lifts and vertical masts
Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs*

FRANCE – MARKET SIZE IN UNITS



Booms continue to account for the largest share of the French MEWP rental fleet. All MEWP categories are expected to benefit from fleet expansion and increase at a similar pace in 2019.

- The French MEWP rental market is traditionally oriented towards booms.



Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs

+X%

% unit growth, e.g. scissors fleet increased by 3% from 2017 to 2018.

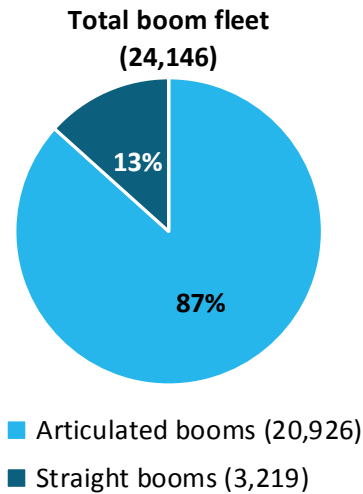
Others include: vertical lifts, vertical masts, push-around, trailer mounted/towable.

FRANCE – MARKET SIZE IN UNITS

Although articulated booms continue to dominate the French rental boom fleet, accounting for 77% of the fleet, the proportion of straight booms has been increasing.

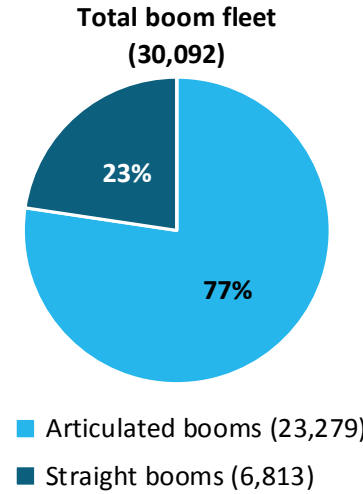
- Articulated booms are typically in demand for their versatility and the French MEWP rental fleet has one of the highest shares of articulated booms among the European countries under study.
- The share of straight booms has been increasing, due to their ability to reach great heights, which construction companies in particular are finding greater demand for.

MEWP Boom Fleet Mix by Type – France – 2017



Source: DuckerFrontier for IPAF

MEWP Boom Fleet Mix by Type – France – 2018

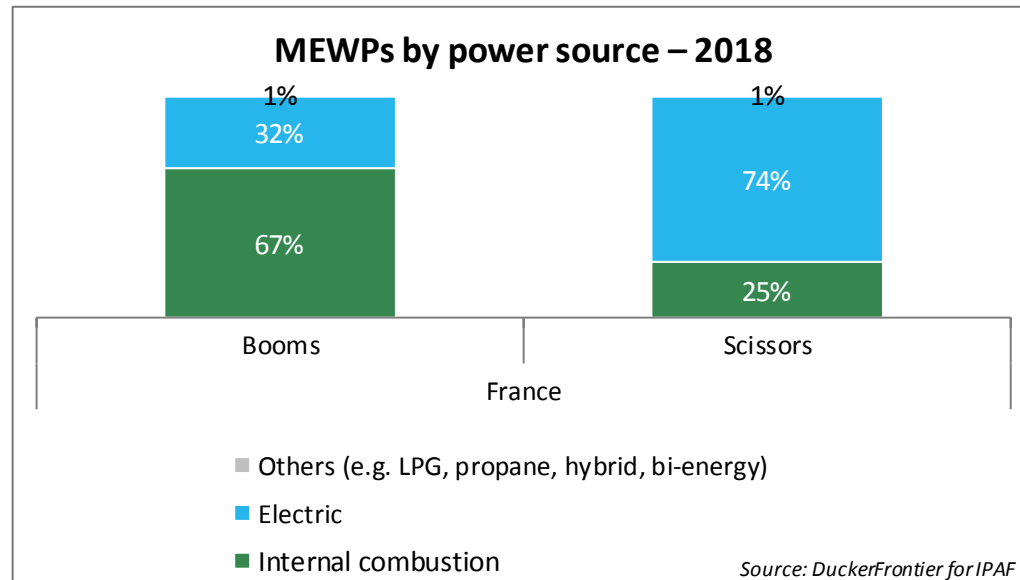


Source: DuckerFrontier for IPAF

FRANCE – POWER SOURCES

The ongoing trend towards electric equipment identified in France, as in other European countries under study, allows companies to comply with ultra-low emissions regulations being introduced in Paris and elsewhere.

- The French scissor fleet is predominantly electric.
- For both equipment categories, the trend towards electric equipment is expected to continue in the long-term as end customers ask for greener machines.
- The share of hybrid remains negligible in the French market but is expected to increase in the coming years and rental companies report that they are starting to invest in hybrid equipment.

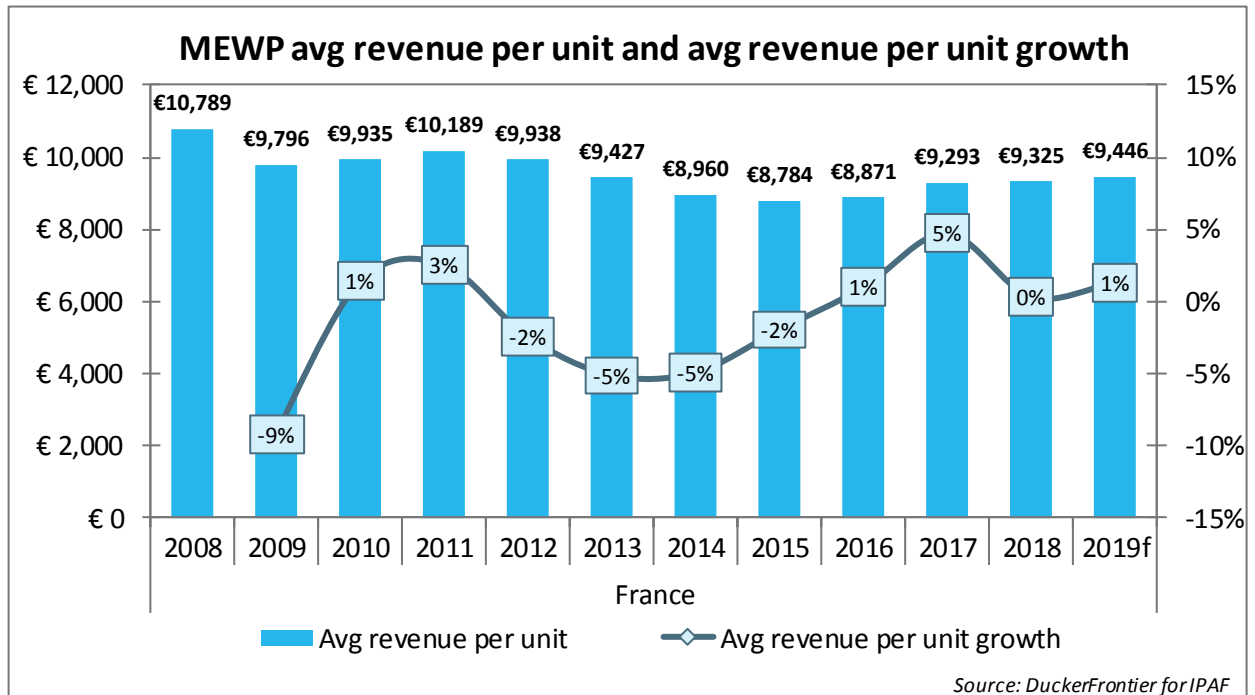


FRANCE – REVENUE PER UNIT



Average revenue per unit remained stable in 2018, and reached its highest level in the past four years, exceeding €9,300 per unit.

- Both revenue and fleet size grew in France in 2018, allowing rental companies to reduce utilisation rates slightly and thus maintain revenue per unit.
- Average revenue per unit is expected to increase slightly in 2019 as MEWP rental companies slightly increase rental rates.

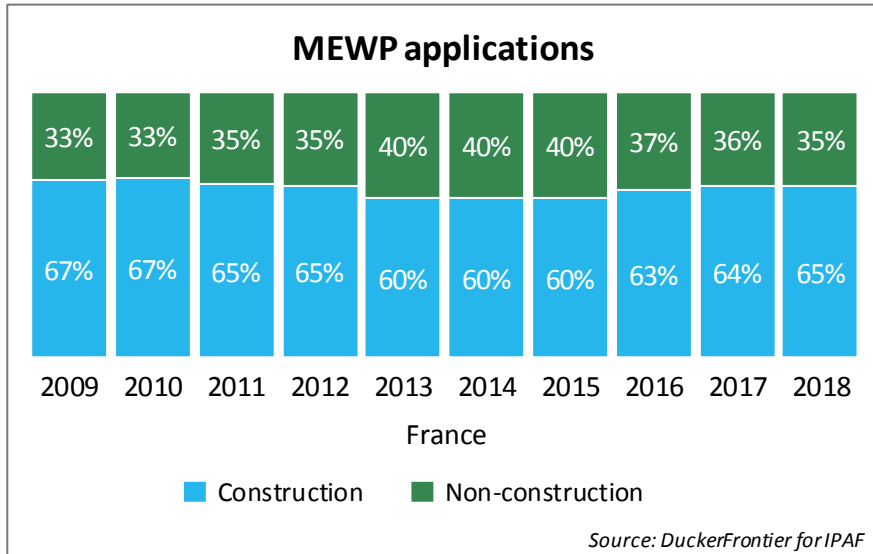


*Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs*

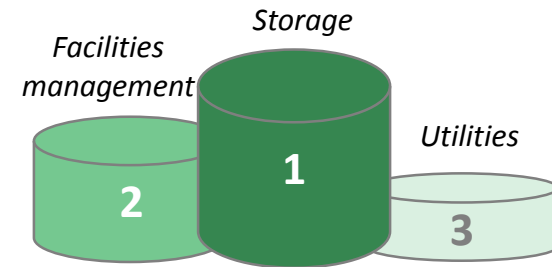
FRANCE – APPLICATIONS

The share of construction in the French MEWP rental revenue increased by around 1% in 2018, reinforcing the predominance of construction as a proportion of MEWP rental companies' customers.

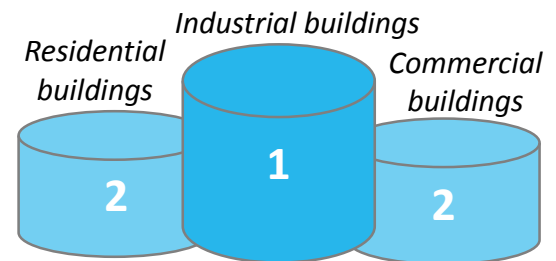
- Industrial construction was the predominant end-user sub-sector.
- Storage/warehousing dominates the non-construction application sector.



Main non-construction sub-sectors



Main construction sub-sectors



Share of rental revenues:

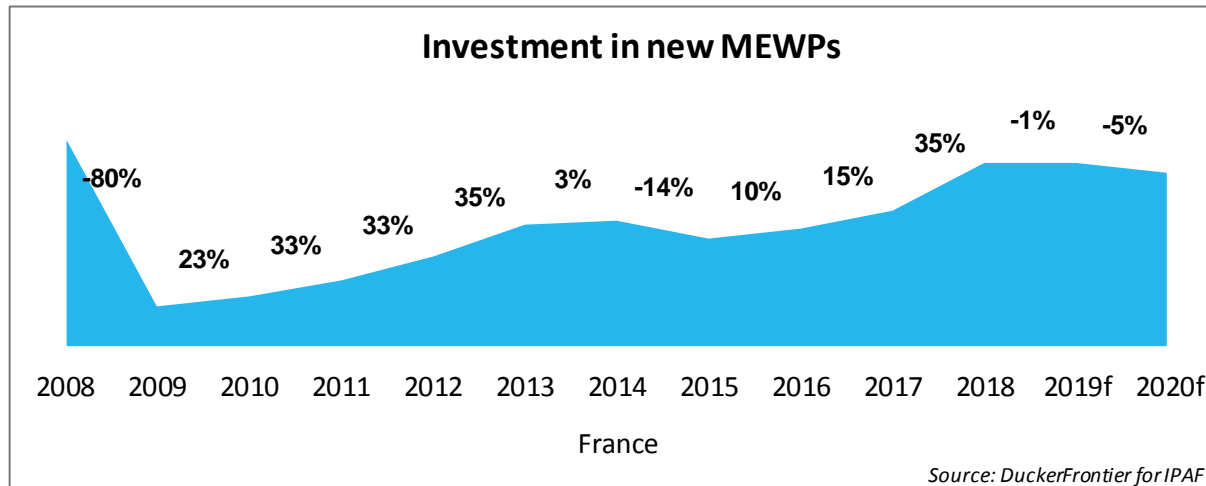
Non-construction includes industry, maintenance, cleaning, utilities, events.

Construction includes new build and renovation; including residential, commercial, retail and industrial.

FRANCE – INVESTMENT

French MEWP rental companies reported increased investment in 2018, allowing for significant fleet expansion in addition to regular renewal.

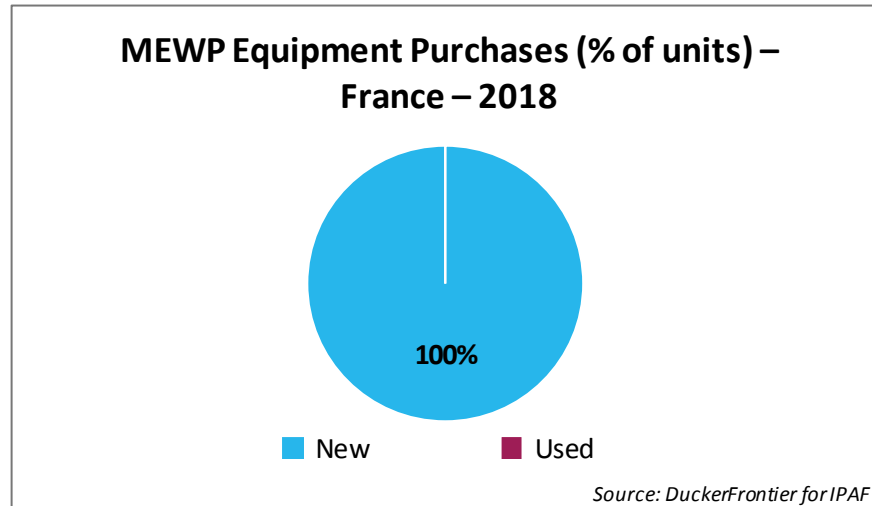
- A significant wave of renewals occurred in 2018 in addition to fleet expansion, significantly increasing total investment.
- French MEWP rental companies expect to maintain a similar level of investment in 2019.



FRANCE – EQUIPMENT PURCHASES

All equipment purchased by MEWP rental companies in France in 2018 is bought new.

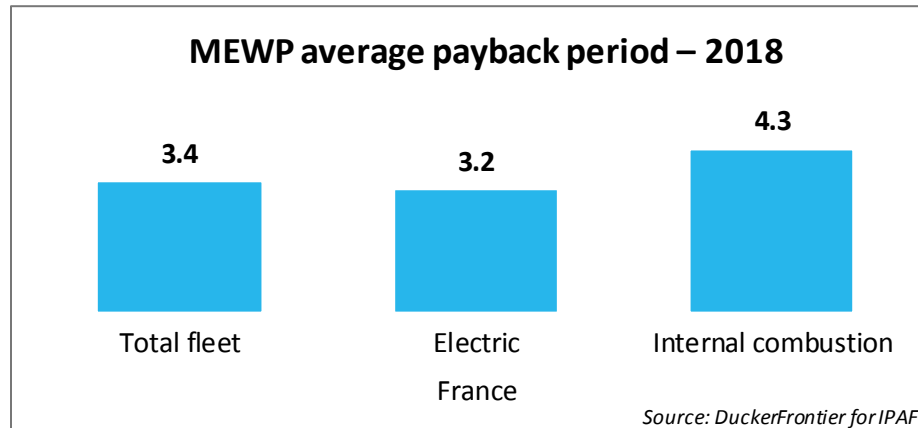
- To remain competitive in the French market, MEWP rental companies need to offer equipment that helps attract more business. As a result, French rental companies exclusively purchase new equipment.



FRANCE – TYPICAL PAYBACK PERIOD

The typical MEWP payback period in 2018 was 40 months, slightly better than in 2017 (41 months).

- The average payback period varies depending on the power source of the machine. A shorter payback period is reported for electric equipment.
- Internal combustion equipment, especially large units, have the longest payback period, being typically more than four years.

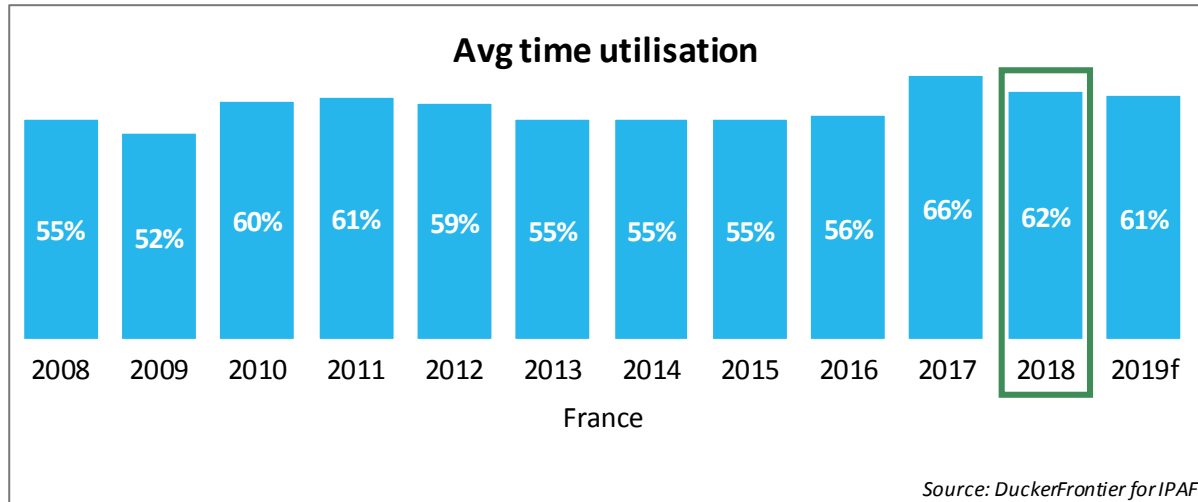


3.4 = 3 years and 4 months

FRANCE – UTILISATION RATES

After a sharp increase in 2017, the utilisation rate decreased in 2018 while fleet expansion enabled the market to better meet rising MEWP rental demand.

- Utilisation rates are expected to stabilise in 2019 at around 61% – a comparable level to that of around a decade ago.



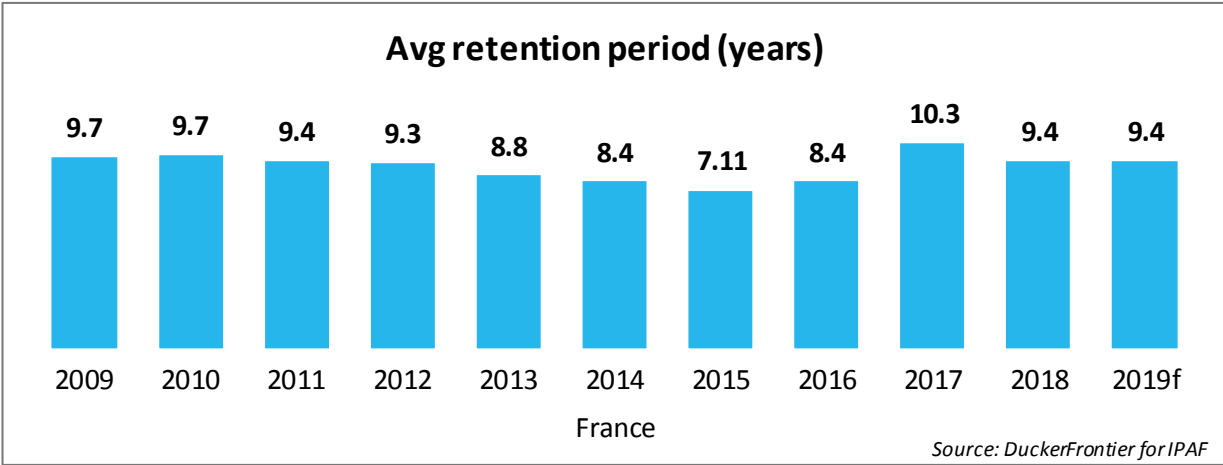
Definition: Physical number of machines out on hire as % of total number in fleet at any given time.

FRANCE – RETENTION PERIOD



In France the average retention period of MEWP equipment decreased by almost a year in 2018.

- Investment made in 2018 to both renew and to expand fleets brought about a reduction in the average retention period, to leave it standing at a similar level as around a decade ago.
- Average retention period is expected to be unchanged in 2019.



9.4 = 9 years and 4 months

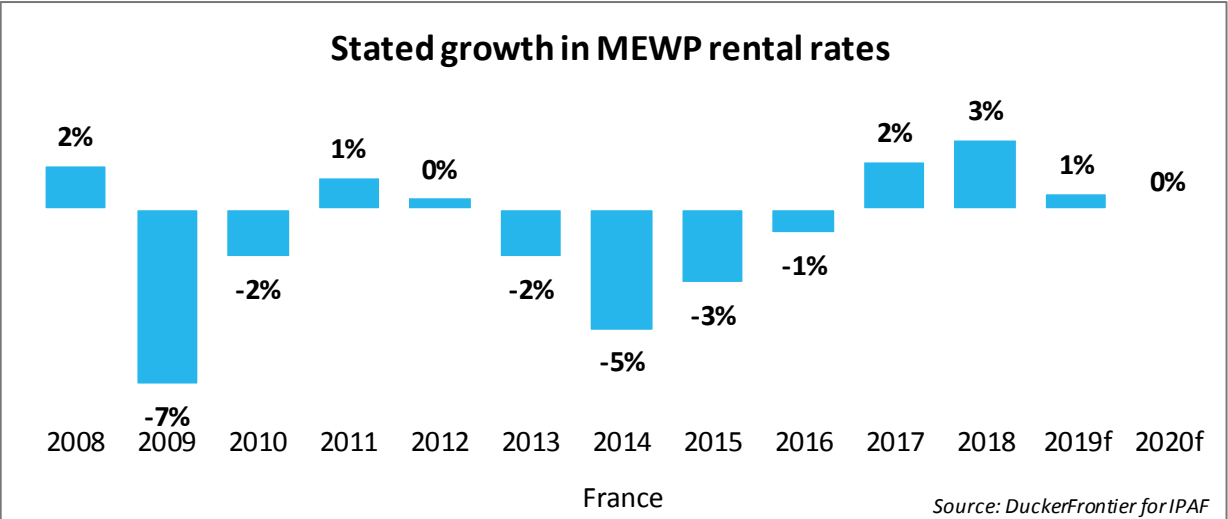
Definition: Period of time that a machine is kept in fleet = selling age if acquired new

FRANCE – RENTAL RATES



As forecast in last year’s report French rental rates have continued to increase. This positive trend is expected to be sustained in 2019 although at a lower level.

- Rental companies have been able to significantly increase rental rates for the second year in a row, highlighting the great demand for MEWP rental on the French market.
- They now expect to maintain rather stable rental rates in the coming years.



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- The positivity in France’s rental market that was clear in 2017 continued in 2018, although by the start of this year it was evident that the high growth rates were beginning to moderate.
- Every organisation that attempts to quantify rental growth was reporting very positive figures for 2018. The European Rental Association estimated that non-operated equipment rental grew by 5.7% in 2018 – one of the fastest rates in Europe – while DLR, the French association for renters and material-handling companies, said that its members were reporting 8% growth.
- For DLR, this was in part down to continued investment in large construction works, notably the Grand Paris projects, further high-speed (TGV) rail lines and upgrading of national autoroutes. The organisation said that rental companies invested €1.7 billion in new equipment in 2018, a figure it said represented a record in France.
- CISMA, the French equipment manufacturers’ association, was similarly positive, saying that sales of earthmoving equipment were the highest since 2008. The 2% rise it reported for last year was modest by the standards of recent years, but they are at peak historical levels.
- Loxam and Kiloutou both have very large access fleets, and both were continuing to invest heavily during 2018. Kiloutou, now under the majority ownership of private equity groups HLDI and HDL Europe, said its total equipment spending in 2018 was €203 million – on all types of equipment – and would be followed by only a small drop to €192 million this year.
- Both companies also expanded their operations in France. Loxam’s specialist division – which includes access – grew by 6% in 2018, which was slightly higher than its generalist division, while Kiloutou reported a 13.5% increase in revenues in 2018.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS, MURRAY POLLOK*



- For both of the big two renters, acquisitions were focused outside France – both made a single, small acquisition in France last year but were buying businesses in Spain, Italy, Germany and the UK as they sought to further internationalise.
- Of course, Loxam and Kiloutou do not have the market to themselves. Group Salti, Access Industries, Riwal and others are all strong competitors, and are themselves growing.
- Riwal now has more than ten locations around France and a fleet in excess of 2,200 units, while Salti – a generalist rental company – has recently opened its 39th location in the country. It has doubled its network in six years and has two more openings scheduled for this year. Access Industries' fleet, meanwhile, now numbers more than 5,800 machines, including more than 1,000 telehandlers, with 100 rotating handlers.
- Still, the moderating growth rates are a definite feature of the French market as we enter Spring 2019. Euroconstruct was forecasting a quite marked decline in construction market growth this year, at 1.1%, which compares to 3.2% in 2018. It was suggesting that next year could be even slower at 0.7%.
- French rental companies have managed to greatly exceed construction growth rates in recent years. They will be hoping that is a trend that they can sustain.

APPENDIX

IPAF POWERED ACCESS RENTAL MARKET REPORT 2018 – FRANCE

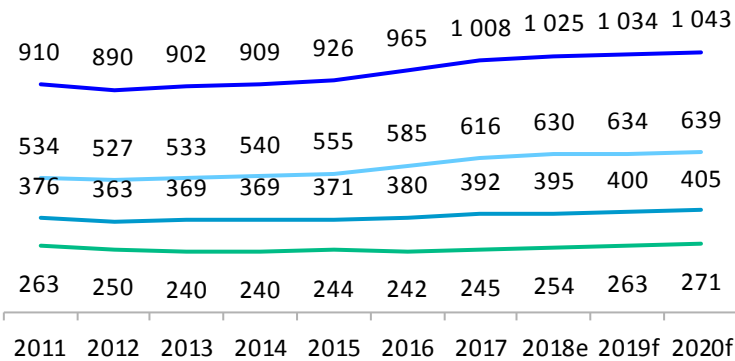
FRANCE – CONSTRUCTION STATISTICS



Macro-economic indicators such as construction sector activity and GDP per capita improved in 2018. The overall economic outlook remains positive for 2019.

CAGR 18-20 = 0.89%

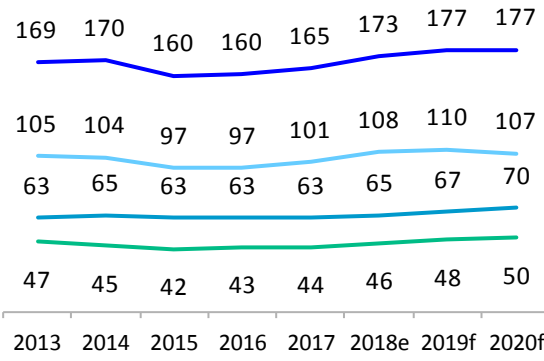
Europe – Construction data



Source: DuckerFrontier for IPAF

CAGR 18-20 = 0.06%

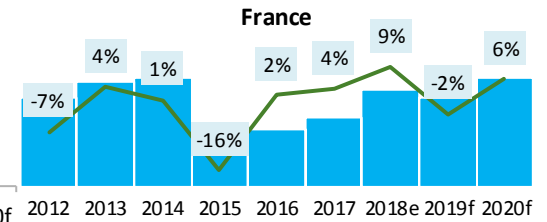
France



Source: DuckerFrontier for IPAF

Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

CAGR 17-19 = 0.90%



FRANCE GDP per Capita in thousand euros – estimates based on Euroconstruct 2018.

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

CAGR: Compound annual growth rate

COUNTRY REPORT – GERMANY

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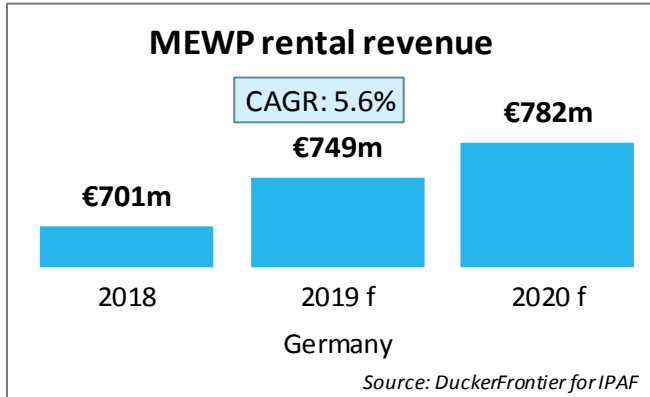
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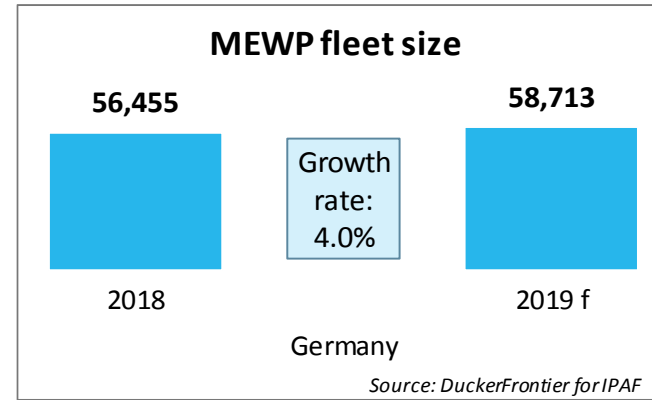
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GERMANY – KEY FINDINGS

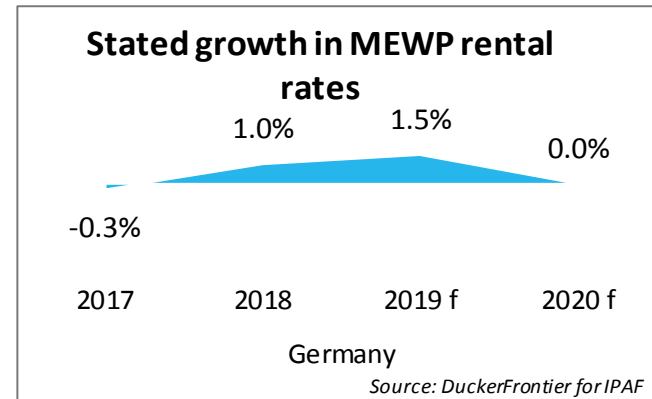
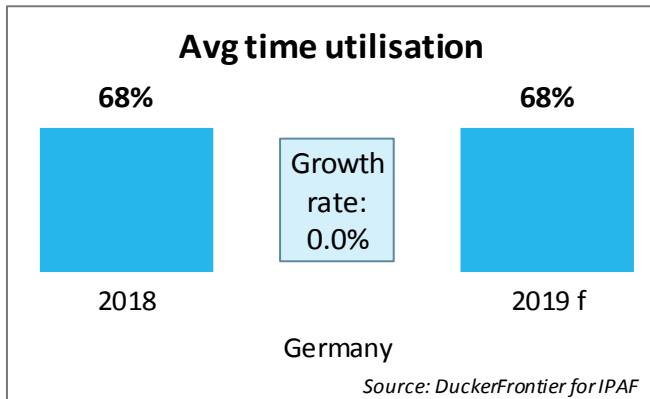
The German MEWP rental market continues to grow, driven by a number of construction projects and high demand in other sectors. The outlooks for the next few years is positive, though growth may slow beyond 2019.



CAGR: Compound annual growth rate



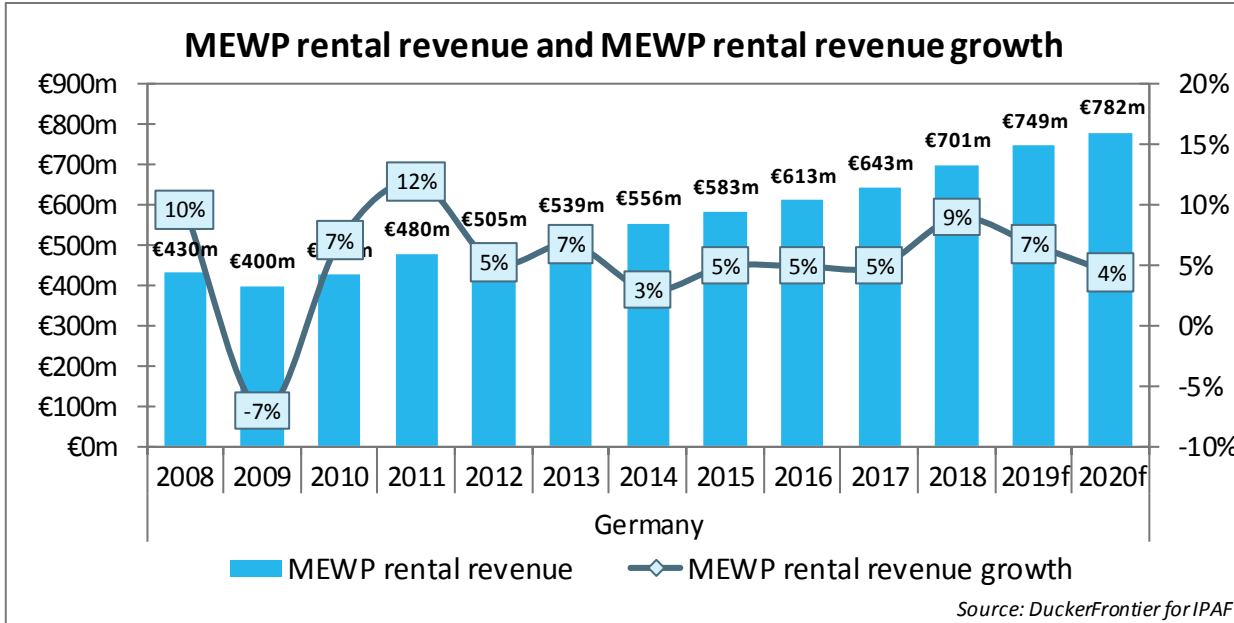
- All indicators increased in 2018 in the German MEWP rental market, highlighting solid growth in a mature market.
- Nevertheless, competition between rental companies, pressure on rates, concerns about Brexit and the US-China trade war are expected to impact the revenue increase over the next few years.
- The increase in the taxation of Chinese goods in the US could lead to a decrease in Chinese sales and to a decrease in the national economy. This slow could have a negative impact on German exports to China.



GERMANY – RENTAL MARKET VALUE AND GROWTH



German MEWP rental revenue grew significantly in 2018, supported by favourable economic conditions, dynamic construction activity and increased demand. Forecasts for future years are positive, but growth may slow.



- The growth of MEWP rental revenue highlights the positive development of the German market over recent years.
- In 2018, MEWP rental market revenue grew by 9%, to now exceed €700 million. It is the largest European MEWP rental market.
- The German rental business looks in good shape and is expected to sustain growth in the coming years albeit at a slower rate.
- Until now, Brexit has had limited or no impact on the German MEWP rental market.
- In 2018, the level of cross-hire increased to 12.2%. Cross-hire is more common in peak demand periods or when end customers are based in more remote areas.

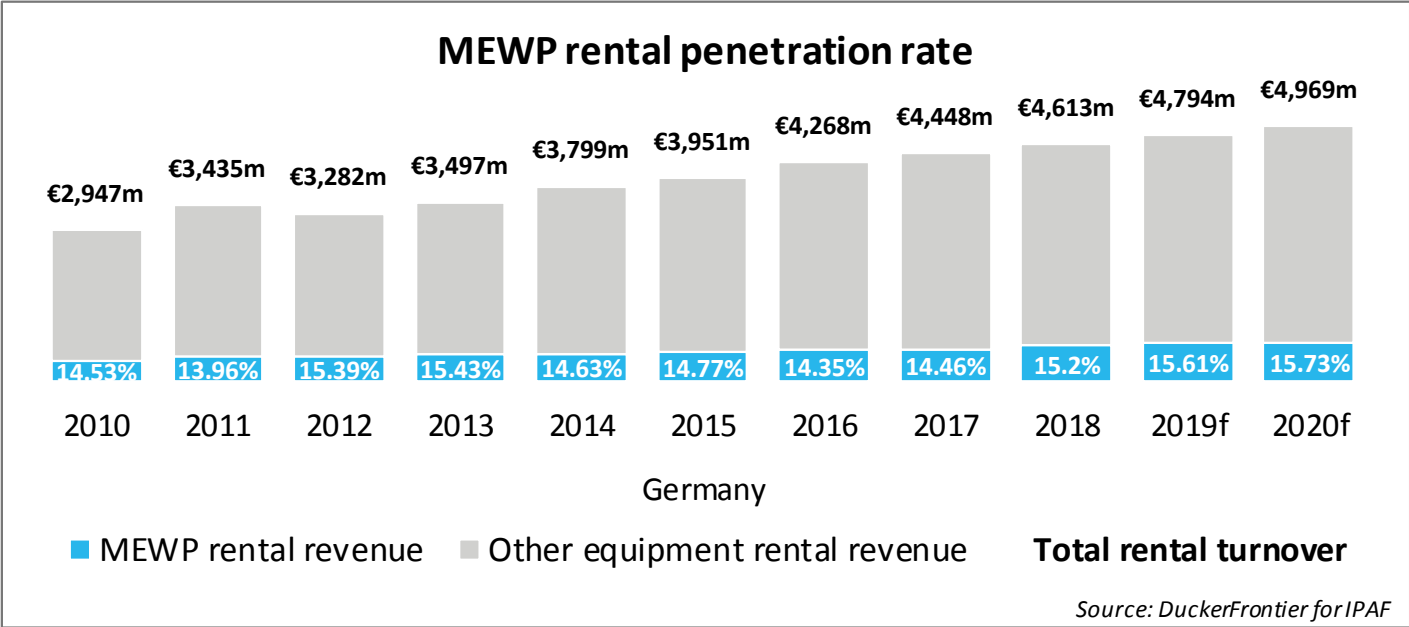


GERMANY – MEWP RENTAL PENETRATION



German MEWP rental revenue has exceeded 15% of the total equipment rental revenue (source ERA).

- Both the overall rental market and the MEWP rental market continue to expand.
- MEWP rental penetration increased over the past few years. It is expected to be around 16% in 2020.

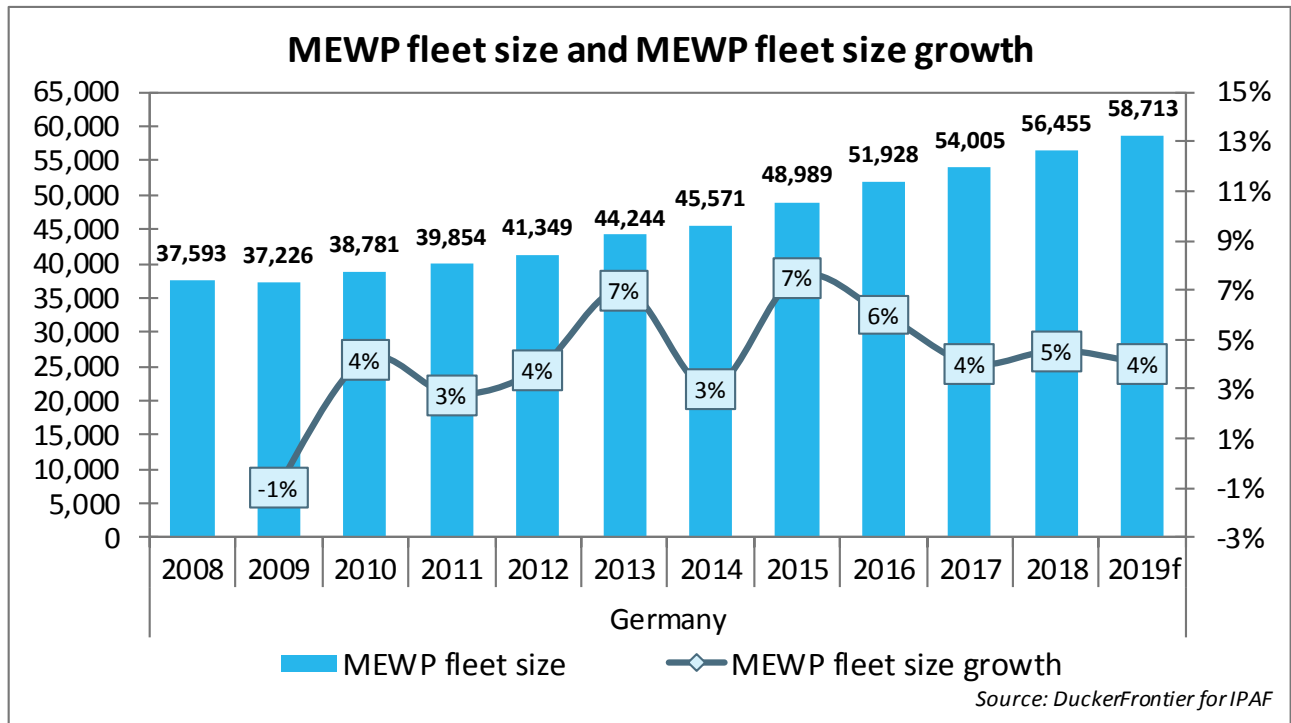


Source for total rental turnover: ERA 2018 Report.

GERMANY – MARKET SIZE IN UNITS

The German MEWP rental fleet increased by 5% in 2018, fuelled by increasing demand in the market and the overall performance of the economy. Fleet expansion continues to be a pillar of market development.

- As demand keeps growing, rental companies continue to develop their fleet size and secure their market shares.
- In 2018, the total fleet size has exceeded 56,000 units.
- MEWP rental fleet is expected to continue to grow and develop in 2019, although at a more moderate pace.



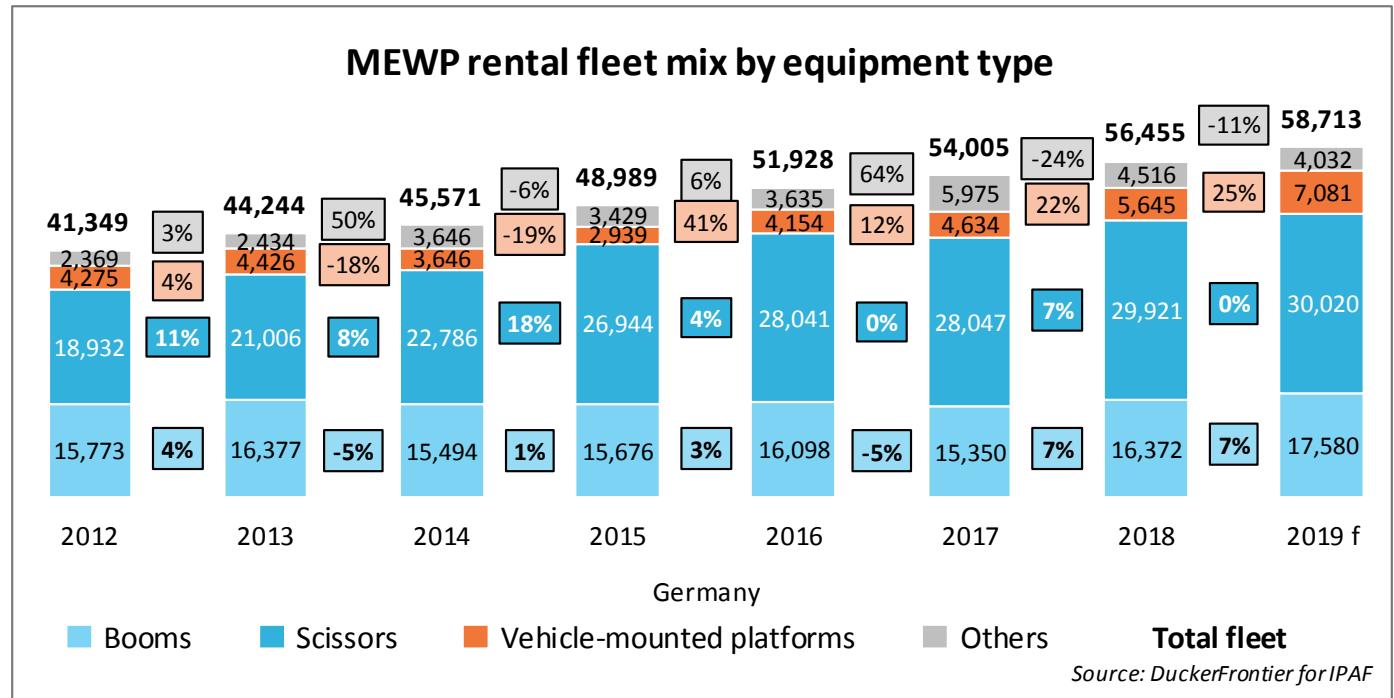
*Note: Included are powered access lifts: All booms, scissor lifts and vertical masts
Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, and MCWPs.*

GERMANY – MARKET SIZE IN UNITS



Scissors are the main type of MEWP in the German rental market, accounting for more than half of the total fleet mix.

- Scissors will continue to dominate the German MEWP fleet. Booms tend to be more commonly used in construction, electric scissors can be used for a variety of applications indoors, all-year round.
- The growth in fleet size has been seen across all categories.



Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, and MCWPs.

+X% % unit growth, eg both scissors and booms fleet increased by 7% from 2017 to 2018.

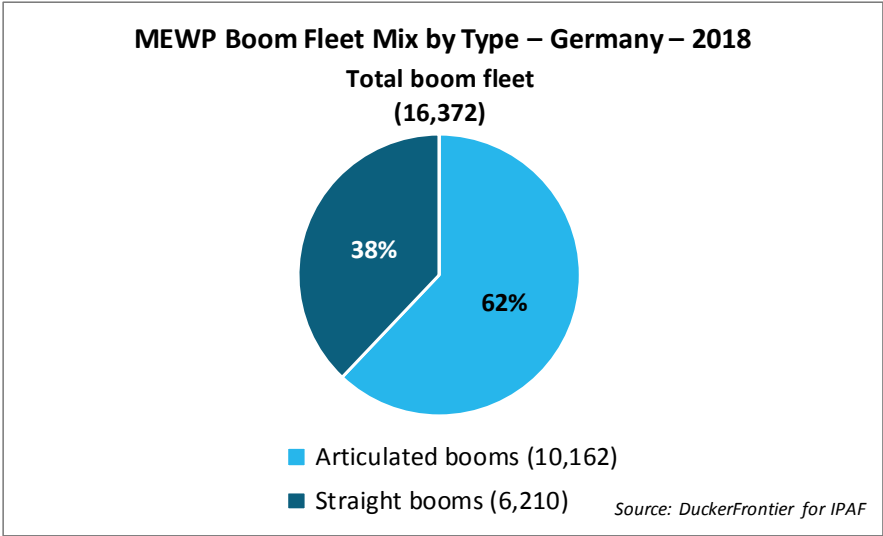
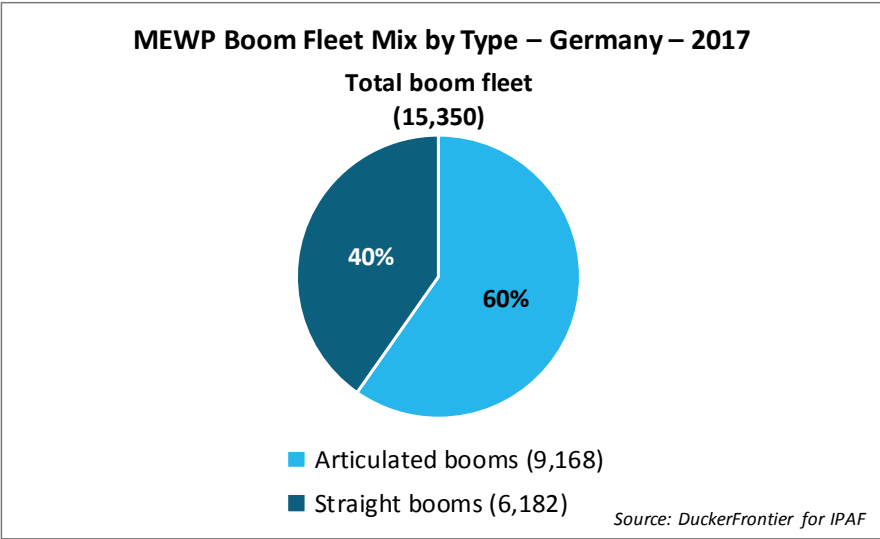
Others include: Vertical lifts, vertical masts, push-around, trailer mounted/towable.

GERMANY – MARKET SIZE IN UNITS



Articulated booms are in demand for their versatility and account for 62% of the total boom fleet.

- Though the number of booms units increased in both categories, articulated booms gained ground against straight booms.

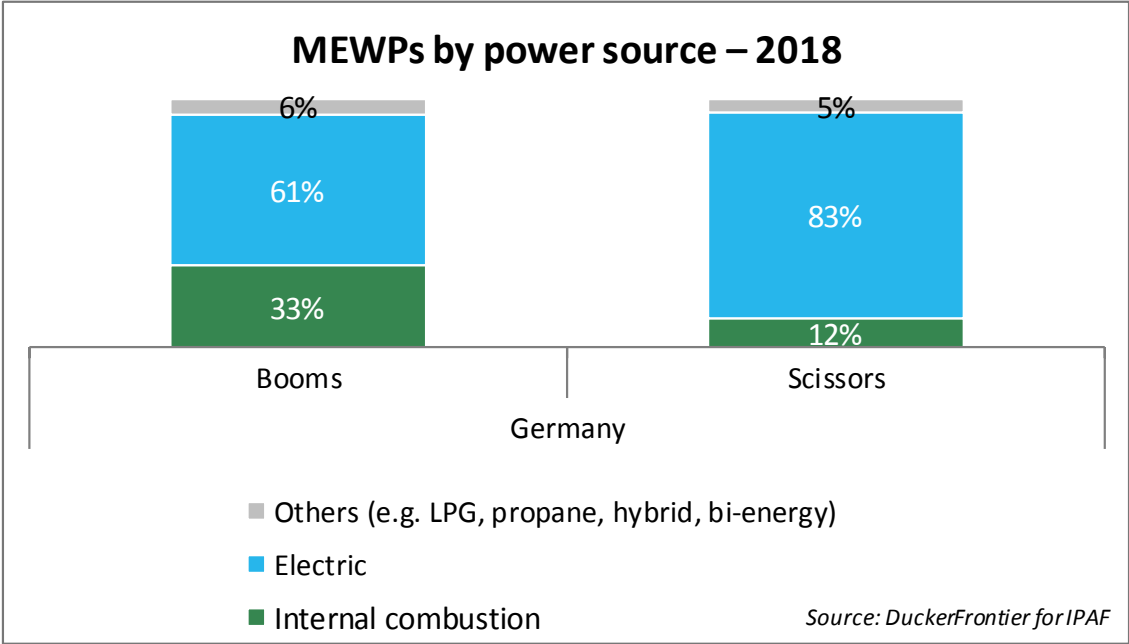


GERMANY – POWER SOURCES



In 2018 in Germany, electric equipment dominated both boom and scissor rental fleets.

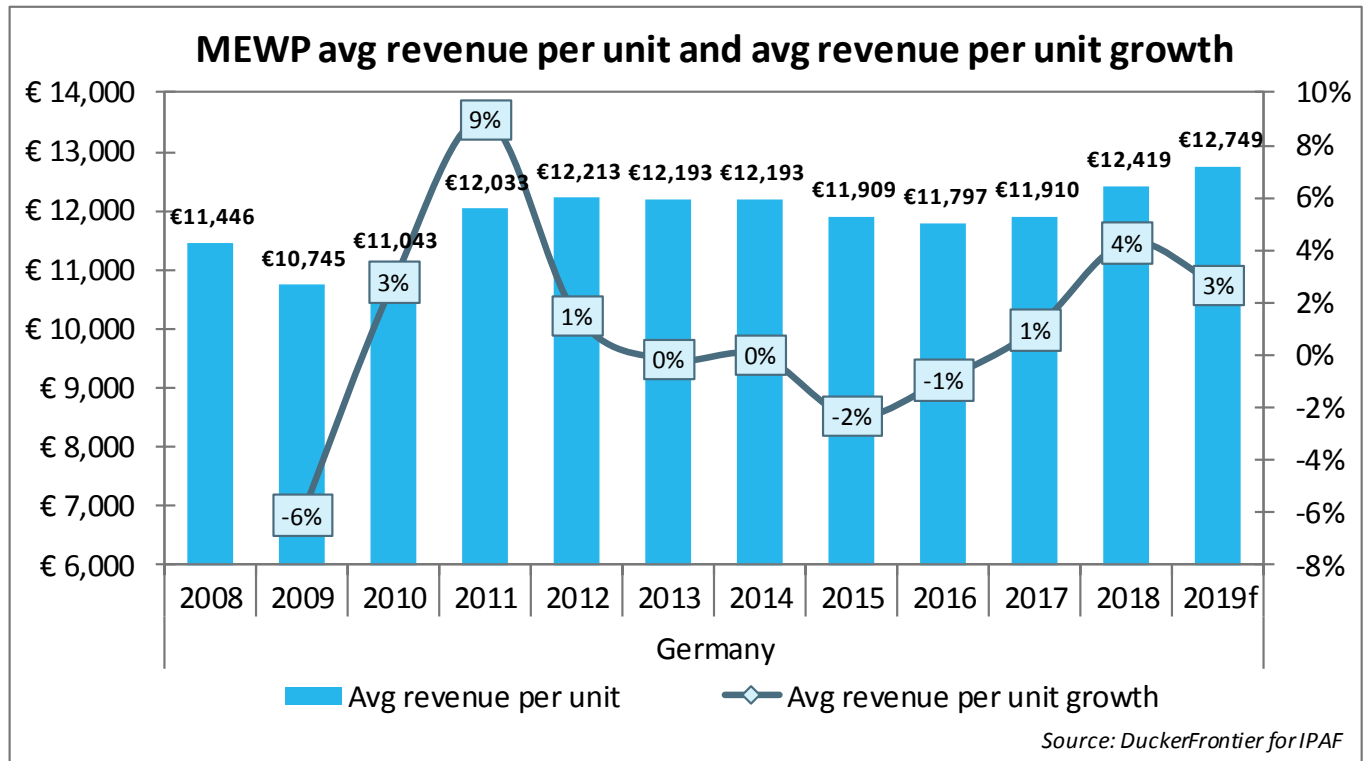
- In 2018 electric booms gained ground against diesel-powered ones. While internal-combustion-engine machines remain dominant, MEWP rental companies' preference is switching in favour of electric or hybrid power sources for smaller equipment.
- Greener power sources are gaining in popularity among scissors too; the share of hybrid equipment is increasing slightly each year.



GERMANY – REVENUE PER UNIT

Average revenue per unit grew by 4% in 2018 and reached its highest level over the past ten years, standing at above €12,400 per unit at the end of 2018.

- Average revenue per unit increased by 4% in 2018, surpassing its highest historic level (€12,033 in 2011).
- Average revenue per unit is expected to increase again in 2019 and get close to €13,000.

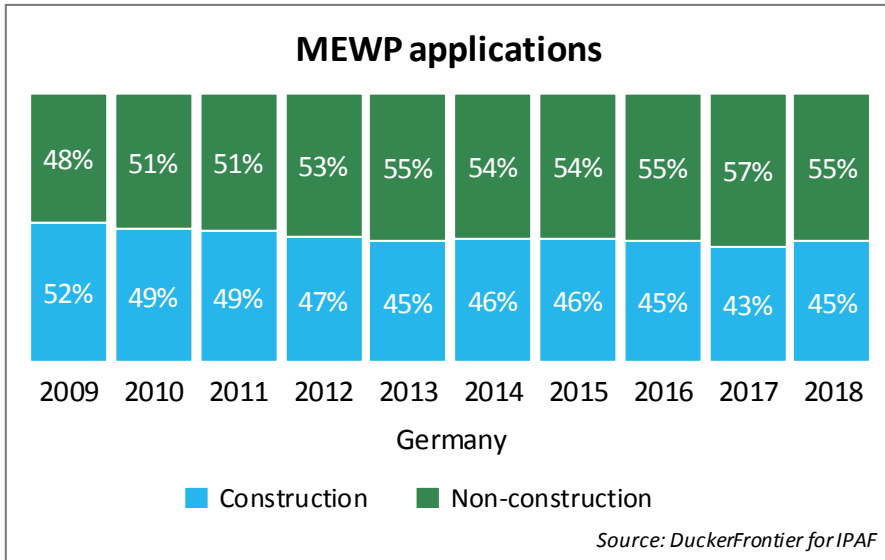


*Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.*

GERMANY – APPLICATIONS

The non-construction end market is expected to remain dominant in Germany, despite a slight increase in construction end users as a share of MEWP rental companies' customer base.

- Non-construction customers remain the main end-user category for MEWP rental companies.
- Similar to 2017, facilities management remains the main application in the non-construction sector, while industrial is predominant among construction applications.

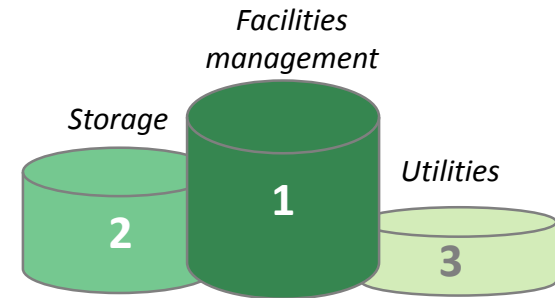


Share of rental revenues

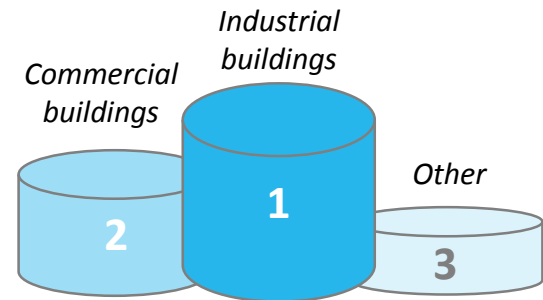
Non-construction includes industry, maintenance, cleaning, utilities, events.

Construction includes new-build and renovation; including residential, commercial, retail and industrial.

Main non-construction sub-sectors



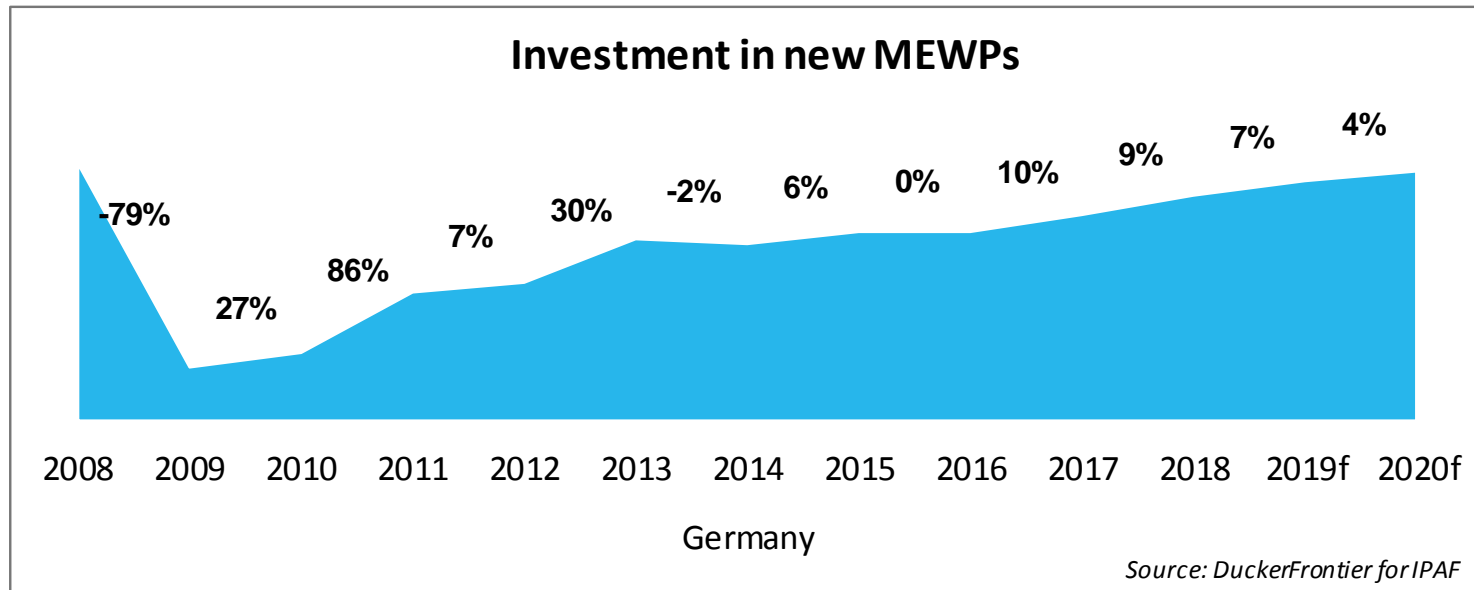
Main construction sub-sectors



GERMANY – INVESTMENT

Total investment in equipment purchases continued to grow in 2018. A similar trend is expected over the next few years.

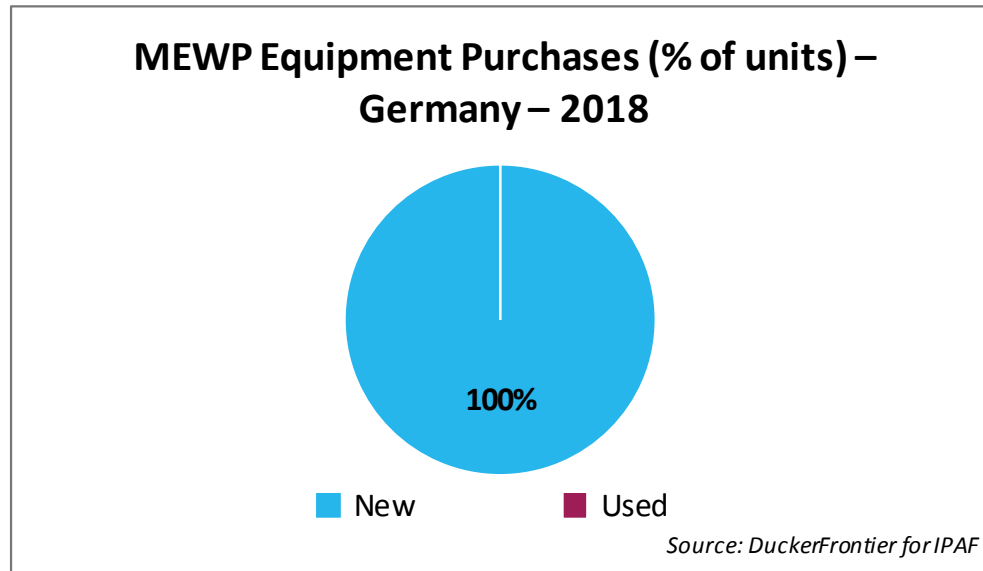
- MEWP rental companies highlight several drivers to the continuously increasing amount of investments: The need to maintain an versatile fleet as a way to be more competitive, the increasing share of “greener” – and more expensive – equipment (electric, hybrid) and continuous fleet evolution and expansion allowing them to capture any increase in market demand.
- The amount of investment is expected to continue to increase over the next two years, though at a slower rate.



GERMANY – EQUIPMENT PURCHASES

Rental companies in Germany solely buy new equipment, as a means to ensuring the versatility and attractiveness of their fleet to meet their customers' requirements.

- German MEWP rental companies prefer to buy new equipment only: The level of competition in the market is high and new equipment allow them to remain attractive against competitors.
- As a result, and contrary to the past few years, almost only new equipment was purchased by MEWP rental companies.

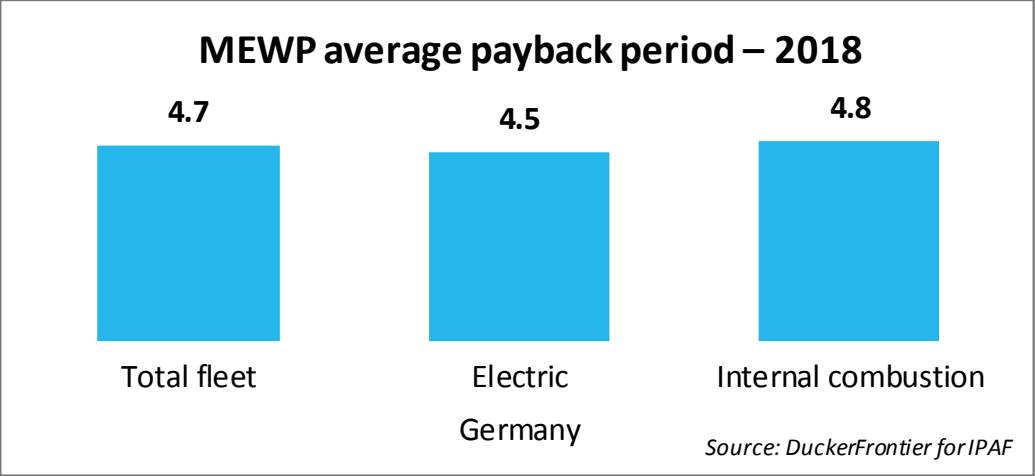


GERMANY – TYPICAL PAYBACK PERIOD



The average payback period in Germany is four years and seven months, five months longer than it was in 2017. Internal combustion-powered machines' payback is slightly higher than for electric machines.

- The average payback period in Germany is four years and seven months.
- MEWP rental companies invest in more expensive equipment (green engine technologies), which slightly impacts their payback period for electric equipment.
- Biggest machines in fleets have an internal combustion engine, driving a longer payback period.

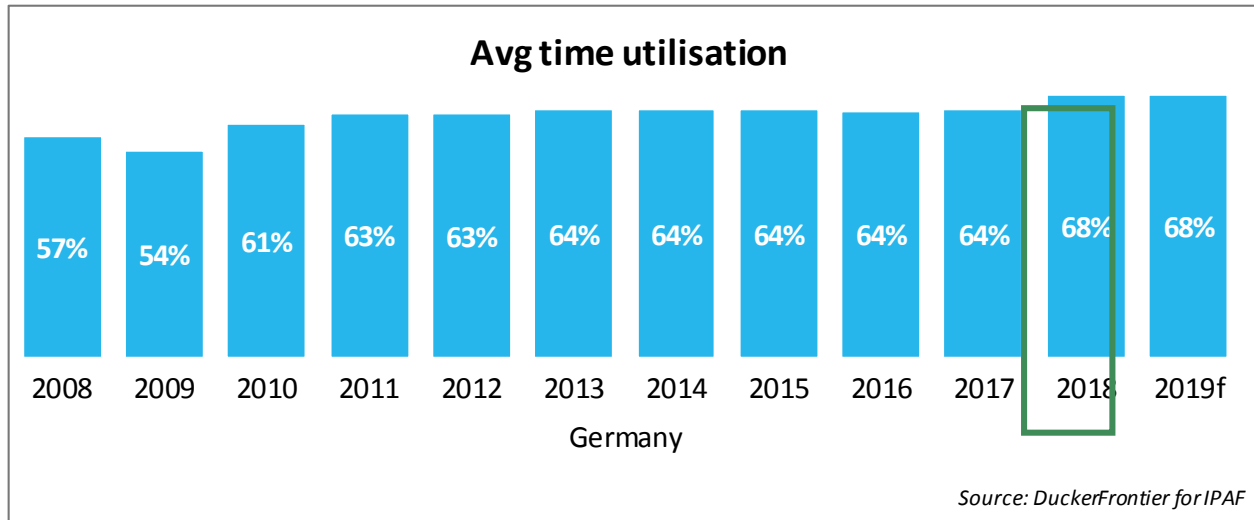


4.7 = 4 years and 7 months

GERMANY – UTILISATION RATES

The utilisation rate increased significantly in 2018. A 68% utilisation rate is considered to be rather high for the German market, and rental companies do not expect to look for any further increase in utilisation rate.

- The fleet expansion that happened in 2018 was not sufficient to absorb increasing demand and this impacted significantly on the utilisation rate.
- Utilisation rate increased for both scissors and booms.
- Utilisation rates are expected to remain stable in 2019. Any further increase would represent a challenge to adequately maintaining and turning around equipment.



Scissors: 68%

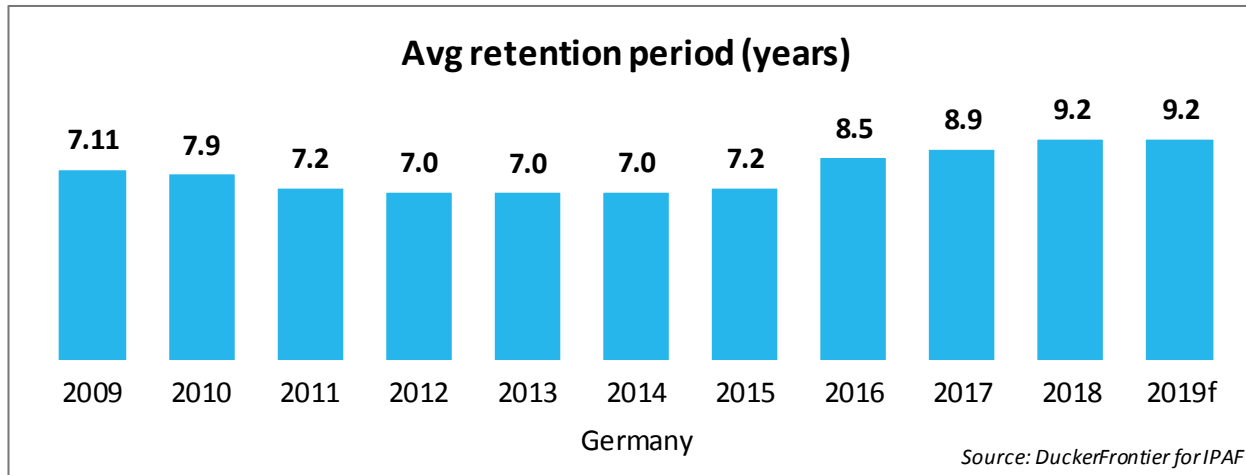
Booms: 69%

Definition: Physical number of machines out on hire as % of total number in fleet at any given time.

GERMANY – RETENTION PERIOD

The typical retention period of MEWP equipment has increased by five months in 2018 and is expected to maintain at just over nine years through 2019.

- Although MEWP rental companies maintain constant efforts for renewing their fleet, they report keeping their equipment longer than in previous years.
- Machines' manufacturing quality is said to be improving, which allows rental companies to keep them longer in their fleet.
- In addition, rental companies report keeping their machines a bit longer due to some uncertainties linked to new equipment delivery lead times.



9.2 = 9 years and 2 months

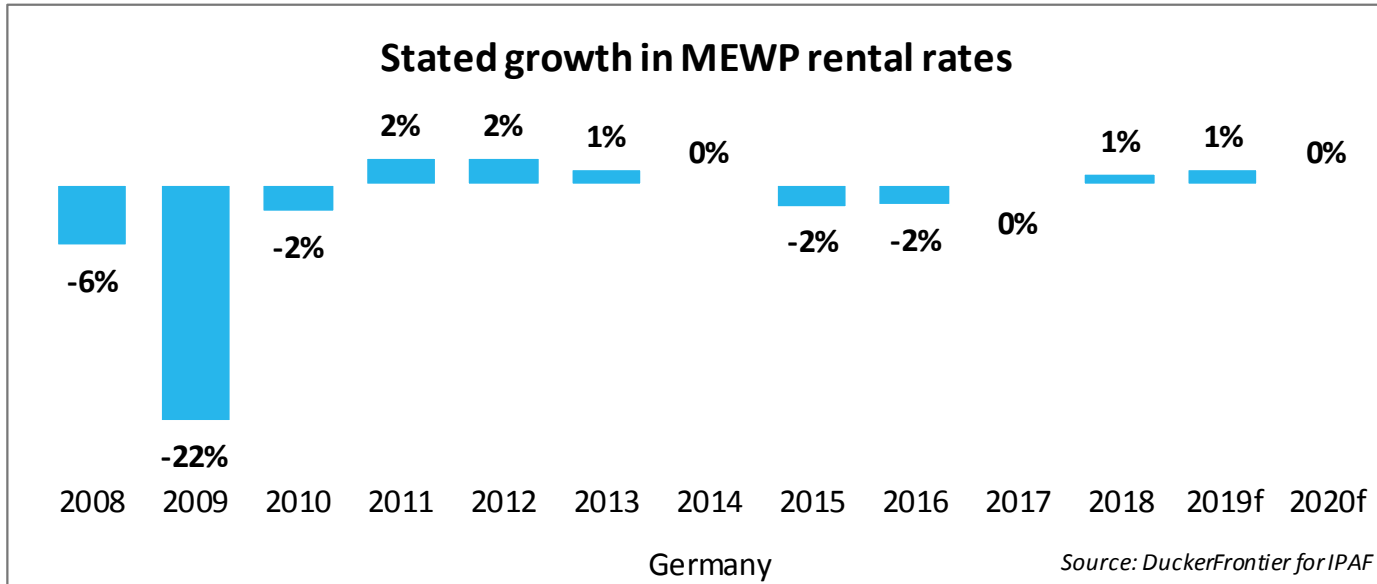
Definition: Period of time that a machine is kept in fleet = selling age if acquired new

GERMANY – RENTAL RATES



Despite fierce competition in the German MEWP rental market, rental rates have increased by 1% in 2018. This trend is forecast to continue through 2019 before a correction once the market catches up with demand.

- Favourable market conditions in Germany allowed rental companies to increase rental rates by 1%, despite competition in the country, as demand grew faster than the market could keep pace.
- In addition, MEWP rental companies' investment in electric-powered or specialist equipment allowed them to increase their rates on these in-demand machines.
- Forecasts for 2019 continue to be optimistic, with a further 1% rental rate increase predicted. Nevertheless, rental companies expect rental rates to stabilise from 2019 onwards, as competition remains fierce and the market catches up with latent demand.



**A PERSPECTIVE
FROM THE
MANAGING EDITOR
OF *INTERNATIONAL
RENTAL NEWS***

***IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – GERMANY***

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*, MURRAY POLLOK



- Germany's faltering economy may be uncharacteristic, but that doesn't mean that its access sector is in any way languishing.
- In fact, a member survey by the German trade association bbi found that the access sector grew by more than 10% in 2018 – a figure that is more than double the European Rental Association's growth estimate for the country's equipment rental market.
- Regardless of the figure, Germany's access market continues to enjoy a healthy period. Indeed, Peter Schrader, COO of Zeppelin Rentals, recently said that the rental sector was enjoying "a golden decade in the German construction industry".
- Zeppelin's own rental business, which includes a sizeable access fleet, continued to perform strongly in the first quarter of 2019 – posting 15% growth – and Schrader said at bauma in April that he was optimistic for the rest of the year.
- That positivity can be found elsewhere. System Lift, one of the big two rental alliance organisations – alongside PartnerLift – said last summer that revenues and fleet size of its members were both growing. Its members cumulatively own more than 14,000 units and invested around €60 million in 2018.
- The attractiveness of the sector has been further demonstrated by investment in access equipment by Hamburg-based HKL. Best known for its earthmoving and tool rental activities, the company began opening specialist access locations a few years ago and in 2018 that investment continued. It was an experiment when it started, and evidently has been a successful one.
- Of course, Germany is well known for its family-owned access rental companies. These still exist and thrive, but there are continuing signs that Europe's biggest rental companies are exerting a bigger influence in the market.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS, MURRAY POLLOK*



- Boels, Kiloutou, TVH and Kiloutou are all active players in Germany’s access sector, and Riwal, Mateco (owned by TVH) and Kiloutou all made German acquisitions in the past 12 months. Kiloutou added GL Verleih and Butsch & Meier, while Mateco bought Fleisch. Riwal, meanwhile, expanded in Germany with the addition of Adam GmbH, bringing two new locations to its operation.
- The activities of its two biggest rental players — HKL and Zeppelin Rental – point to the way that the German market is going. In the future, it is likely that more access businesses will be owned by general rental companies and not specialists, and that these generalists will look to go beyond pure equipment and offer additional site services and logistics.
- The “golden decade” may not be sustained, but the future of rental lies in a growing market size on the back of a broader trend towards outsourcing and ‘sharing’.

APPENDIX

IPAF POWERED ACCESS RENTAL MARKET REPORT 2019 – GERMANY

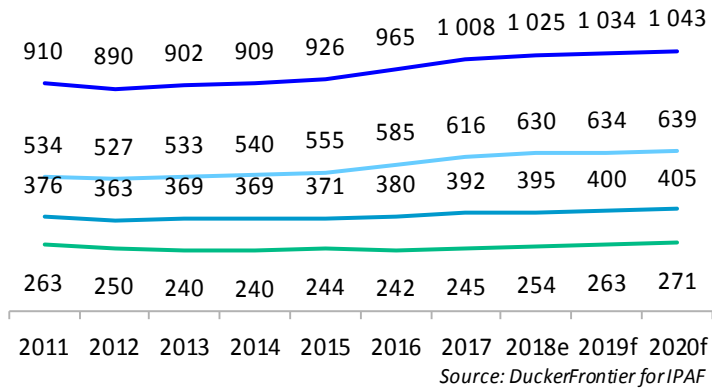
GERMANY – CONSTRUCTION STATISTICS



Macro-economic indicators evolved positively in 2018. Nevertheless, a higher level of uncertainty pervades from 2020 onwards, as construction activity is expected to flatten off or fall for the first time in a decade.

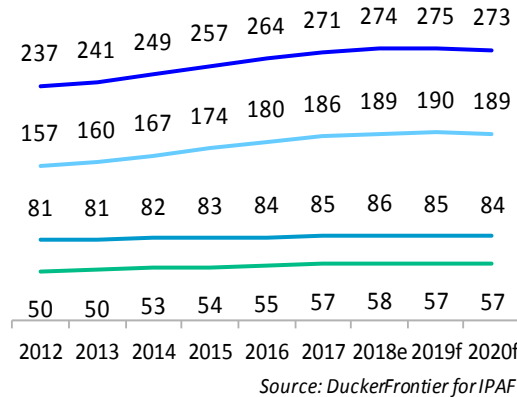
CAGR 18-20 = 0.89%

Europe – Construction data



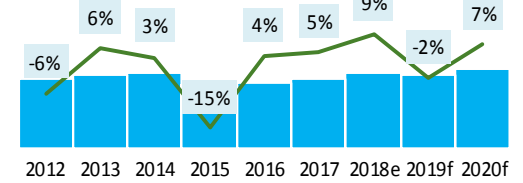
CAGR 18-20 = -0.20%

Germany



CAGR 18-20 = 2.23%

Germany



GERMANY GDP per Capita YoY % evolution

Source : FrontierView – March 2019.

Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

CAGR: Compound annual growth rate

COUNTRY REPORT – ITALY

IPAF Powered Access Rental Market Report 2019 – Europe

*Winner of a European Association Award 2018 for
Best Provision of Business Information and Intelligence*

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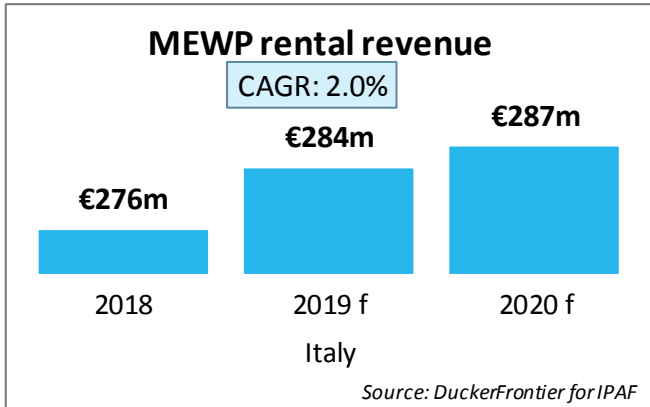
THE EUROPEAN
ASSOCIATION
AWARDS 2018

BRONZE
Best Provision of Industry
Information and Intelligence

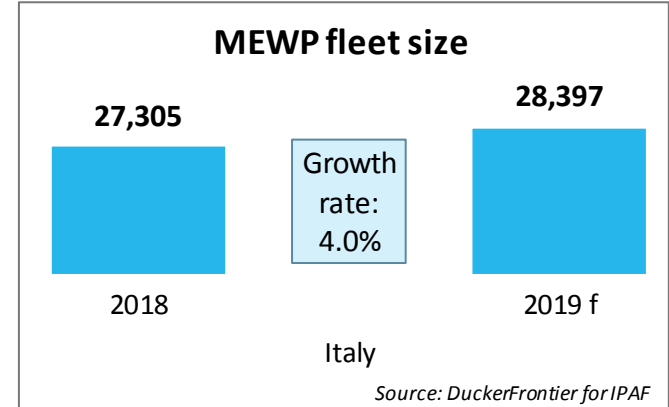
IPAF has been working with DuckerFrontier to create these exclusive industry reports since 2009, making this the tenth anniversary of our award-winning collaboration

ITALY – KEY FINDINGS

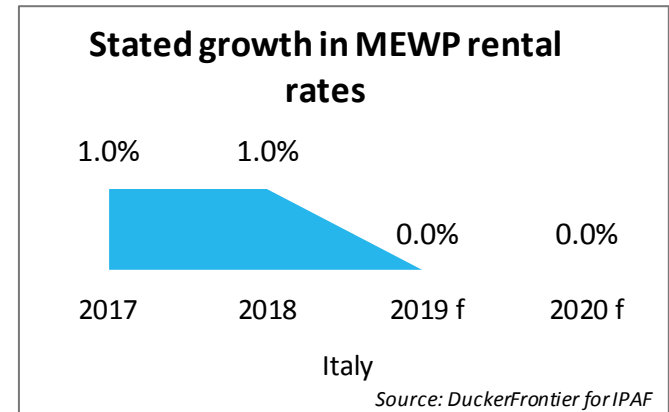
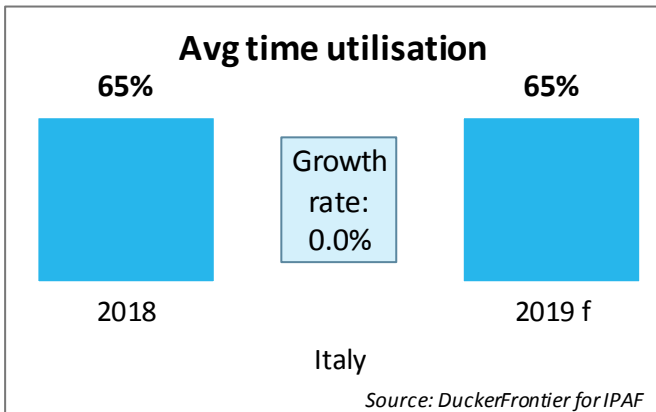
MEWP rental revenue increased in 2018 for the fourth year in a row. Optimism prevails as the market is expected to continue to grow over the next few years.



CAGR: Compound annual growth rate

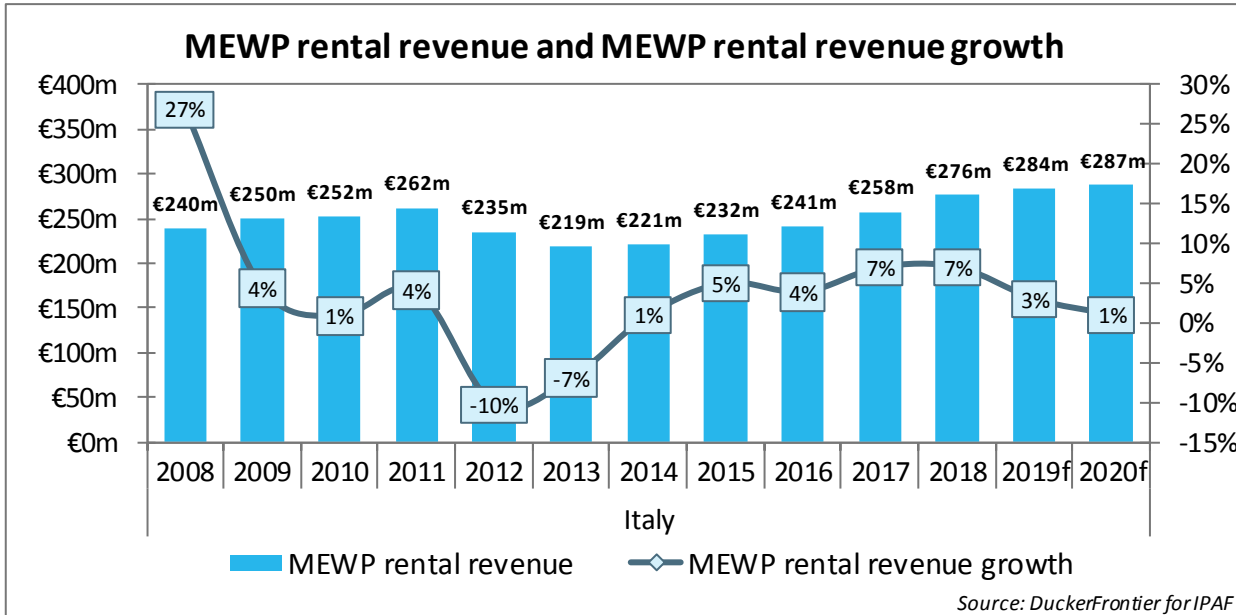


- All indicators increased in 2018 in the Italian MEWP rental market, confirming the market recovery after severe downturn: Fleet size growth and utilisation rate are the main drivers of the revenue growth.
- Rental rates also increased, however at a moderate pace. Pressure on rates is expected to become stronger in coming years.



ITALY – RENTAL MARKET VALUE AND GROWTH

In 2018, the Italian MEWP market experienced strong growth, confirming the strength of the market's recovery. The outlook for the future is positive, though increasing pressure on rental rates may slow overall growth.



- For the second year in a row the Italian market grew by 7%.
- The Italian MEWP rental business looks in good shape and is expected to continue to grow in the coming years, though the pace of growth is likely to slow.
- Italian MEWP rental revenue reached €276 million in 2018.
- The level of cross-hire increased slightly in 2018, driven by demand and some delays in machine deliveries: Larger companies were able to support smaller companies in their need for additional fleet.

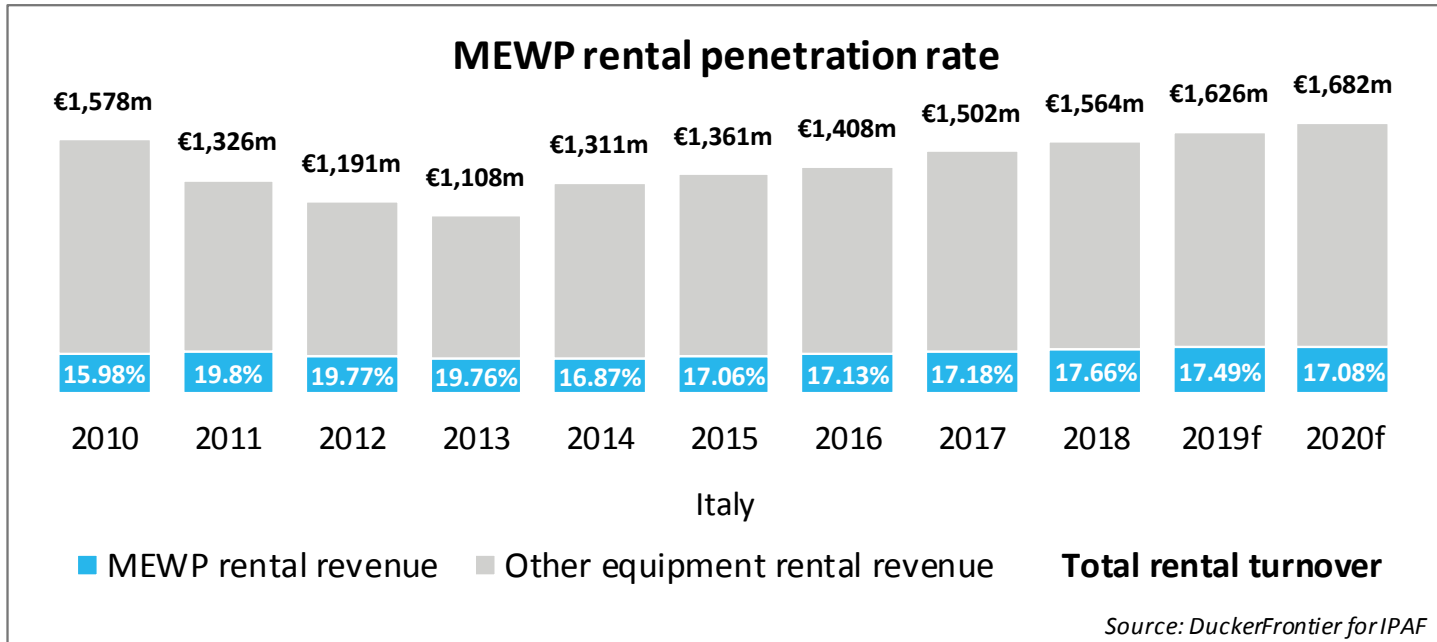


ITALY – MEWP RENTAL PENETRATION



The share of MEWP rental as a proportion of Italy’s total rental market continued to increase in 2018. It is expected to decrease slightly in 2019 and 2020.

- As forecast in the last year’s report, the MEWP rental market experienced faster growth than the overall rental market in 2018.
- Nevertheless, after a few years of slight increase, MEWP rental penetration among total rental is expected to slightly decrease.

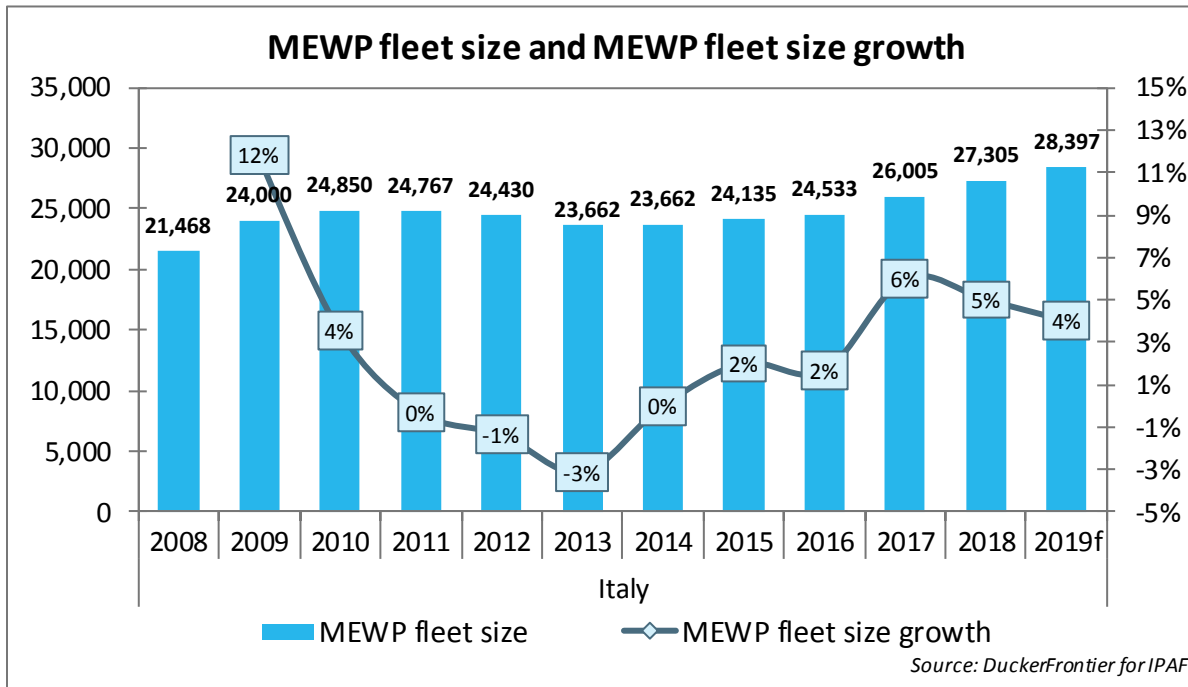


Source for total rental turnover: ERA 2018 Report.

ITALY – MARKET SIZE IN UNITS

The trend towards fleet expansion that started in 2015 continued in 2018: Italy's total MEWP fleet size gained 1,300 additional units. Italian fleet size is expected to grow further in 2019.

- Italian fleet size continued to grow by 5% in 2018 and exceeded 27,000 units.
- MEWP rental companies invested in a variety of equipment categories, and more specifically in booms.
- Growth is forecast to continue throughout 2019, with the number of units expected to reach around 28,400. An even stronger increase could be reported if manufacturers manage to improve their delivery lead times.

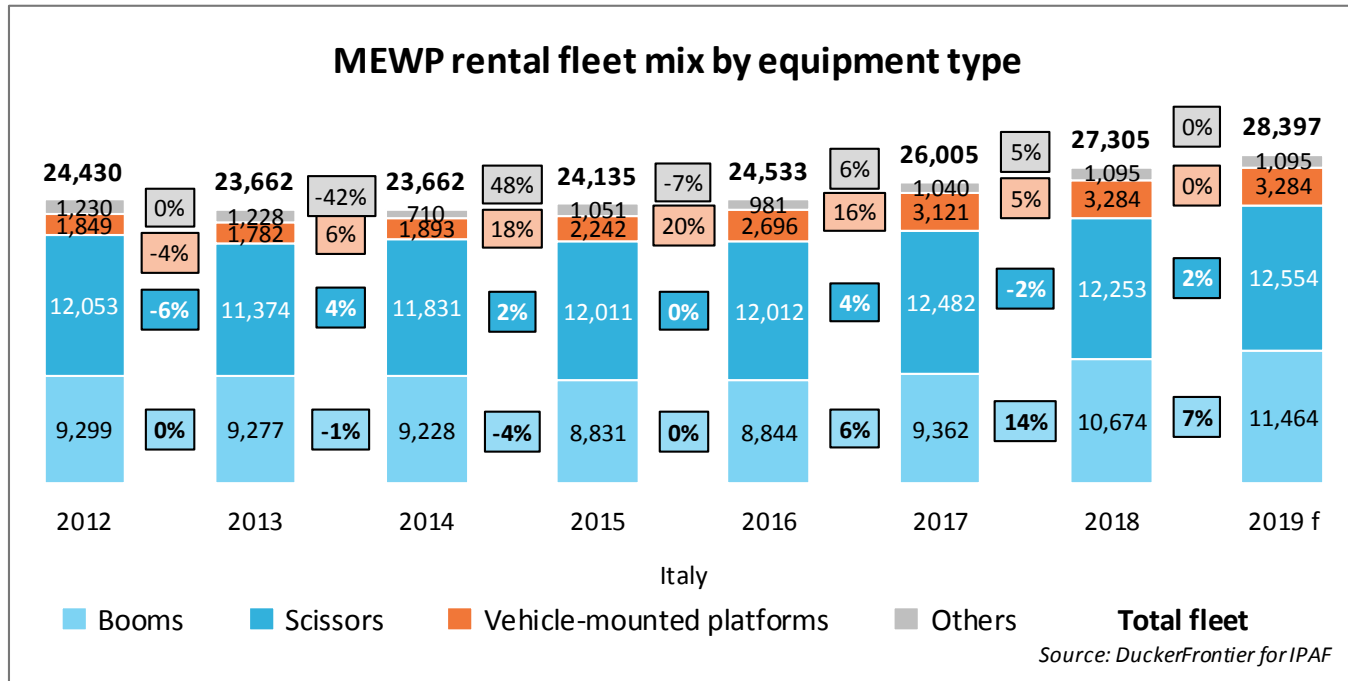


*Note: Included are powered access lifts: All booms, scissor lifts and vertical masts
Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.*

ITALY – MARKET SIZE IN UNITS

The Italian MEWP fleet mix has remained unchanged over recent years. Booms are the fastest growing MEWP category.

- Several equipment categories are reported to be increasingly requested: Booms, spider-type lifts and vehicle-mounted machines. The latter are liked due to their versatility and ease of hire.



Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.

+X%

% unit growth, eg booms increased by 14% from 2017 to 2018.
 Others include: vertical lifts, vertical masts, push-around, trailer mounted/towable.

ITALY – MARKET SIZE IN UNITS



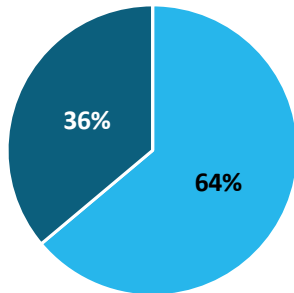
Articulated booms are the dominant equipment type in the Italian boom rental market.

Articulated booms are valued for their versatility and represent a safe and efficient equipment choice for end-users.

- Articulated booms are very much appreciated for their versatility and thus account for almost 65% of total boom fleet.
- The share of articulated booms vs straight ones remained relatively unchanged in 2018.

MEWP Boom Fleet Mix by Type – Italy – 2017

Total boom fleet
(9,362)



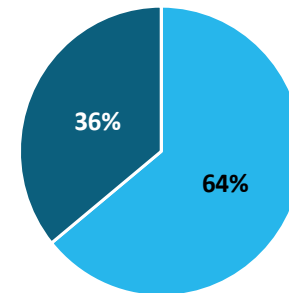
■ Articulated booms (5,981)

■ Straight booms (3,381)

Source: DuckerFrontier for IPAF

MEWP Boom Fleet Mix by Type – Italy – 2018

Total boom fleet
(10,674)



■ Articulated booms (6,842)

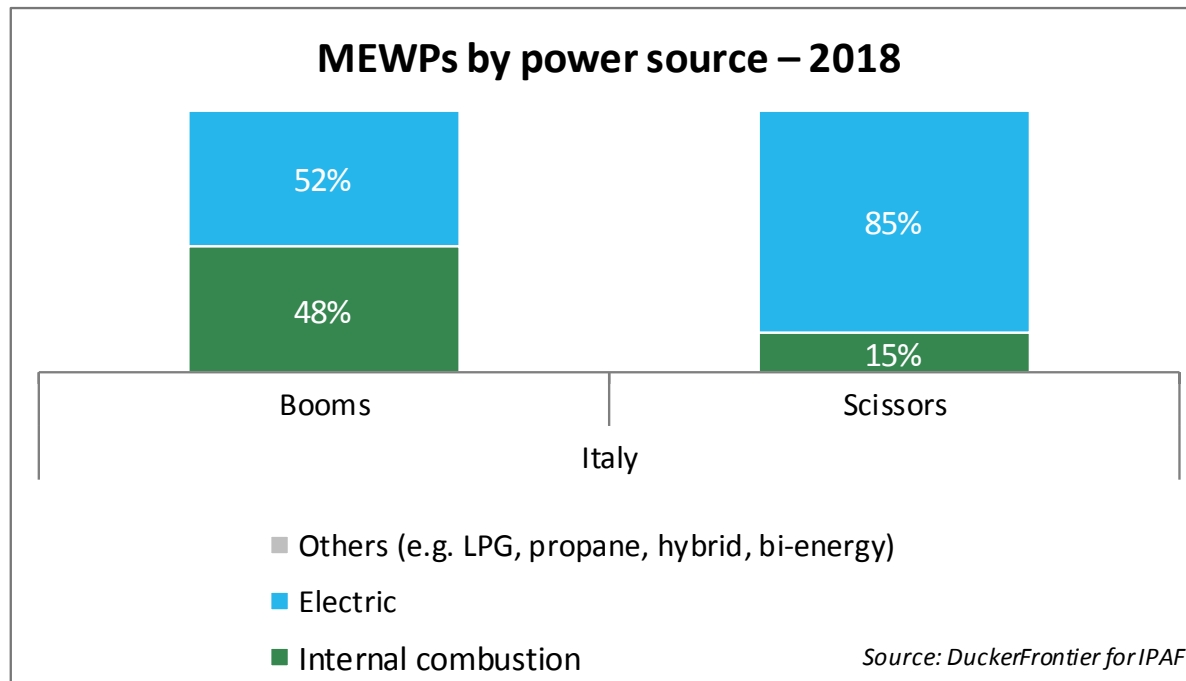
■ Straight booms (3,832)

Source: DuckerFrontier for IPAF

ITALY – POWER SOURCES

Electric power sources now dominate the Italian MEWP fleet. The share of hybrid equipment is expected to increase in the near future.

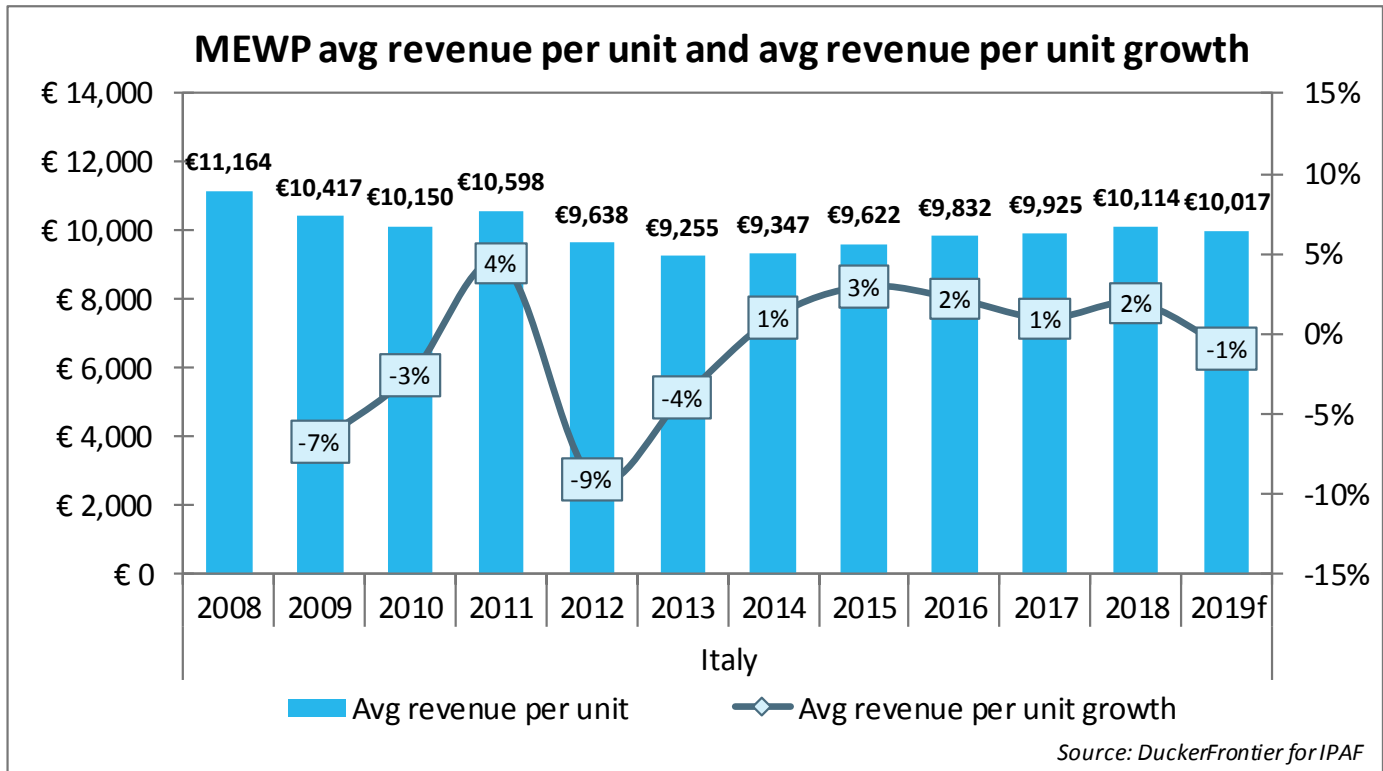
- Booms and scissors are mainly electric in Italian rental companies' fleets.
- The general trend towards more electric equipment is confirmed, though bigger machines remain predominantly powered by internal combustion.
- Although negligible currently, the share of hybrid equipment is expected to progressively increase, driven by an overall interest from the market in this power source and the promotion of hybrid technology by some local manufacturers (local spider lift manufacturer in particular).



ITALY – REVENUE PER UNIT

The average revenue per unit grew for the fifth year in a row and now exceeds €10,000 per unit.

- The combined effect of fleet expansion with the slight decrease in utilisation and rental rates should negatively impact average revenue per unit in 2019.

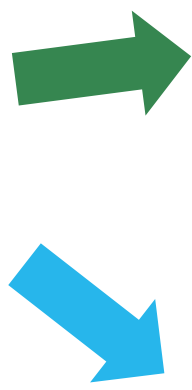
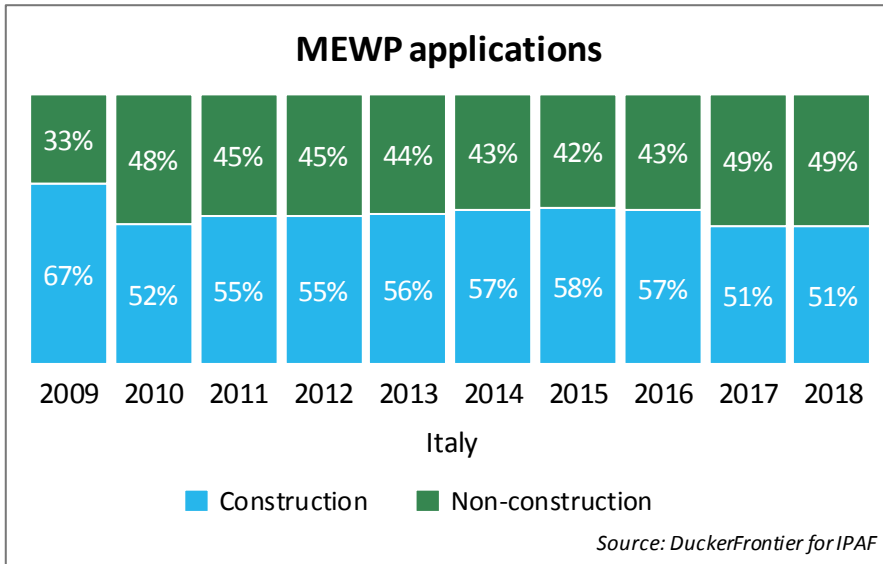


Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.

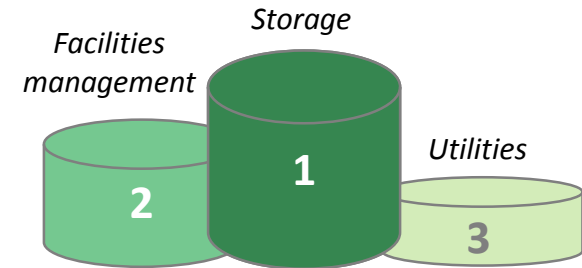
ITALY – APPLICATIONS

In Italy the share of construction sector remained stable at just over half (51%). Commercial and industrial building remained the predominant construction-sector applications

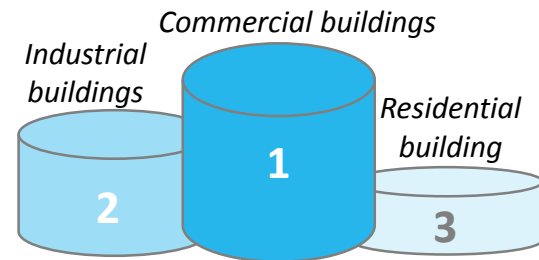
- Both commercial and industrial buildings account for the majority of the construction end-sector.
- Storage and facilities management are the main non-construction end-customers applications.



Main non-construction sub-sectors



Main construction sub-sectors



Share of rental revenues

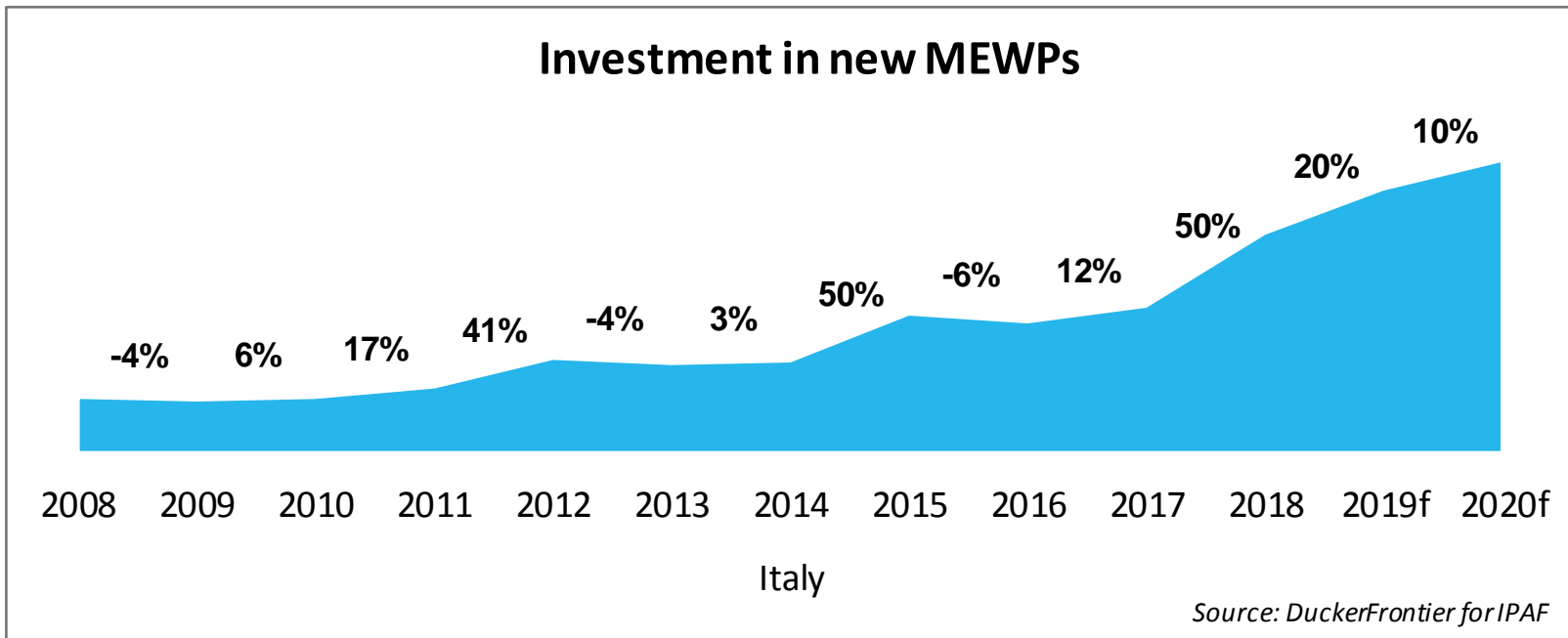
Non-construction includes industry, maintenance, cleaning, utilities, events.

Construction includes new build and renovation; including residential, commercial, retail and industrial.

ITALY – INVESTMENT

The investment level of Italian MEWP rental companies increased in 2018, driven by both fleet renewal and expansion.

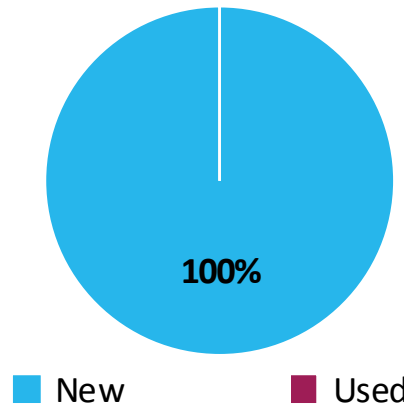
- As optimism is back in the market and MEWP rental companies perceive demand to be growing, companies are deciding to invest more heavily in new equipment purchases than in the past.



ITALY – EQUIPMENT PURCHASES

As a part of the fleet renewal and expansion strategy favouring latest electric machines, only new equipment was reported to be purchased by MEWP rental companies in Italy.

**MEWP Equipment Purchases (% of units) –
Italy – 2018**

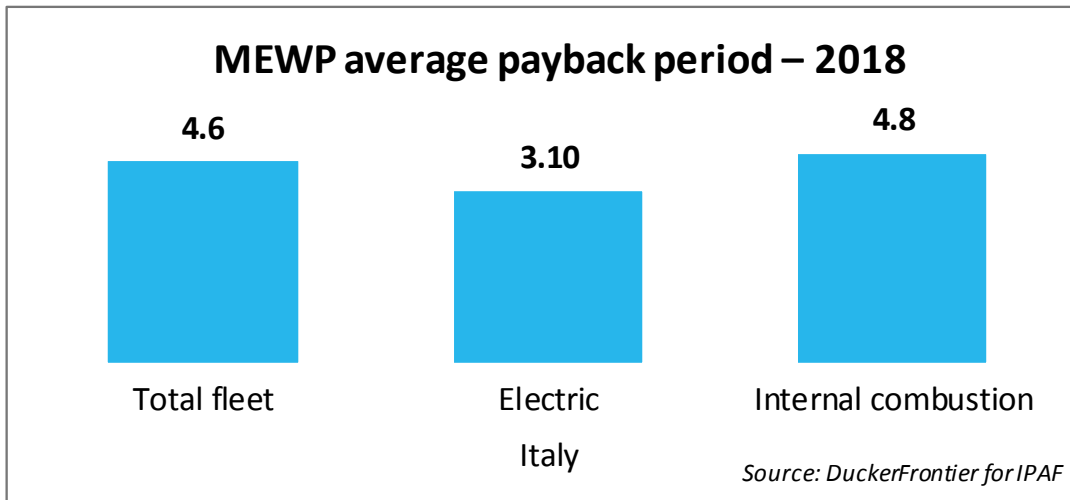


Source: DuckerFrontier for IPAF

ITALY – TYPICAL PAYBACK PERIOD

In 2018 the average payback period increased by six months compared to 2017, mainly owing to the fact that MEWP rental companies purchased more expensive machines.

- The average payback period partly depends on the power source of machine. A shorter payback period is reported for electric machines.

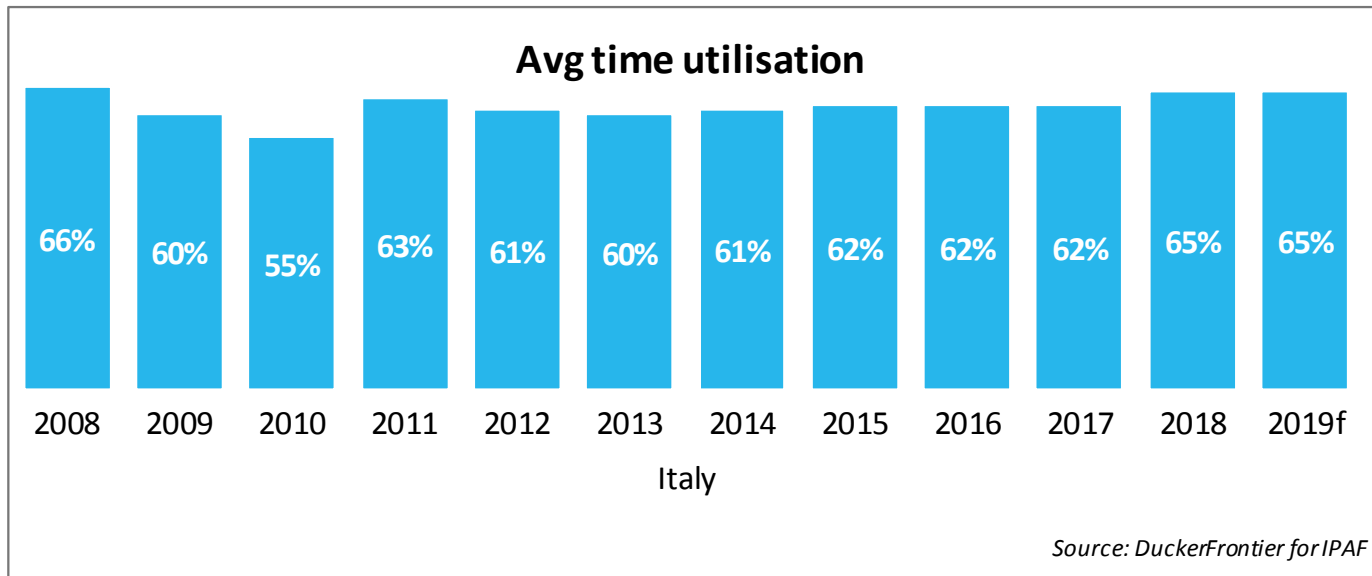


4.6 = 4 years and 6 months

ITALY – UTILISATION RATES

Utilisation rate increased by 3% in Italy in 2018 and is expected to remain stable in 2019.

- The overall positive situation of the country's economy, the growth of a fleet well adapted to customer demand and the use of telematics to make rentals more efficient, allowed rental companies to increase their utilisation rate by 3% in 2018.
- Current utilisation rate is now closer to its 2008 level.
- Scissors and booms have a similar utilisation level.



Scissors: 65%

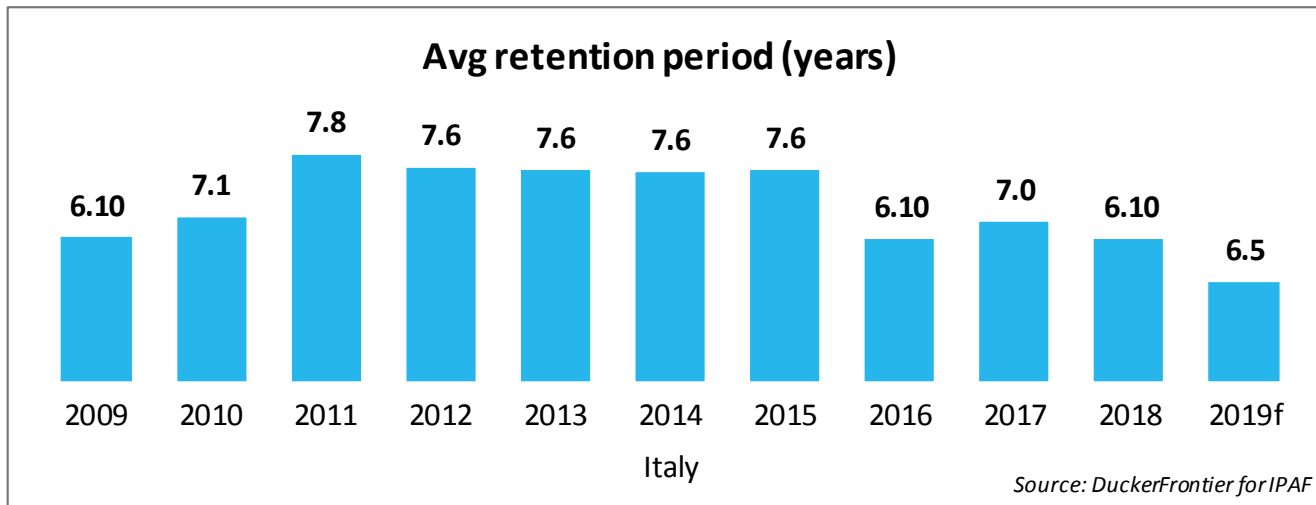
Booms: 65%

Definition: Physical number of machines out on hire as % of total number in fleet at any given time.

ITALY – RETENTION PERIOD

MEWP typical retention period has slightly decreased compared to 2017.

- As rental companies renew their fleets, typical retention periods decreased by two months in 2018.
- The average Italian MEWP retention period is expected to continue to decrease in 2019.



6.10 = 6 years and 10 months

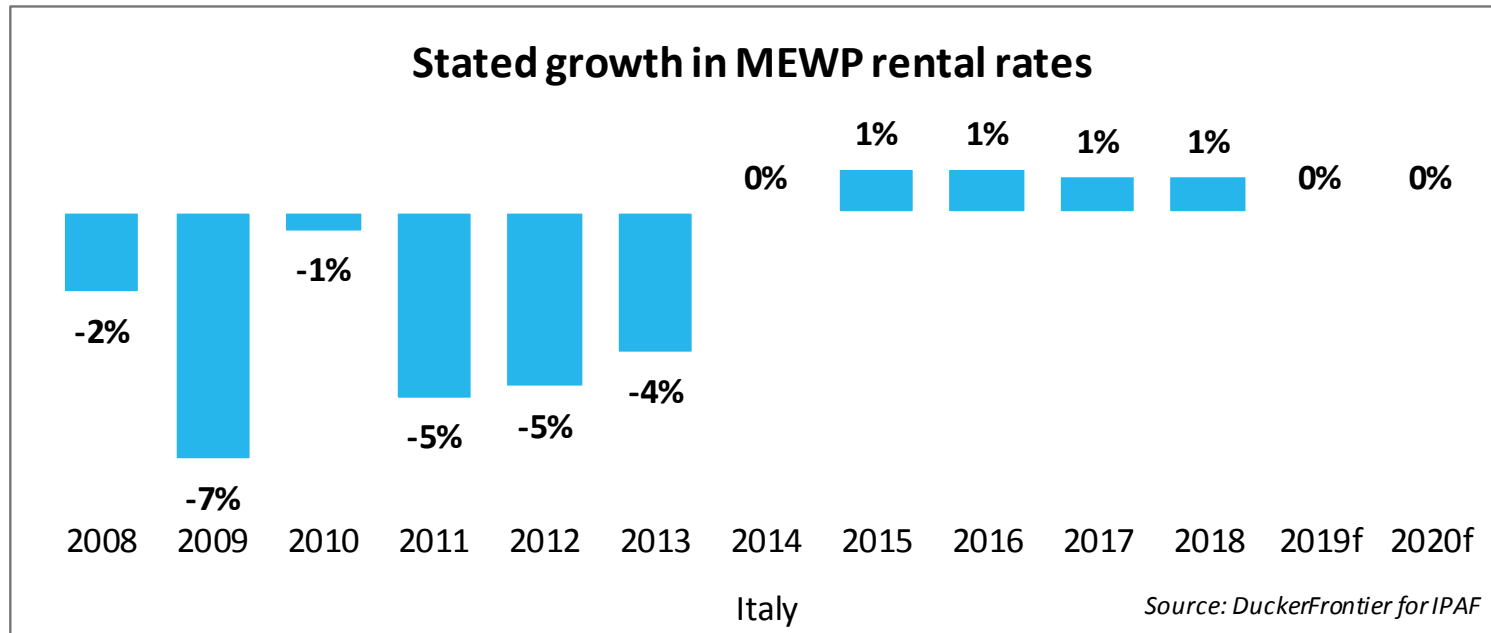
Definition: Period of time that a machine is kept in fleet = selling age if acquired new

ITALY – RENTAL RATES



In 2018, Italian MEWP companies were able to increase rates. After four year of rises, rental rates are expected to level off for the next two years. There is particularly strong competition on rental rates for scissors.

- The strong competition in the Italian rental market and the growing influence of the biggest rental companies, will likely prevent additional rental rate increases across the next two years.
- Nevertheless, an increasing usage of telematics allows rental companies to calculate their rental rates more accurately (more precise calculation of days of use) and charge the actual working time of the machine.



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- Home to perhaps the liveliest aerial platform manufacturing sector in the world – it has more than 20 access OEMs – Italy has historically been a rather isolated rental market, in the sense that foreign rental players were largely absent.
- That is changing, although slowly, and predominantly in the access sector. As is so often the case, access rental companies have provided a convenient ‘way in’ for foreign companies.
- Boels Rentals is now active in the North of the country (it has grown organically rather than through takeovers) and Loxam’s acquisition of Nacanco in 2017 was followed last year by a smaller deal to buy No.Ve., the rental business in Italy owned by Haulotte.
- Likewise, Kiloutou added Bergamo-based Elevo in 2018 after the acquisitions of Cofiloc and Euronol in the previous year. You would not bet against both French companies acquiring more companies in Italy.
- The attraction is that Italy is a major European economy, and one that has a rental market that could be described as ‘under-performing’ relative to the rest of western Europe. According to the European Rental Association (ERA), Italy’s rental penetration rate, whether measured in relation to GDP or construction activity, is among the lowest in Europe.
- It is possible that there are good reasons for this disparity in comparison with countries such as Sweden, France, the UK and Germany – with Italy’s culture of machine ownership being the obvious explanation – but it also holds the potential for prolonged and significant market growth.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*, MURRAY POLLOK



- Significant growth is certainly what the rental sector was seeing last year. The ERA estimates rental growth of around 4% this year and next, which is healthy and above average for Europe, and considerably higher than both GDP and construction. And this market report also indicates that access growth has been higher than the general rental market (see the following pages).
- There is anecdotal evidence for this in the activities of some of Italy's best-known companies. GV3 Venpa continues to expand its network, adding a depot in Turate (Como) and taking the total number up to 32 (not all under the Venpa brand).
- Mollo Noleggio, meanwhile, continues its impressive upwards trajectory, posting a 20% increase in revenues in 2018, with its rental division expanding by 25%. Growth looks set to continue in 2019, with a commitment to add 1,400 new machines to its fleet, of which 460 will be MEWPs. It opened three new locations in 2018.
- There remains a lot of uncertainty in the Italian market, not least because the overall economy is lukewarm and because there is doubt over the government's increased public spending plans announced in 2018.
- As in the UK, Italy's access sector has managed to grow despite the lack of economic visibility. It remains to be seen if it can continue to do that in 2019-20.

APPENDIX

IPAF POWERED ACCESS RENTAL MARKET REPORT 2019 – ITALY

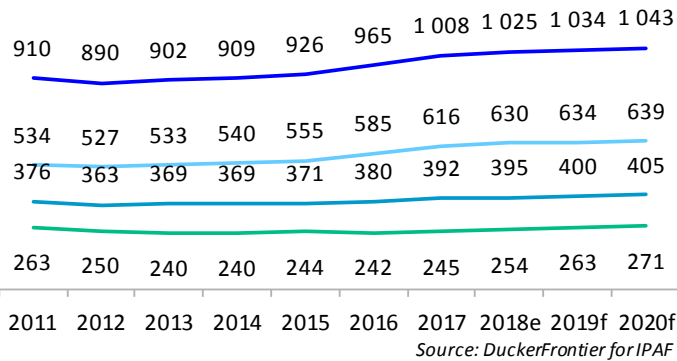
ITALY – CONSTRUCTION STATISTICS



Macro-economic indicators such as construction-sector activity and GDP per capita have steadily improved in Italy since 2015. Outlooks are positive for the next few years.

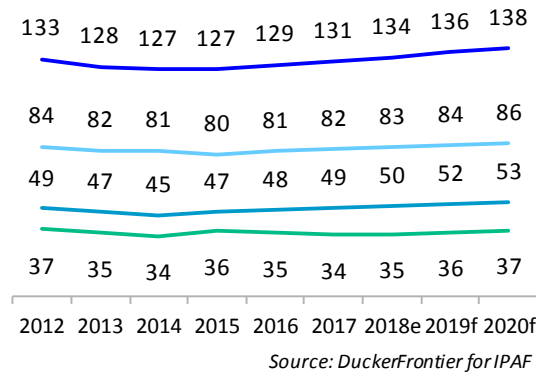
CAGR 18-20 = 0.89%

Europe – Construction data

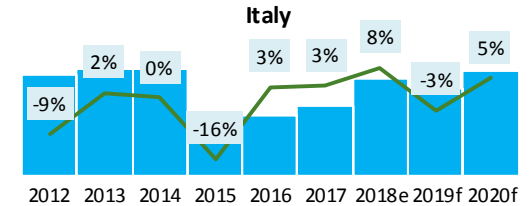


CAGR 18-20 = 1.80%

Italy



CAGR 18-20 = 1.13%



Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

ITALY GDP per Capita YoY % evolution

Source : FrontierView – March 2019.

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

CAGR: Compound annual growth rate

COUNTRY REPORT – NORDIC REGION

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**THE EUROPEAN
ASSOCIATION
AWARDS 2018**

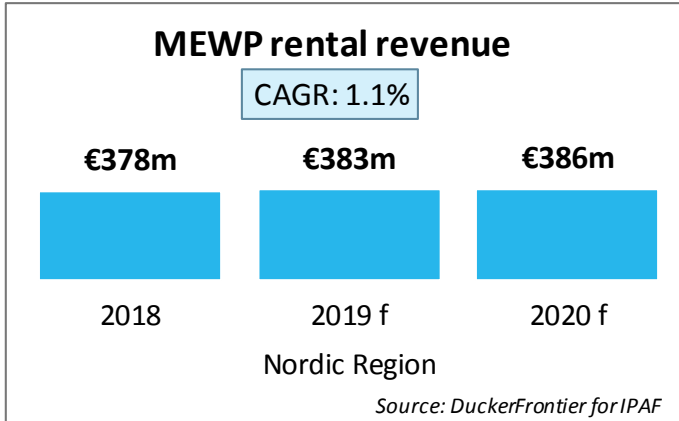
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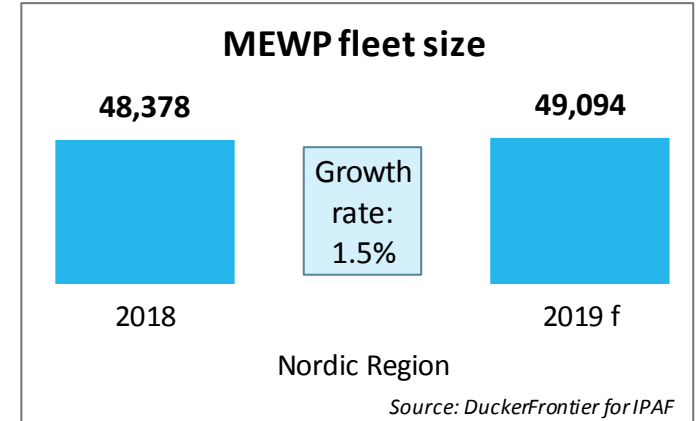
NORDIC REGION – KEY FINDINGS



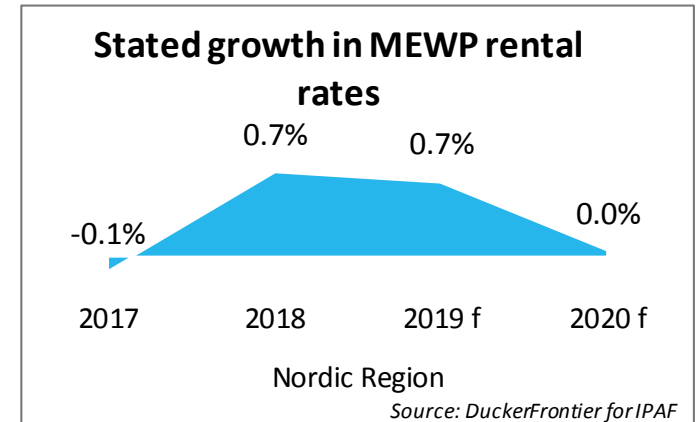
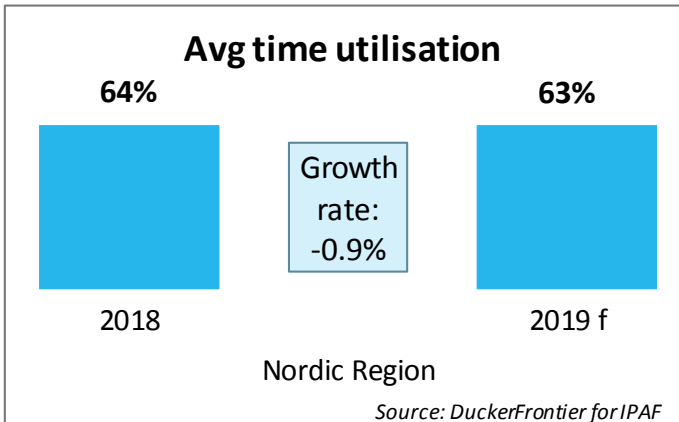
The Nordic MEWP rental market continues to grow, though at a more moderate pace than in previous years. The positive trend is expected to be maintained over the next few years.



CAGR: Compound annual growth rate



- In 2018, MEWP rental revenue grew at a similar pace in all four Nordic countries, between 2% and 3%.
- Fleet expansion was one of the main growth drivers in all countries and especially in Denmark and Norway (5%).
- Downward pressure on rates is rising: Rental companies failed to increase rental or utilisation rates in Denmark or Finland.

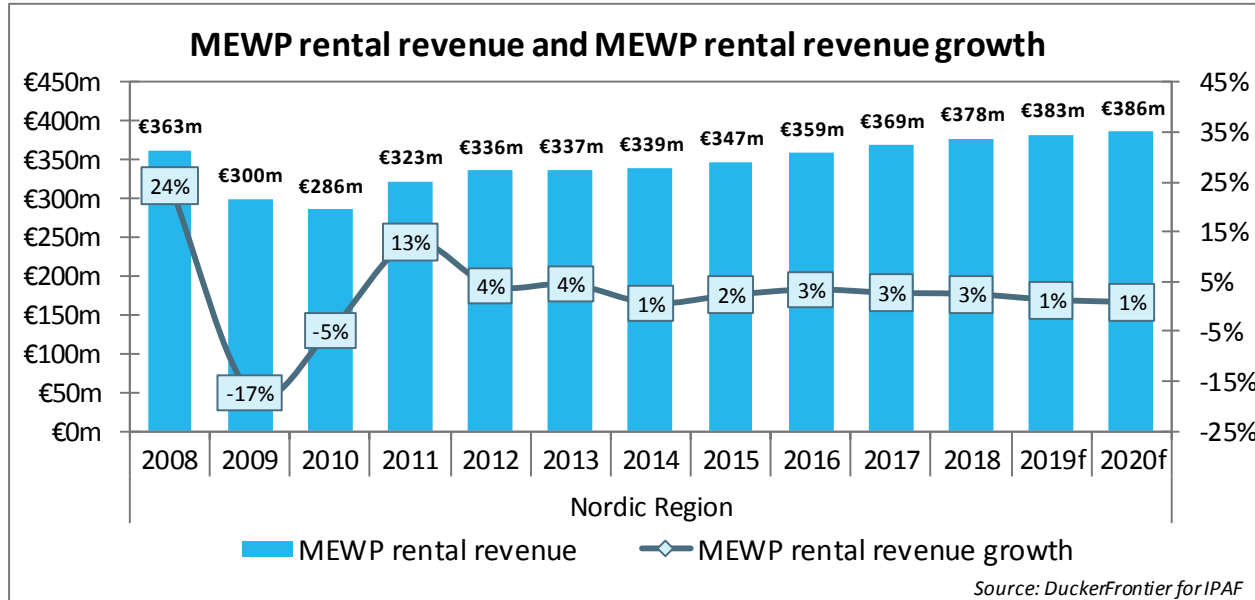


Please note that more country details are available in the Global Report

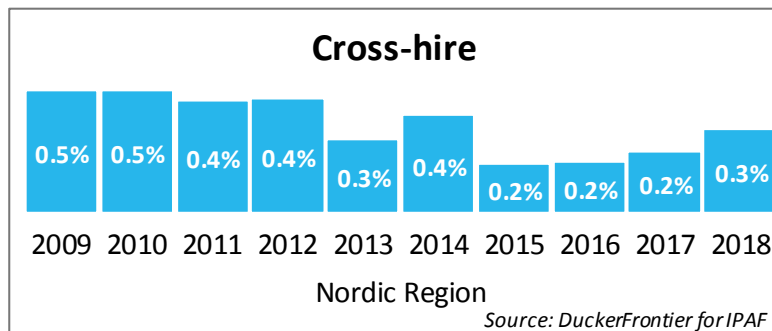
NORDIC REGION – RENTAL MARKET VALUE AND GROWTH



2018 was another good year for the Nordic MEWP rental market: Rental revenue grew fairly evenly across the four countries under study. Forecasts for the coming years are positive, though growth may slow slightly.



- Denmark recorded the lowest revenue increase in 2018 (2%), but its outlook is the most positive of the region for the next two years.
- The market in Finland continues to grow, but at a slower pace than in 2017. The market is expected to stabilise in 2019 and potentially decrease in 2020.
- The Swedish market has experienced similar growth as in 2017, but is now expected to stabilise owing to contraction in construction markets: The housing market is declining and non-residential construction is stable or slightly decreasing.
- In 2018, the level of cross-hire continued to increase and went beyond 3%.



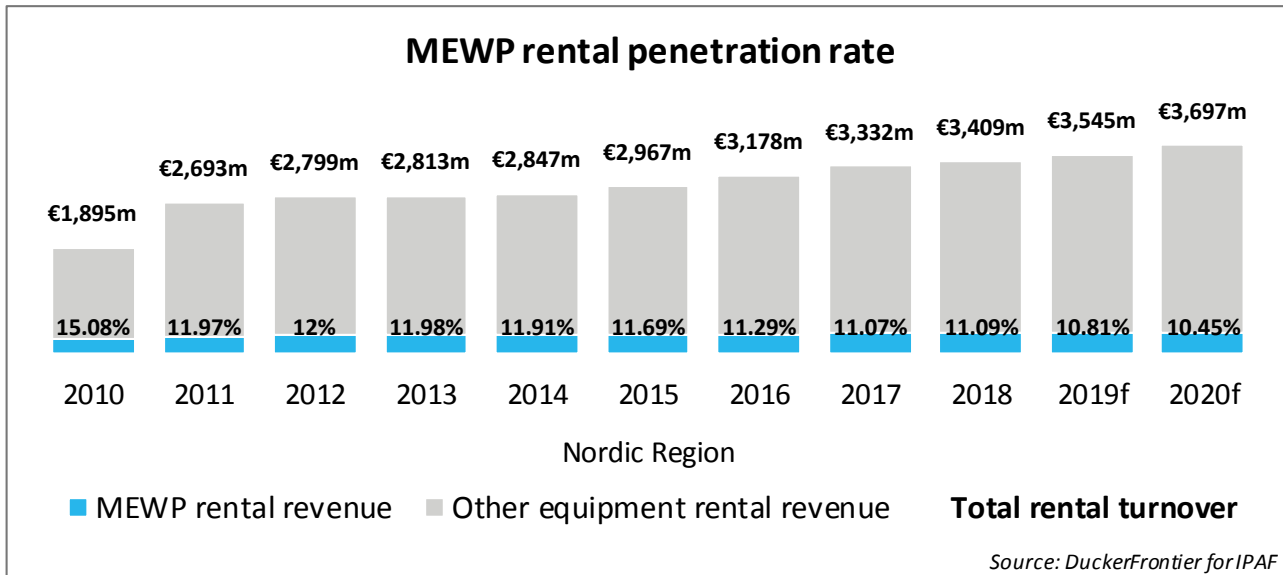
Please note that more country details are available in the Global Report

NORDIC REGION – MEWP RENTAL PENETRATION



MEWP rental penetration among the total rental market remained fairly stable in 2018, and sits slightly above 11% (source ERA). A slight decrease in MEWP rental penetration is forecast for next two years.

- Sweden continues to be the Nordic country with the lowest penetration rate (9%), while Finland and Denmark have the highest rates (respectively 16% and 14%).
- Both the MEWP rental market and the total rental market are expected to grow. However, the MEWP rental market will grow more slowly than the overall rental market. As a result MEWP rental penetration rate is expected to fall below 11% in 2019.



Source for total rental turnover: ERA 2018 Report.

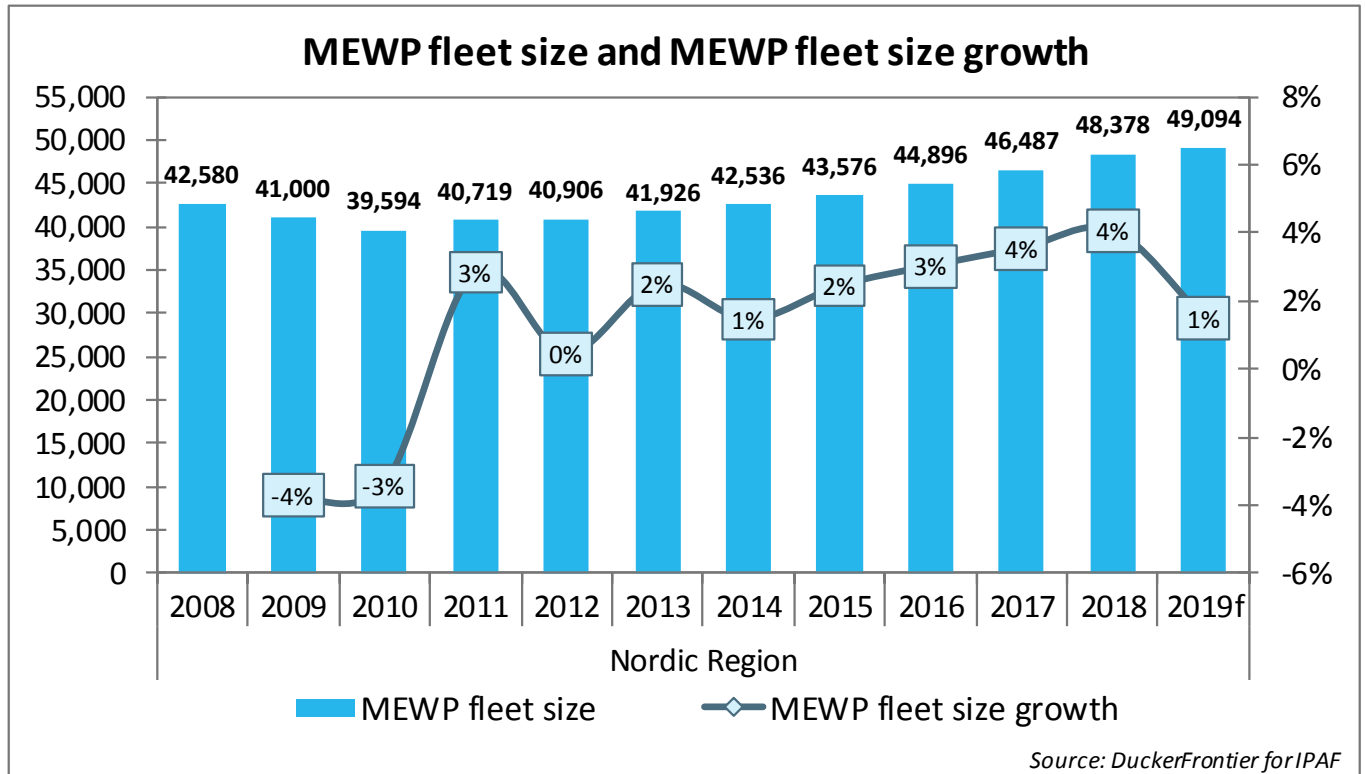
Please note that more country details are available in the Global Report

NORDIC REGION – MARKET SIZE IN UNITS



Fleet size continued to expand in 2018 across the Nordic countries and the total fleet size exceeded 48,000 units. The total number of units is expected to reach 49,000 units in 2019, with a more moderate growth rate.

- Fleet growth was the most significant in Denmark and in Norway (5%).
- In 2019, fleet size is expected to grow more strongly in Denmark (4%) than in other Nordic countries (around 1%).



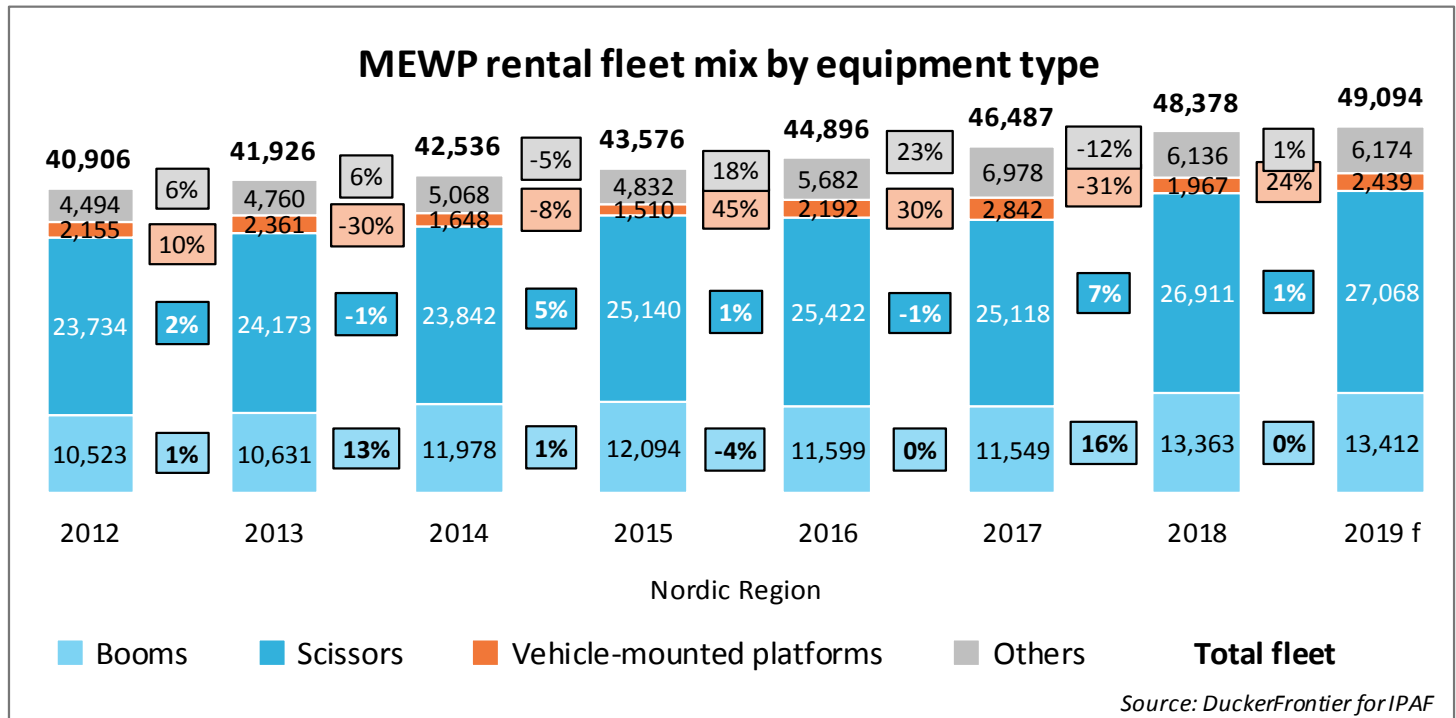
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NORDIC REGION – MARKET SIZE IN UNITS



The booms category increased as a proportion of the total MEWP fleet. Nevertheless scissors still dominate, at more than 50% share. All categories are expected to experience moderate fleet growth in 2019.

- Scissors account for the largest share of equipment, at more than 50% of the MEWP rental fleet.
- Booms saw the most significant increase in 2018: The versatility of articulated booms is subject to high user demand.
- The search for more flexible machines also had a positive impact on the proportion of vehicle-mounted platforms in the total fleet.



Note: Included are powered access lifts: all booms, scissor lifts and vertical masts.
Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.

+X% % unit growth, e.g. booms fleet increased by 16% from 2017 to 2018.

Others include: vertical lifts, vertical masts, push-around, trailer mounted/towable.

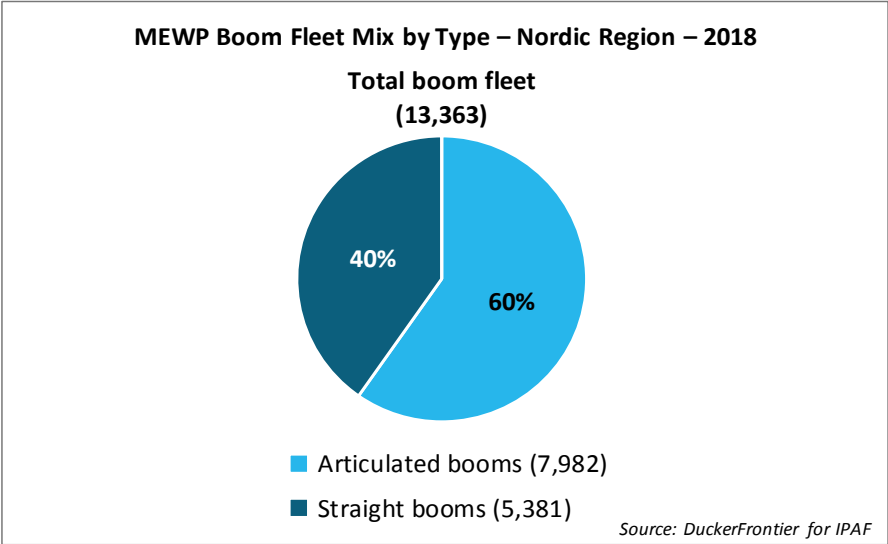
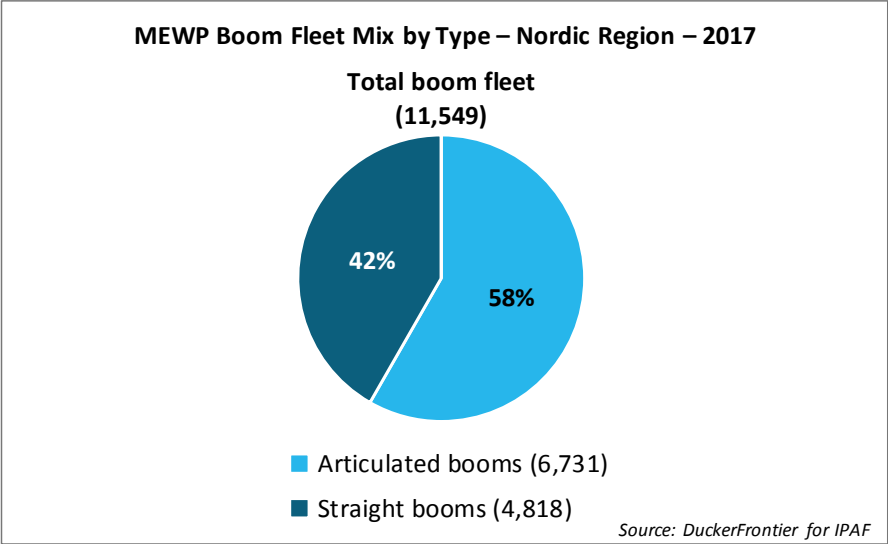
Please note that more country details are available in the Global Report

NORDIC REGION – MARKET SIZE IN UNITS



In 2018, the boom fleet in Nordic countries evolved in favour of articulated booms.

- The number of units increased for each boom category.
- Nevertheless, the search for increased versatility positively influenced the development of articulated booms, gaining shares at the expense of straight ones.



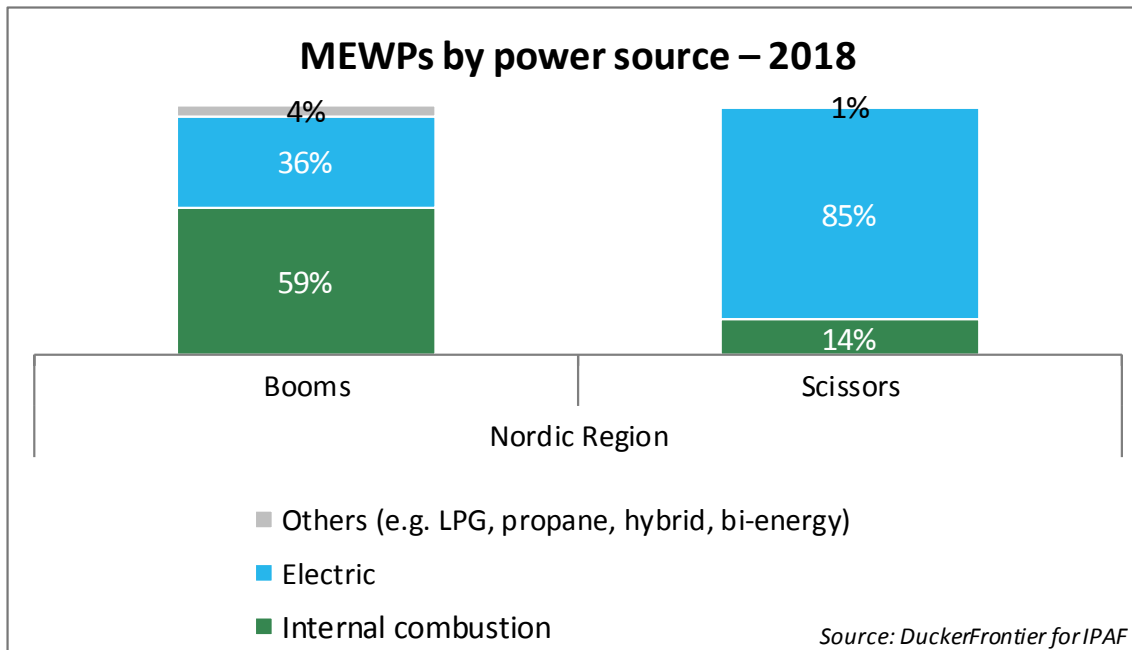
Please note that more country details are available in the Global Report

NORDIC REGION – POWER SOURCES



The scissors category is predominantly electric, while internal combustion remains the dominant power-source for booms. Nonetheless, electric and hybrid machines are increasing as a proportion of the boom fleet.

- The Nordic scissor fleet is predominantly oriented towards electric equipment.
- The portion of hybrid booms increased in 2018 as part of a growing move towards more environmental-friendly equipment.
- The boom fleet still has a majority of internal-combustion engines.



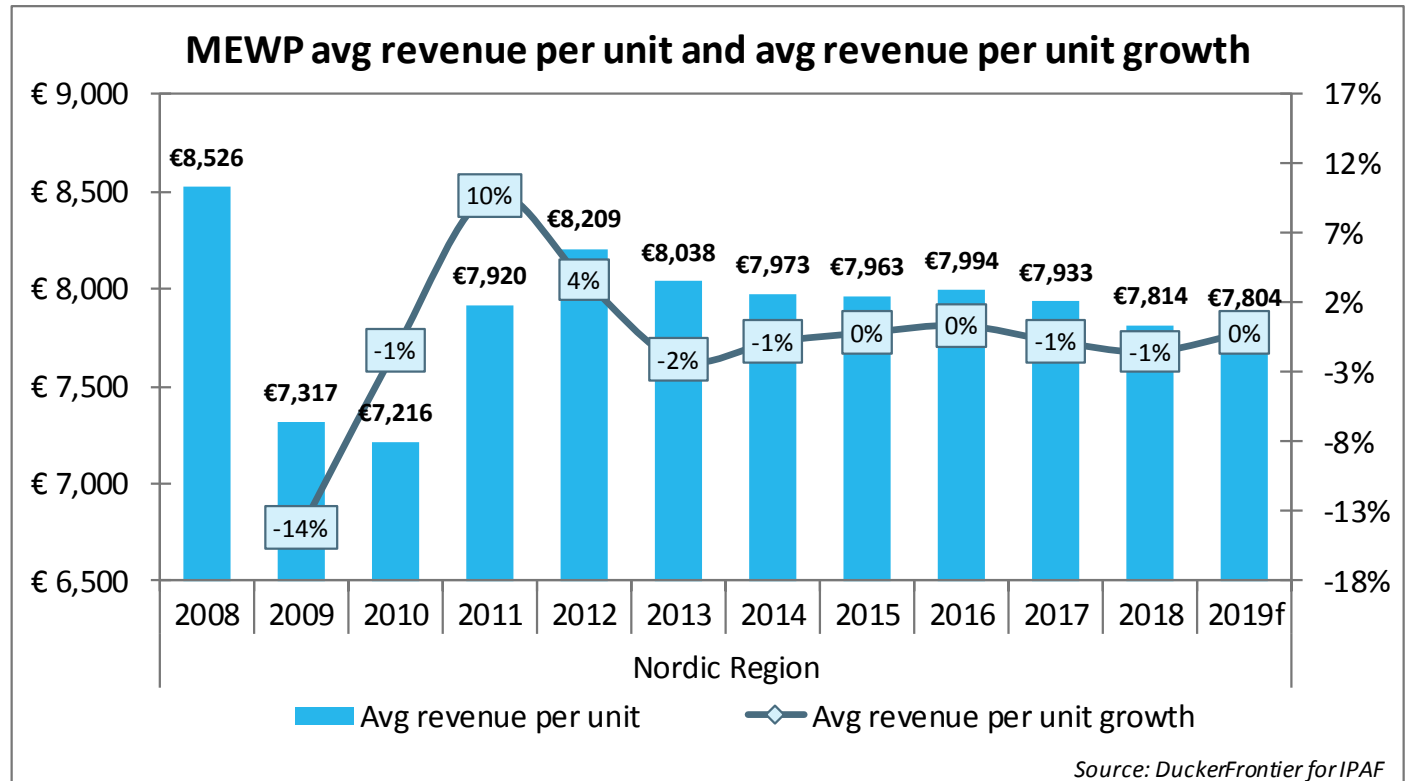
Please note that more country details are available in the Global Report

NORDIC REGION – REVENUE PER UNIT



Average revenue per unit remained stable or only slightly decreased over the past few years. It is expected to grow slightly to finish 2019 at around the €7,800 mark.

- Average revenue per unit has slightly decreased in 2018 and is expected to remain stable in 2019.
- Similar to previous years' results, the highest revenue per unit is encountered in Norway (slightly more than €8,700), while the lowest is in Finland (slightly more than €6,850).
- Only Norwegian average revenue per unit is expected to grow in 2019, fuelled by a potential rental rates increase (2%).



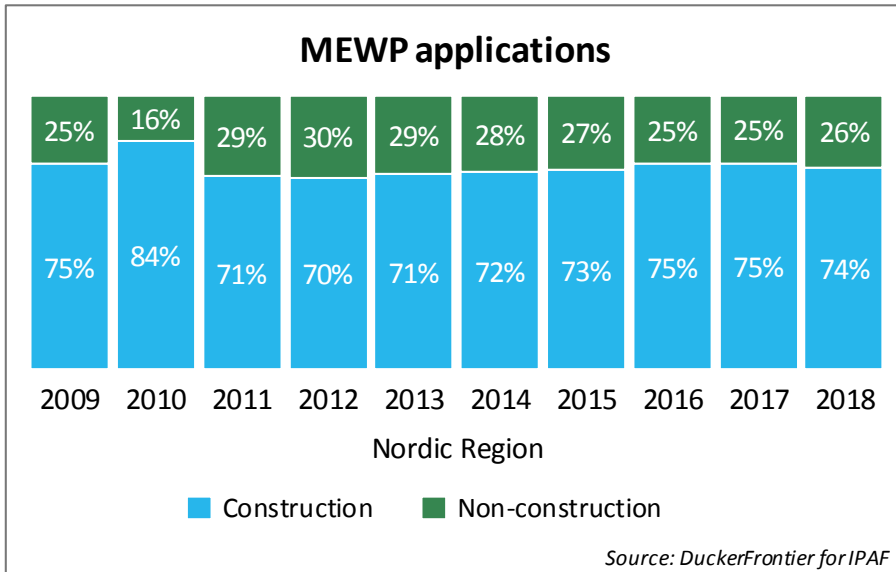
Note: Included are powered access lifts: all booms, scissor lifts and vertical masts.
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.

Please note that more country details are available in the Global Report

NORDIC REGION – APPLICATIONS

The construction sector has traditionally been very strong in the Nordic countries and remained at a similar average level to previous years in 2018.

- Finland is the only country where the share of construction end-market increased in 2018 (5%).
- Though the remaining three Nordic markets remain oriented towards construction, MEWP rental companies have started diversifying in search of new customers.

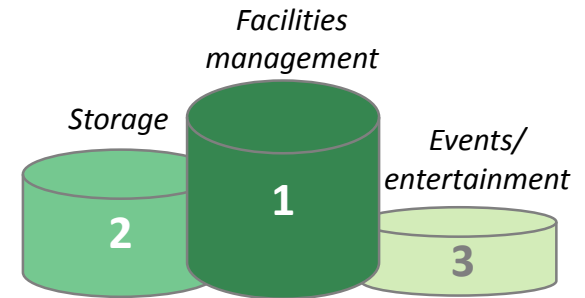


Share of rental revenues

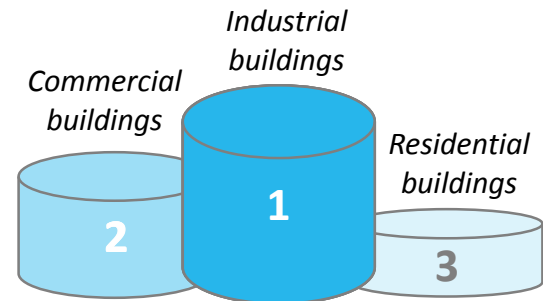
Non-construction includes industry, maintenance, cleaning, utilities, events.

Construction includes new build and renovation; including residential, commercial, retail and industrial.

Main non-construction sub-sectors



Main construction sub-sectors

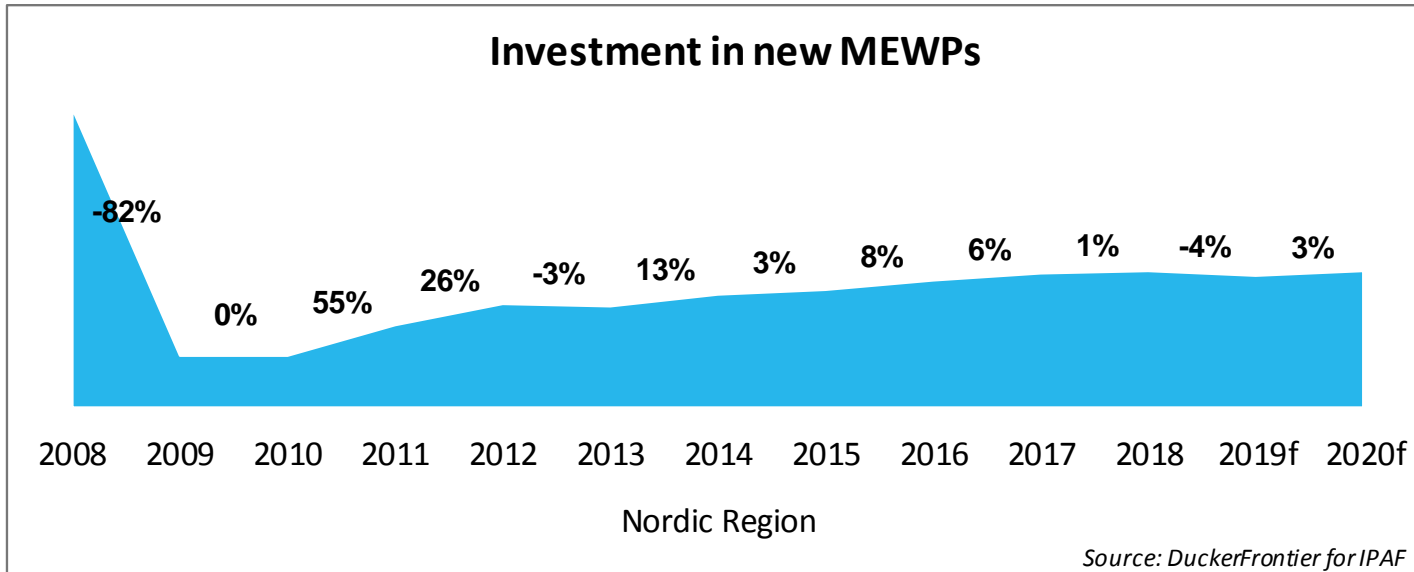


Please note that more country details are available in the Global Report

NORDIC REGION – INVESTMENT

The total amount of investments remained almost stable in 2018 and is expected to decrease in 2019.

- Total investment grew slightly in 2018 in the Nordic countries. Within this there are a variety of pictures in the individual countries under study.
- Sweden is the country where investment grew the most, at around 8%. Investment decreased in Finland (5%) and in Norway (3%). Investment remained stable in Denmark (at around 1%).
- In 2019, investment is forecast to evolve differently depending on the country: It will remain stable in Finland and Denmark, and is expected to decrease in both Norway and Sweden.



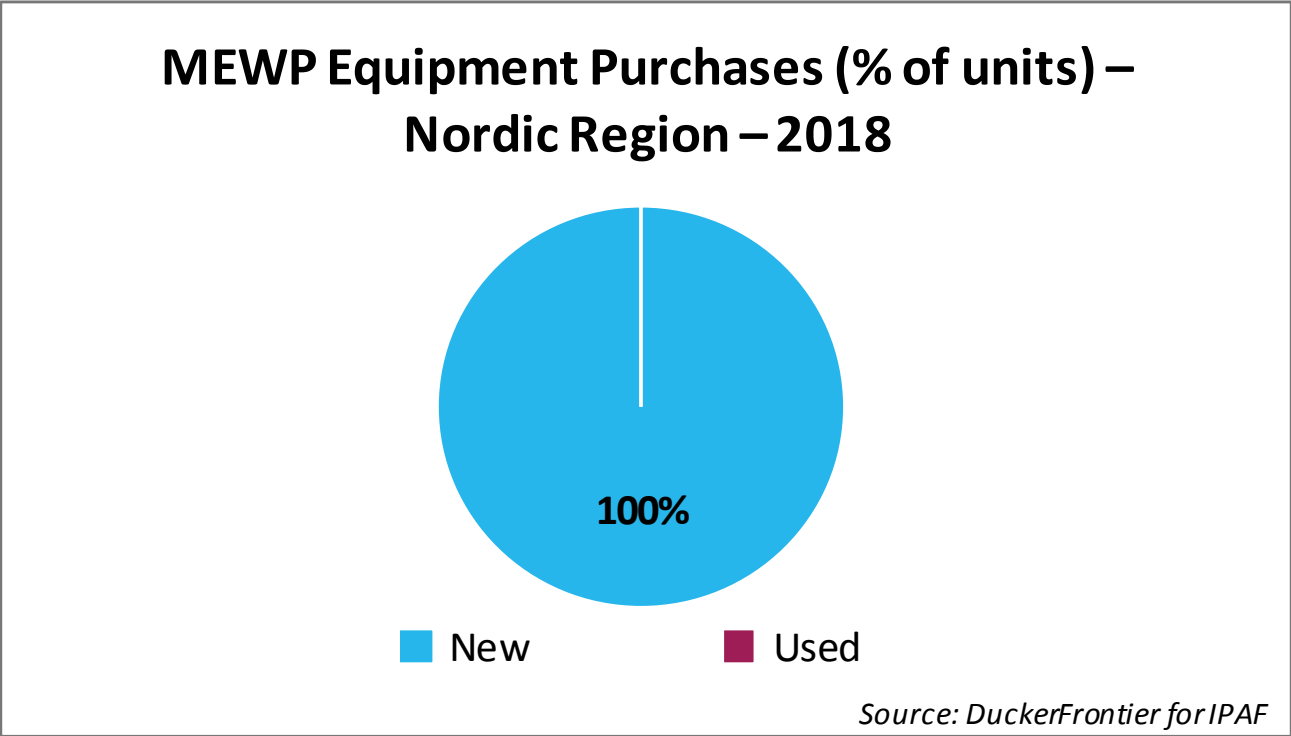
Please note that more country details are available in the Global Report

NORDIC REGION – EQUIPMENT PURCHASES



All equipment purchased by MEWP rental companies in Nordic countries is bought new.

- Similar to most European countries under study, rental companies in the Nordic region focus on purchasing new equipment only.

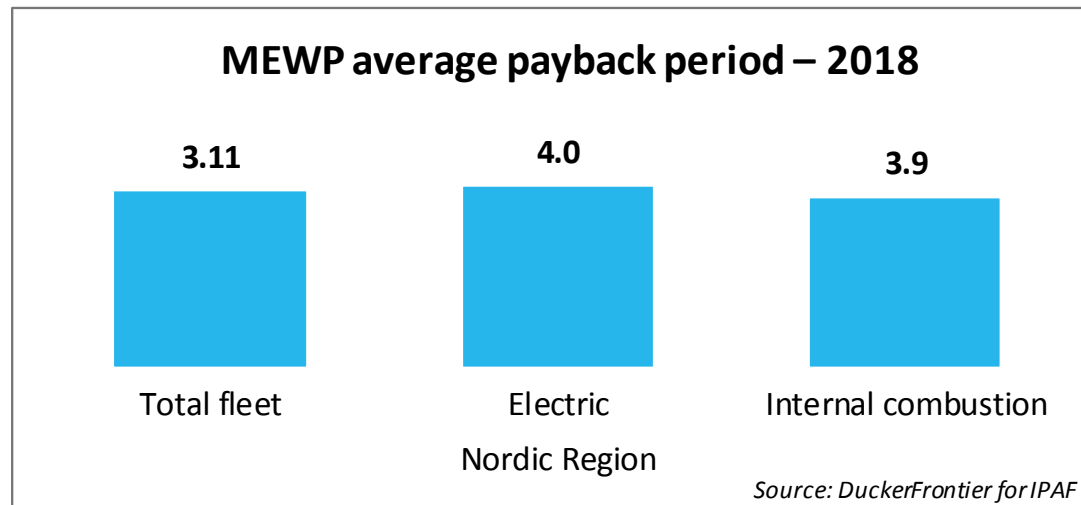


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NORDIC REGION – TYPICAL PAYBACK PERIOD

Similar to last year's average, the average payback period for MEWPs in the Nordic countries is around four years.

- The highest average payback period (almost four and a half years) is reported in Denmark, where strong competition puts rental rates under downward pressure. The shortest payback period is encountered in Finland (three years). Swedish and Norwegian rental companies reported similar payback periods of around four years.
- Bigger machines have the longer payback period, due to the greater initial investment when purchasing this kind of equipment and being less versatile than small, electric powered machines that can be used indoors and year-round.
- Electric and internal combustion powered machines have a similar payback period.



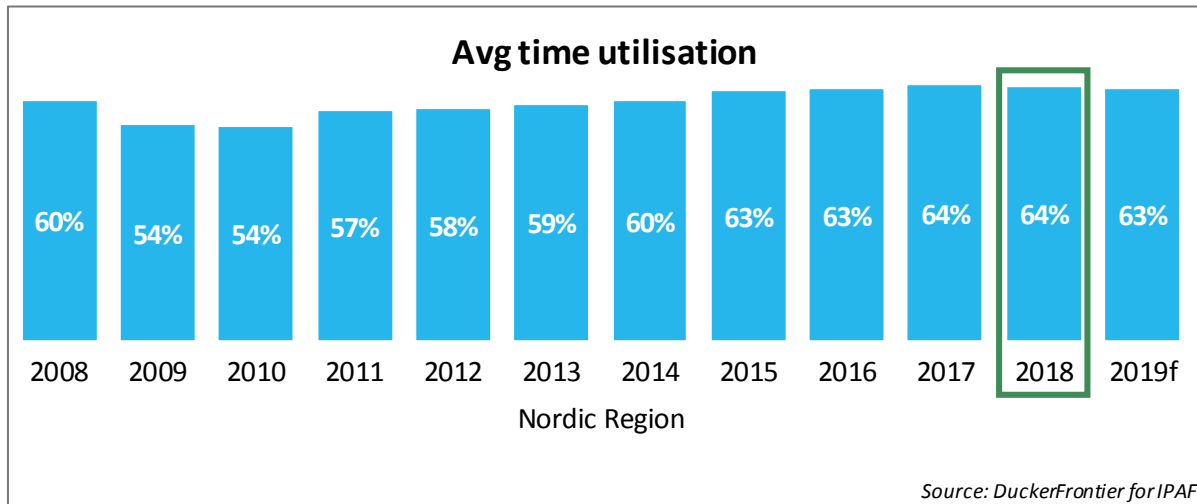
3.11 = 3 years and 11 months

Please note that more country details are available in the Global Report

NORDIC REGION – UTILISATION RATES

As forecast in last year's report, the utilisation rate in Nordic countries was maintained at 64%. It is expected to decrease slightly in 2019.

- All four Nordic countries under study had a utilisation rate of above 60%, but differences exist between the four markets.
- Finland had the lowest rate at 62%, while Norway had the highest at 65%.
- In 2019, average utilisation rate is expected to decrease slightly, driven by falls in Finland and Norway, while it is expected to remain stable in Denmark and Sweden.



Scissors: 67%

Booms: 63%

Definition: Physical number of machines out on hire as % of total number in fleet at any given time.

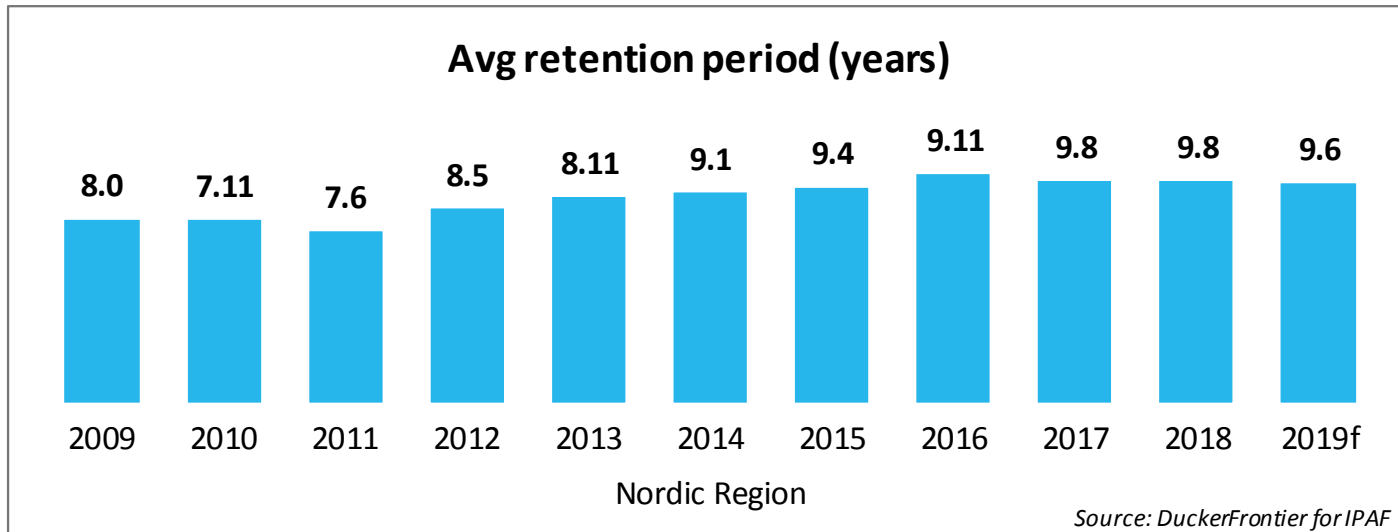
Please note that more country details are available in the Global Report

NORDIC REGION – RETENTION PERIOD



The average MEWP retention period didn't change in 2018, remaining around ten years. Retention period varies from one Nordic country to another. Denmark has the shortest period, Norway has the longest one.

- Denmark has the shortest retention period, at seven and a half years, while rental companies in Norway tend to keep their equipment longer (slightly less than 11 years).
- Retention periods in both Sweden and Finland are close to ten years.
- Only a slight overall decrease is expected in 2019.



9.8 = 9 years and 8 months

Definition: Period of time that a machine is kept in fleet = selling age if acquired new

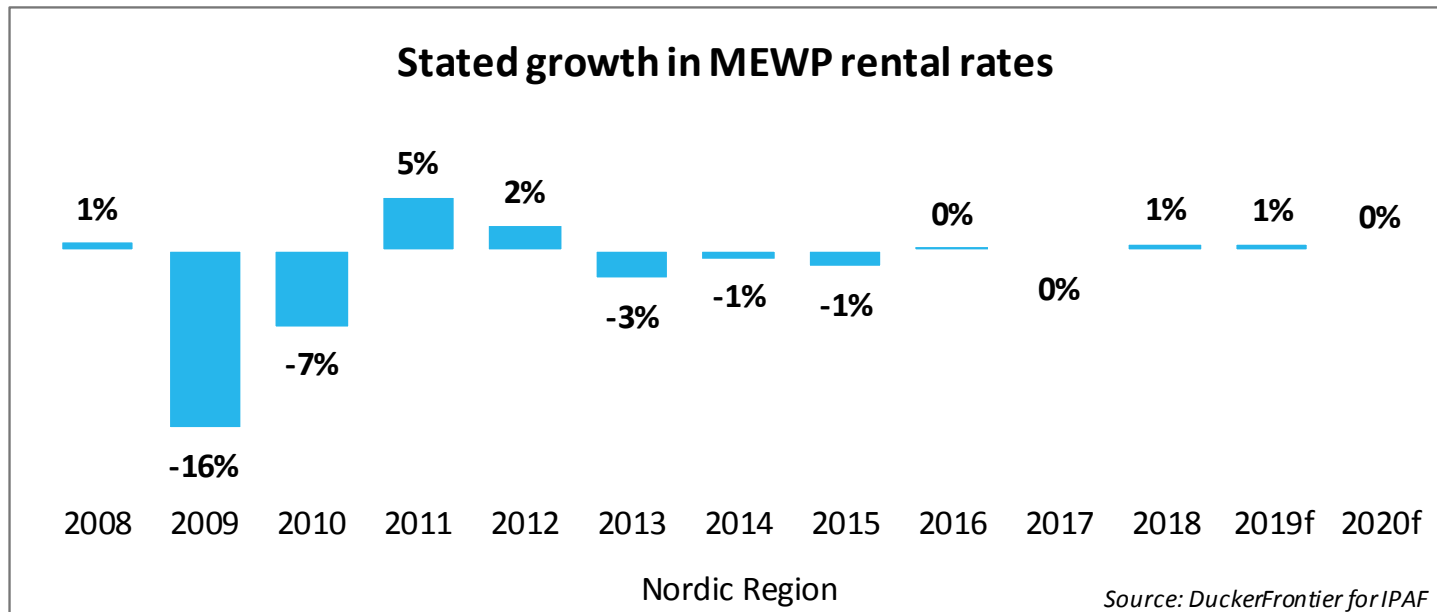
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NORDIC REGION – RENTAL RATES



After two years of relative stagnation, rental rates increased slightly in 2018. MEWP rental companies hardly managed to increase their rates further due to the fierce competition in these markets.

- Except in Norway (2%), MEWP rental companies were only able to maintain (0% in Denmark and Finland) or slightly increase rental rates (1% in Sweden) in 2018.
- Rental rates are expected to stabilise around 2020: Rental rates are expected to fall in Finland, while MEWP rental companies are forecast to increase them slightly in Norway. They should remain stable in the other two Nordic countries under study (Sweden and Denmark).



Please note that more country details are available in the Global Report

**A PERSPECTIVE
FROM THE
MANAGING EDITOR
OF *INTERNATIONAL
RENTAL NEWS***

***IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – NORDIC REGION***

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*, MURRAY POLLOK



- As befits a region that has a well-developed rental market, there was no shortage of news from Nordic players in 2018 and early 2019.
- Against a backdrop of mixed performances in the region's construction markets – with Sweden and Finland slowing down and Denmark and Norway growing – there were significant developments at several of the larger rental businesses in the region.
- Cramo made the big decision to spin off its modular space business, Adapteo, which, whether judged a strategic success over the longer term, will at least mean that it is fully focused on its equipment rental business.
- Its big Nordic rival, Ramirent, made some major decisions of its own, exiting the Danish market by selling its business to local generalist rental company GSV Materieludlejning A/S. With a fleet that includes mast climbing work platforms and more than 2,000 MEWPs, GSV will now be the major rental player in Denmark with annual revenues in excess of €160 million. (Both the big Nordic players have now left Denmark, with Cramo selling to Loxam in 2017.)
- Perhaps just as significant was Ramirent's €158 million acquisition of Stavdal, which operates in Sweden (and Norway) and had revenues of €79 million in 2018. Ramirent claims the deal makes it the number one in Sweden, which is the largest Nordic rental market and the fourth biggest in Europe.
- The region has other major players, of course. Sweden's Lambertsson, which has both general equipment and crane rental operations, posted a year of profitable growth in 2018 and with revenues of more than €220 million should really be considered as one of Europe's biggest rental businesses.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS, MURRAY POLLOK*



- And in Naboen, the €35 million revenue Norwegian business, the Nordic region has one of the fastest-growing rental businesses in Europe. It grew its revenues by 25% in 2018 and has plans to expand its current depot network of nine locations in Norway. It also aims to move into Sweden and Finland.
- Cross-country operations are not unusual in the Nordics, of course. Cramo and Ramirent are multinationals, but they are joined by Lambertsson, Naboen and the Renta Group. Renta was established in 2016 and now has 28 branches in Finland, but in Spring 2018 it made its first move outside its home market, buying Swedish rental business Ståhl & Hyr.
- Meanwhile, Denmark's G.S.V., although focused now on the integration of its newly acquired Ramirent operation, may consider moves into Sweden or even Germany.
- The region is also facing new competition from some of Europe's biggest players. Riwal recently expanded its Danish operation with the acquisition in January 2019 of AH-Lift, an access specialist with 200 machines located near Copenhagen. AH-Lift will over time be integrated with Riwal's existing operation.
- More significant, however, was the March 2019 deal to acquire Swedish access specialist Liftar, a business with a fleet of 1,000 units. That will greatly expand Riwal's existing business in the country. At the time of the acquisition, Riwal said that Sweden was one of its key target countries, so watch this space.
- So, the Nordics has a dynamic rental scene, which coupled with its relative maturity means it is also highly competitive. DuckerFrontier thinks growth will be in the under 5% range in 2019, while the ERA's forecasts for the four countries is similarly 'average' on the European scale. Average in terms of growth, maybe, but not by any other measure.

APPENDIX

IPAF POWERED ACCESS RENTAL MARKET REPORT 2019 – NORDICS

NORDIC REGION – EXCHANGE RATES



The currency exchange rate used for the Nordic region is shown below. The same rate has been used throughout 2018 in order to eliminate variation in growth rates due to exchange rate fluctuations.

	Currency Unit	Converter to Euro
Denmark	DKK 1	0.134
Norway	NOK 1	0.102
Sweden	SEK 1	0.095

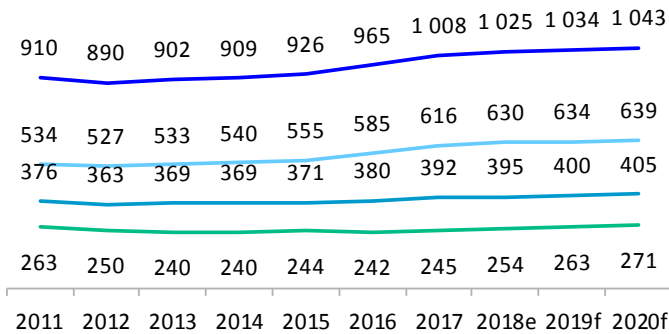
NORDIC REGION – CONSTRUCTION STATISTICS



Nordic countries will experience contrasting growth in their construction sector in the next few years. A fall is expected in Sweden in 2019-2020. After flat-lining in 2019, Norway's will return to moderate growth in 2020.

CAGR 18-20 = 0.89%

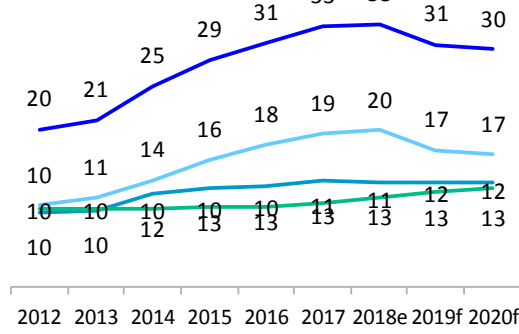
Europe – Construction data



Source: DuckerFrontier for IPAF

CAGR 18-20 = -4.87%

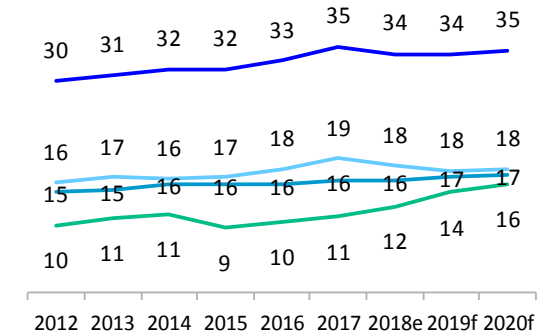
Sweden



Source: DuckerFrontier for IPAF

CAGR 18-20 = 0.68 %

Norway



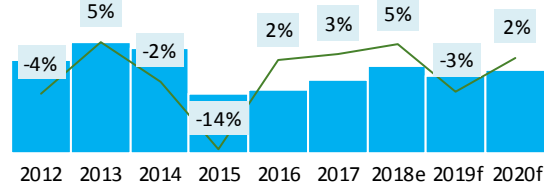
Source: DuckerFrontier for IPAF

Construction pipeline (billions euros)
based on Euroconstruct 2018 figures.

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

CAGR 18-20 = -0,54%

Sweden

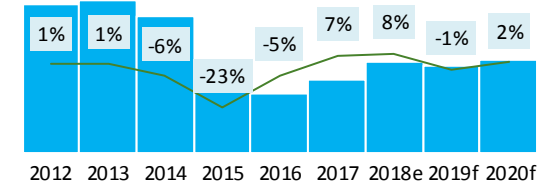


NORDIC REGION GDP per Capita YoY % evolution

Source : FrontierView – March 2019.

CAGR 18-20 = 0,40%

Norway



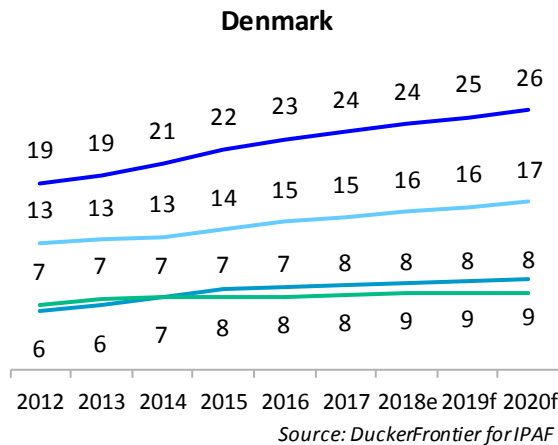
CAGR: Compound annual growth rate

NORDIC REGION – CONSTRUCTION STATISTICS



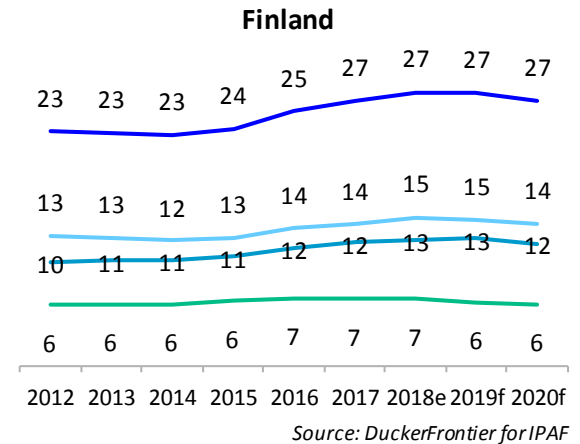
Denmark is the Nordic country with the strongest expected growth. Conversely, Finland will experience a slight downturn after three years of moderate growth in the construction sector.

CAGR 18-20 = 2.83%

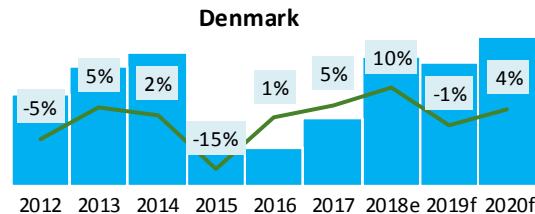


- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

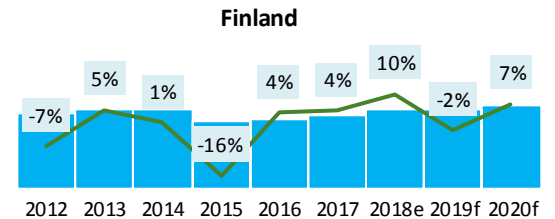
CAGR 18-20 = -1.69%



CAGR 18-20 = 1.35%



CAGR 18-20 = 2.37%



Construction pipeline (billions euros)
based on Euroconstruct 2018 figures.

NORDIC REGION GDP per Capita YoY % evolution

Source : FrontierView – March 2019.

CAGR: Compound annual growth rate

COUNTRY REPORT – SPAIN

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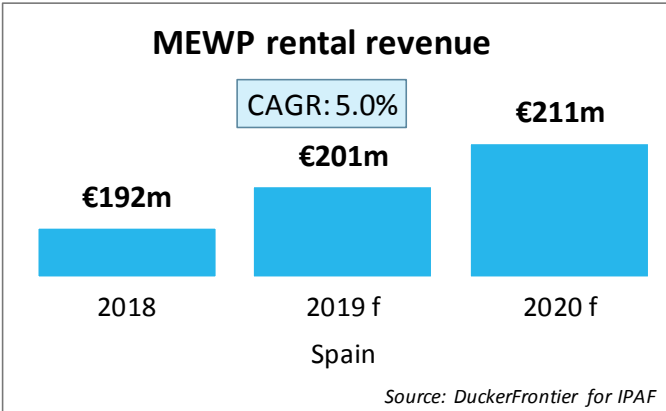
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SPAIN – KEY FINDINGS

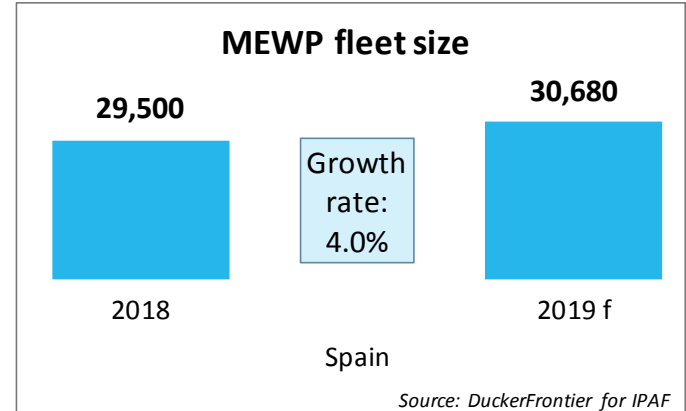
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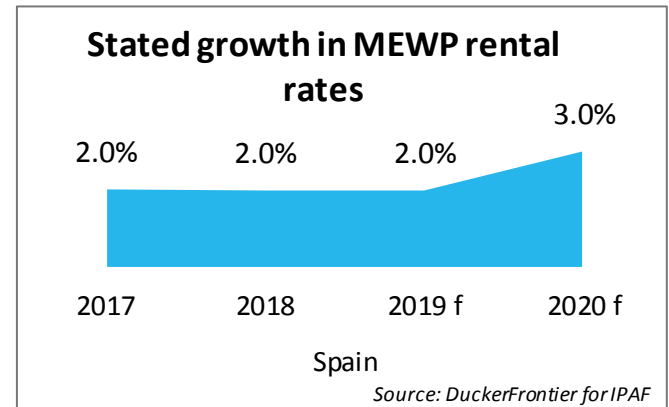
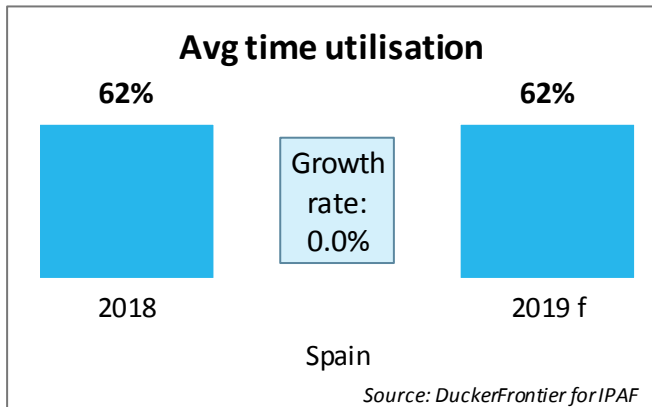
The Spanish MEWP rental market continues to grow and all indicators are positive. Outlook for 2019 is positive, though growth may be more moderate due to the wait-and-see attitude during an election year.



CAGR: Compound annual growth rate



- All key indicators increased in 2018 in the Spanish MEWP rental market, highlighting the ongoing robust health of the market and the sustained recovery since the downturn.
- Nevertheless, growth is expected to slow in 2019 due to the relative uncertainty associated with national elections and possible change of government period.



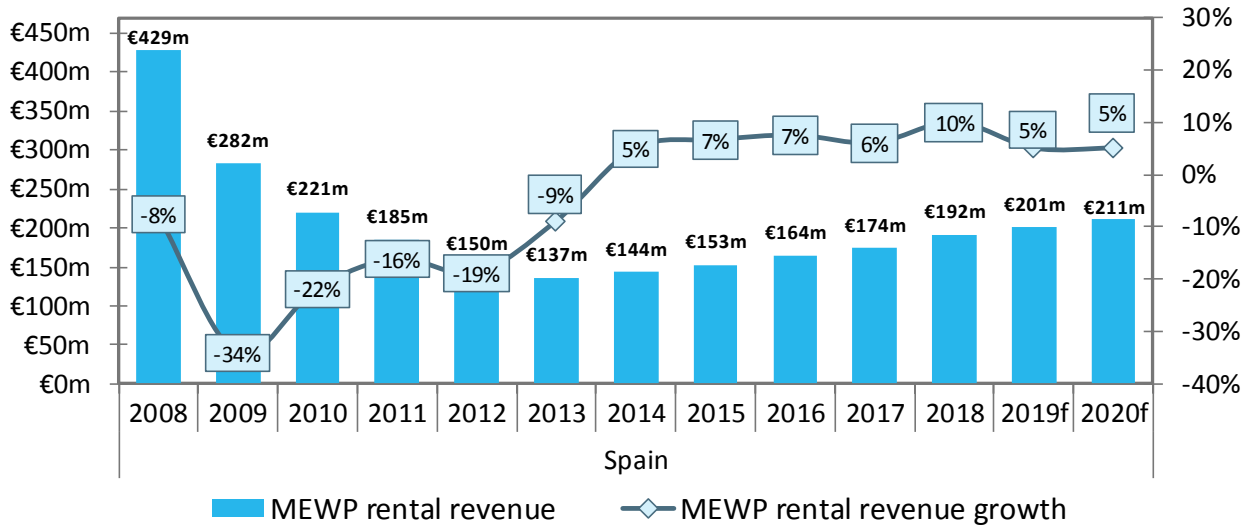
SPAIN – RENTAL MARKET VALUE AND GROWTH

Revised



The Spanish MEWP rental market value grew by 10% in 2018, continuing the recovery that started in 2014. Forecasts for future years are positive and annual growth of around 5% is expected through 2019 and beyond.

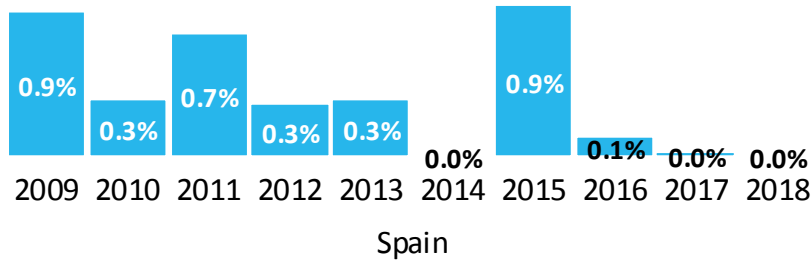
MEWP rental revenue and MEWP rental revenue growth



Source: DuckerFrontier for IPAF

- 2018 was another good year for the Spanish MEWP rental market, with double-digit revenue growth. This positive trend is expected to continue over the coming years.
- Spanish MEWP rental revenue reached €192 million in 2018.
- The annual growth rate is expected to be at or around the 5% level in future years. A decisive and positive outcome in the 2019 national election could be an additional boost to growth.

Cross-hire



Source: DuckerFrontier for IPAF

- In 2018, the level of cross-hire was at 0.2%, similar to 2017.

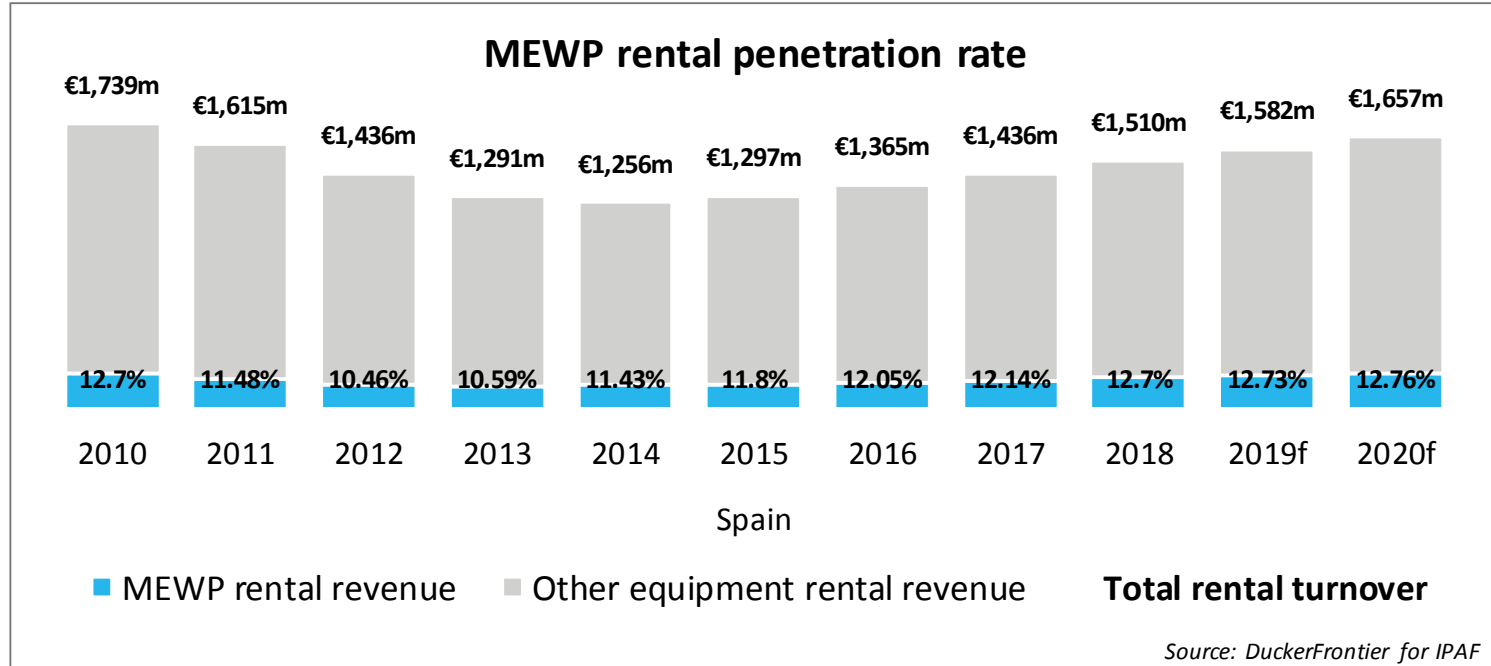
SPAIN – MEWP RENTAL PENETRATION

Revised



Both the overall rental market and the MEWP rental market are growing. A marginal increase of MEWP rental penetration among total rental activity was observed in 2018 (source ERA).

- Current MEWP rental penetration rate among total rental market is close to 13%.



Source for total rental turnover: ERA 2018 Report.

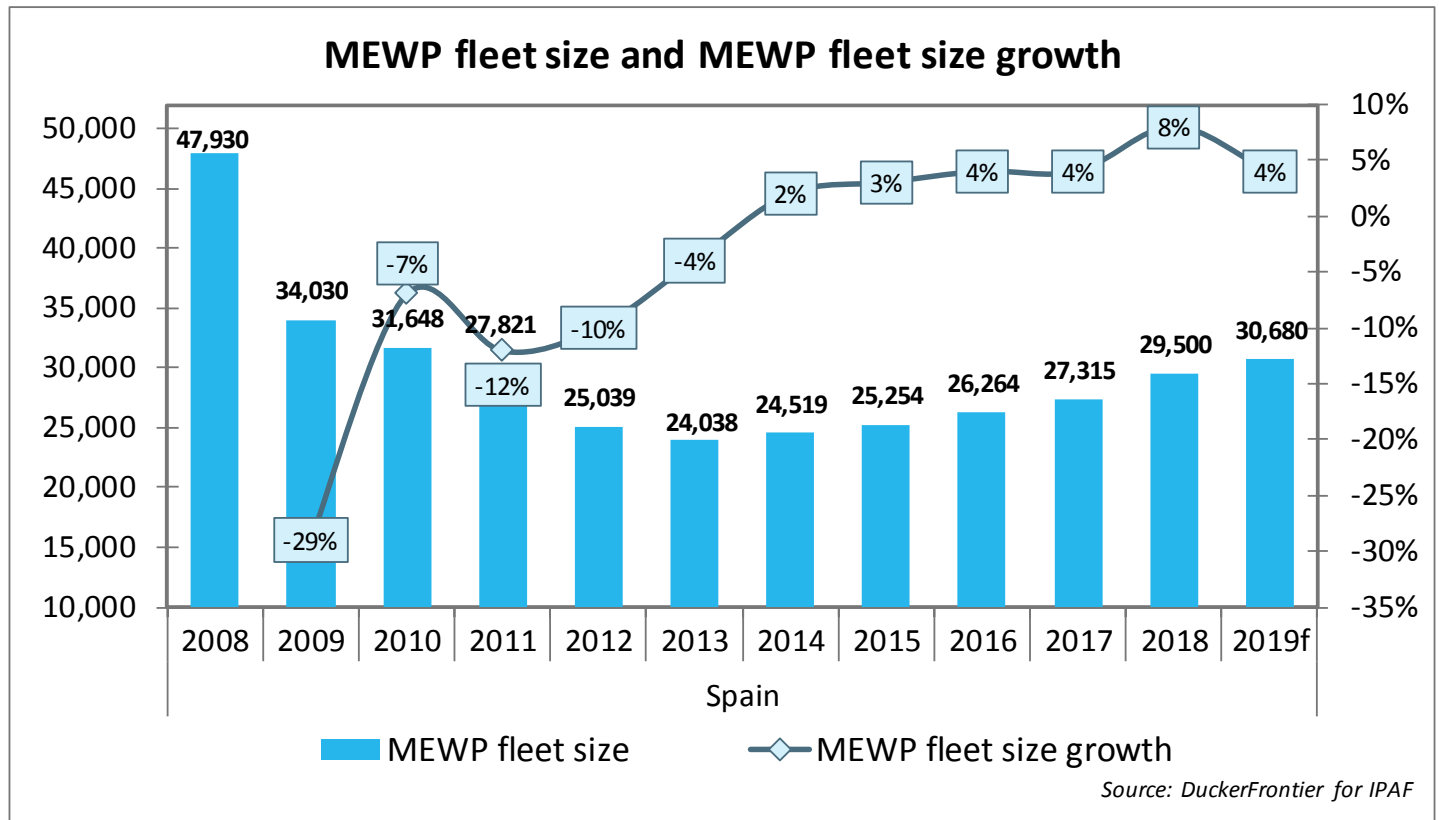
SPAIN – MARKET SIZE IN UNITS

Revised



The Spanish MEWP rental fleet size increased for the fifth year in a row in 2018. Additional fleet expansion is expected over the next few years.

- The pace of fleet expansion is progressively increasing and reached 9% in 2018. Growth rate is expected to settle back to what it has been in previous years, sitting at around 4%.
- The total fleet is expected to exceed 30,000 units in 2019, but still remains below pre-recession levels.



Note: Included are powered access lifts: All booms, scissor lifts and vertical masts.
Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.

Note for the revised edition: The number of units was revised due to the identification of a higher number of used equipment than previously estimated present on the Spanish MEWP rental market. Other linked indicators have been revised too

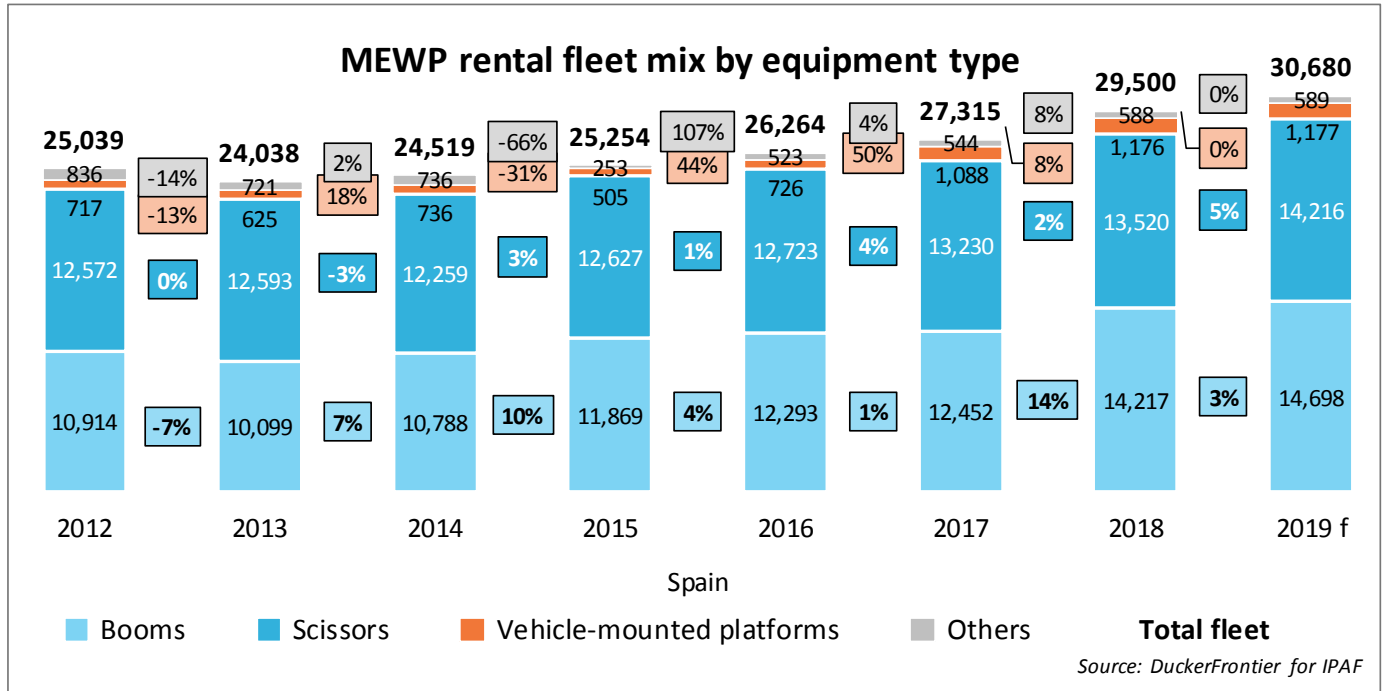
SPAIN – MARKET SIZE IN UNITS

Revised



All MEWP categories have benefited from the fleet size growth in 2018, though to varying degrees. This trend is expected to be sustained through 2019.

- MEWP rental companies have invested in a variety of equipment categories as part of their fleet expansion in 2018.
- The sustained recovery of the construction sector has fuelled the demand for booms.



Note: Included are powered access lifts: all booms, scissor lifts and vertical masts.
Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.

+X%

% unit growth, eg scissors increased by 2% from 2017 to 2018.

Others include: vertical lifts, vertical masts, push-around, trailer mounted/towable.

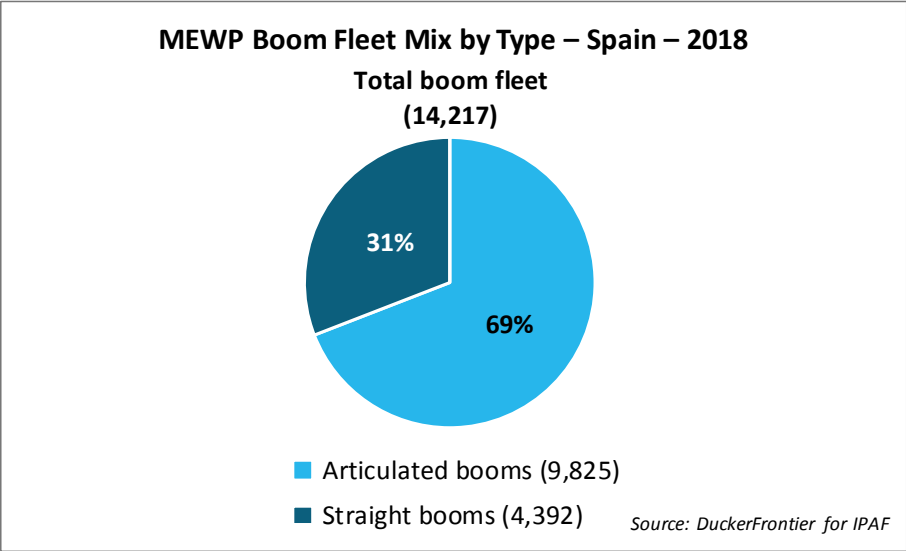
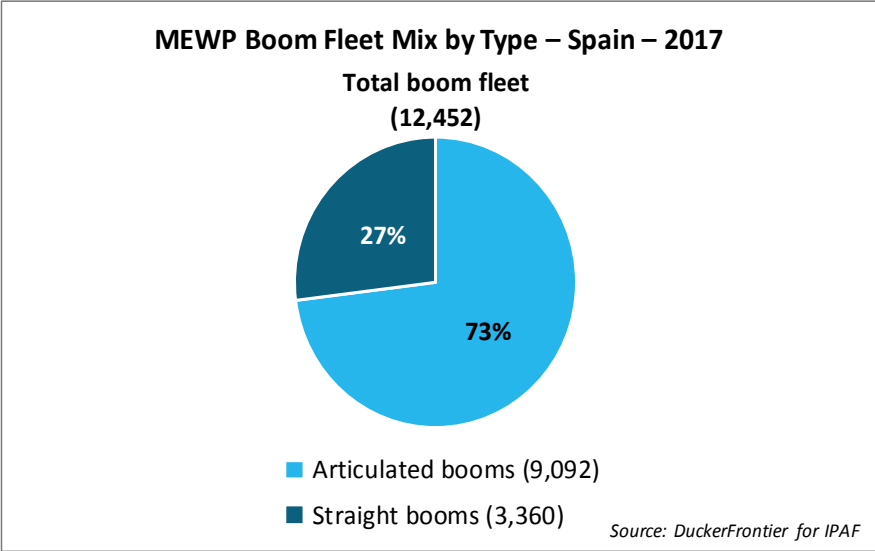
SPAIN – MARKET SIZE IN UNITS

Revised



Both booms categories grew in 2018, but straight booms gained share at the expense of articulated ones. Articulated booms remain in demand for their versatility.

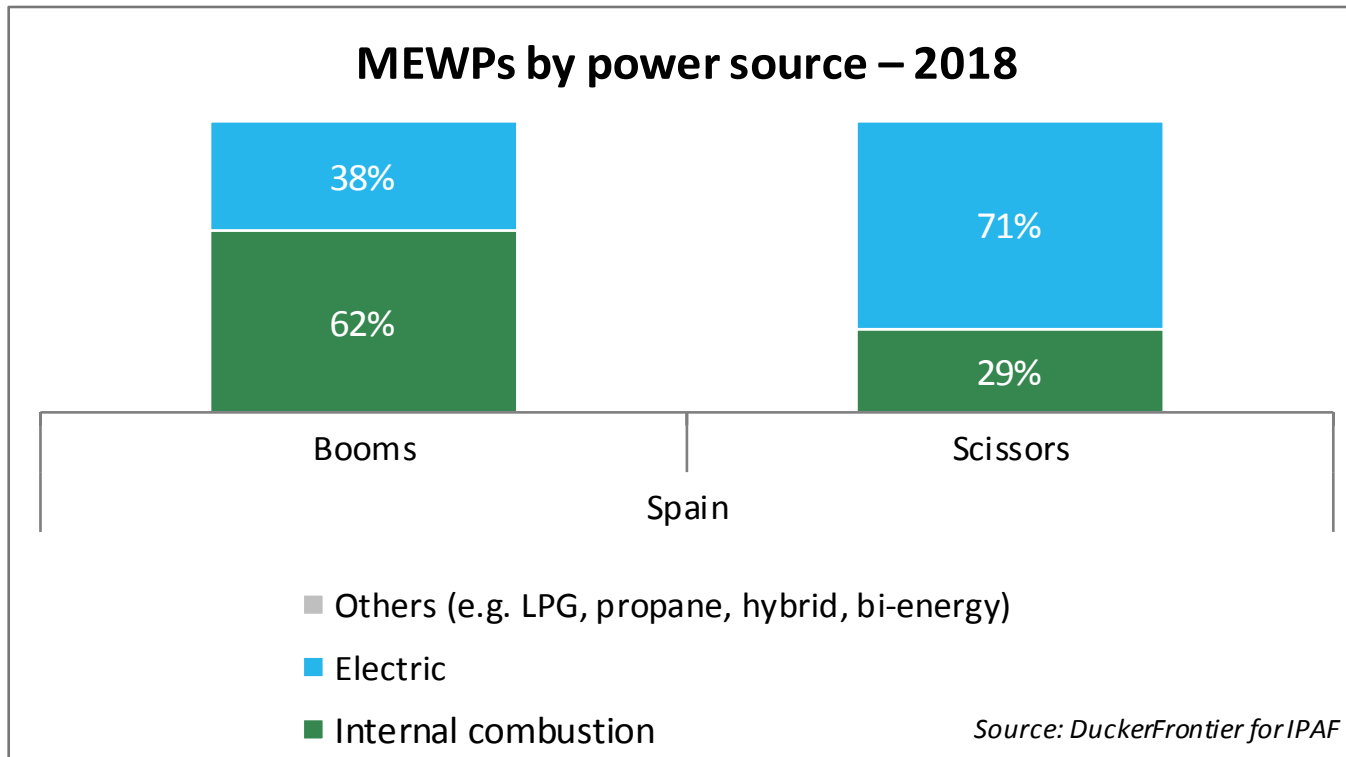
- MEWP rental companies are slightly adjusting their fleet mix, but do not intend to significantly change the split between straight and articulated booms.



SPAIN – POWER SOURCES

There is an ongoing trend towards electric equipment in Spain as there is in other European countries under study. Main equipment categories are becoming more and more oriented towards 'greener' power sources.

- The Spanish scissor fleet is predominantly electric equipment. Internal combustion booms still prevail, however the proportion of electric-powered units is increasing.
- Rental companies are showing more and more interest in electric-powered machines, while hybrid machines are typically still deemed too expensive to attract significant investment.



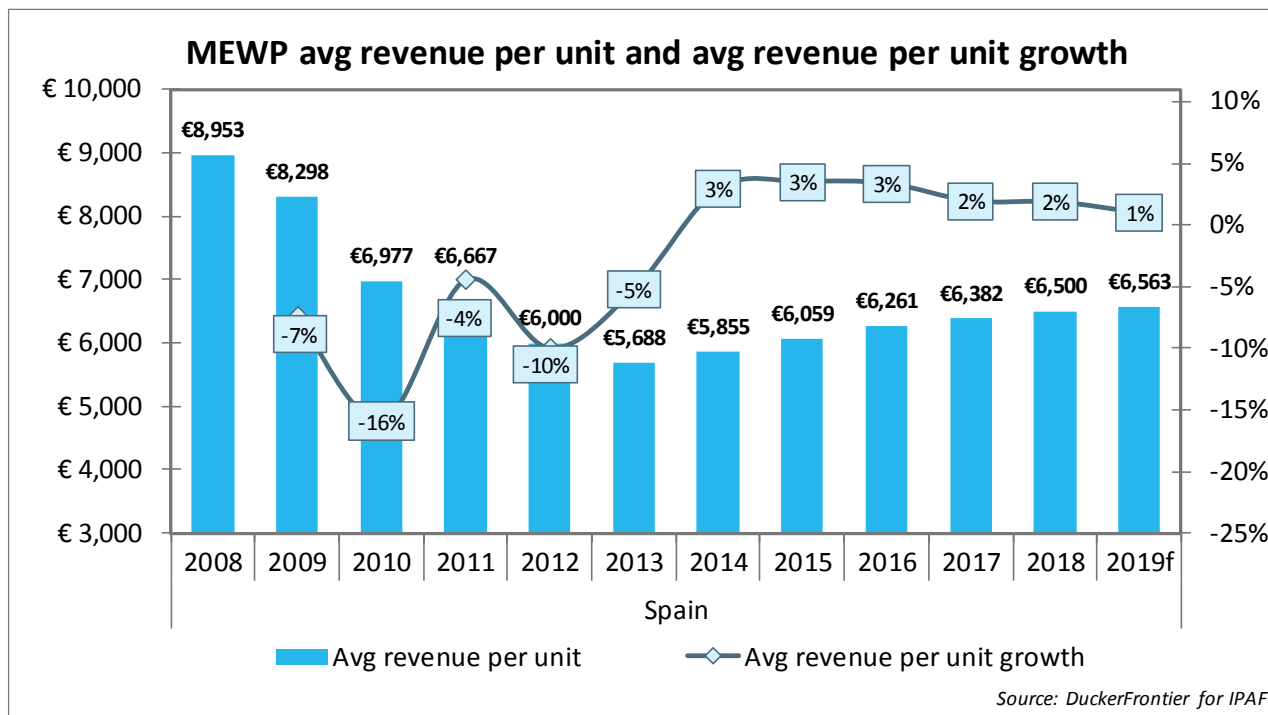
SPAIN – REVENUE PER UNIT

Revised



Average revenue per unit increased in the Spanish market, reaching €6,500 in 2018. The average revenue per unit in Spain is still one of the lowest among the European markets under study.

- Average revenue per unit continued to increase in 2018.
- This indicator is expected to increase slightly in 2019: Additional fleet expansion will not be fully compensated for by the expected rise in rental rates and stable utilisation rate.

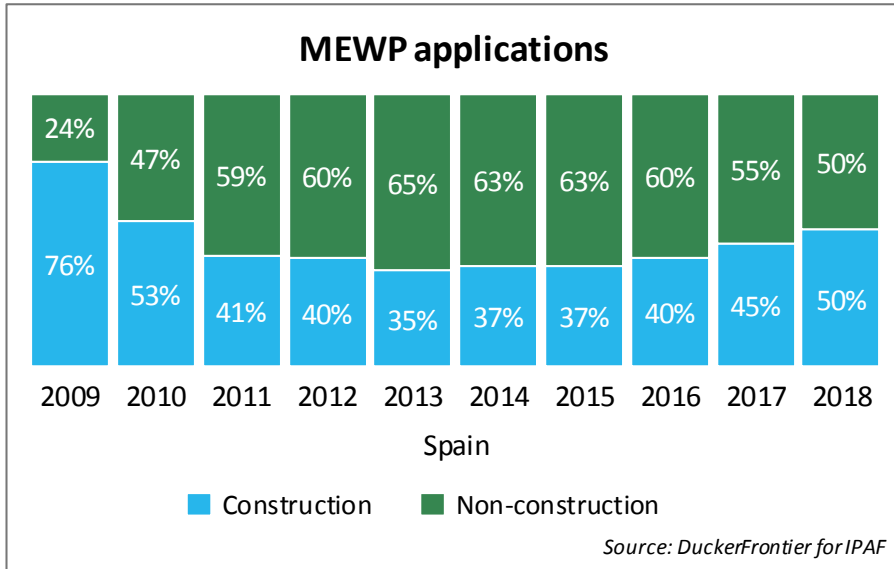


*Note: Included are powered access lifts: all booms, scissor lifts and vertical masts.
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes and MCWPs.*

SPAIN – APPLICATIONS

The construction sector is recovering, driving up the share of construction among MEWP rental companies' end customers. Facilities management and residential construction are the predominant sub-sectors.

- Residential buildings hold the lion's share among the construction end-sector.
- Facilities management remained the predominant non-construction application.

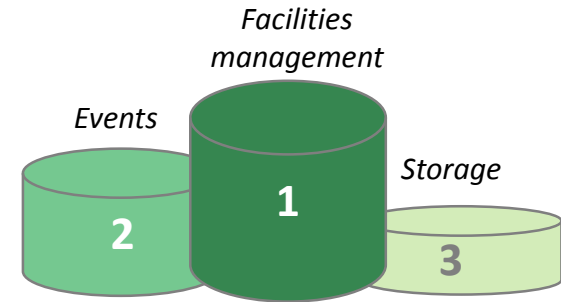


Share of rental revenue

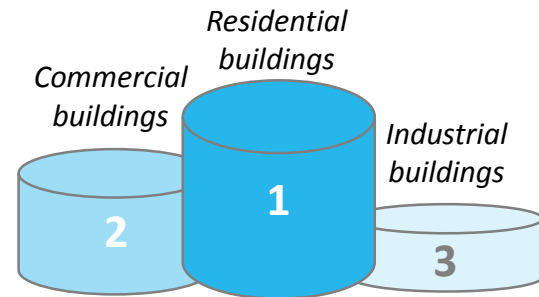
Non-construction includes industry, maintenance, cleaning, utilities, events.

Construction includes new build and renovation; including residential, commercial, retail and industrial.

Main non-construction sub-sectors



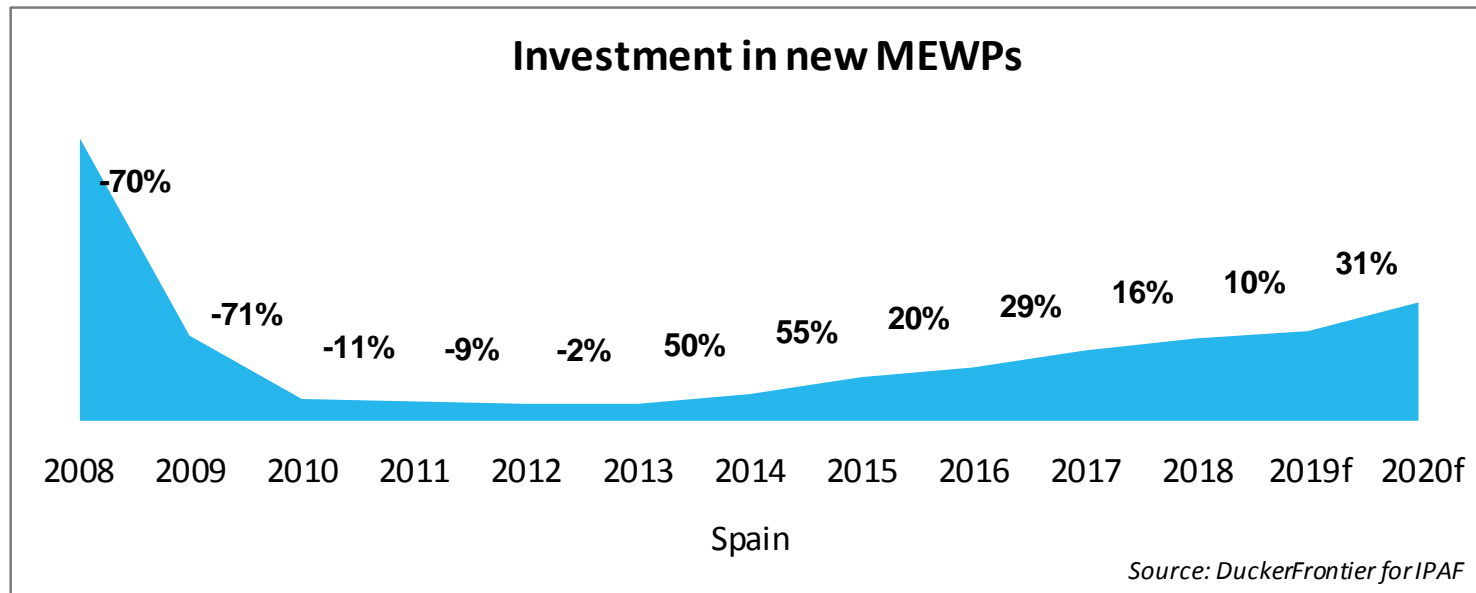
Main construction sub-sectors



SPAIN – INVESTMENT

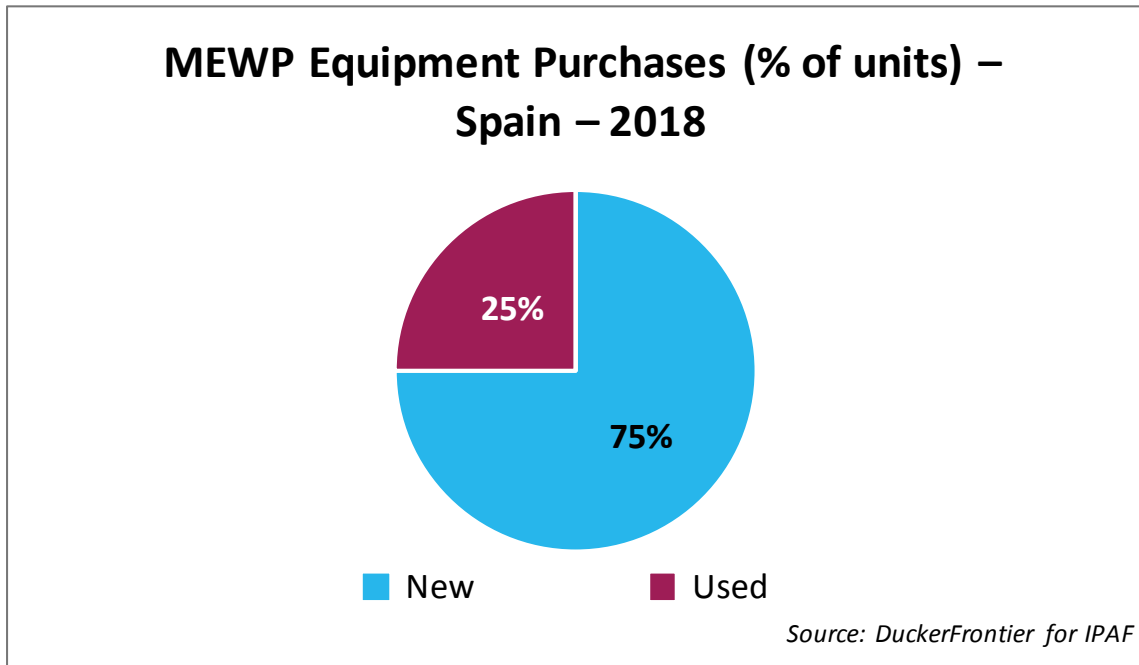
The investment level of Spanish MEWP rental companies increased in 2018, driven by both fleet renewal and expansion. The trend is expected to continue in 2019 and 2020.

- A significant wave of fleet renewals occurred in 2018, in addition to fleet expansion, significantly increasing the total amount of investment across the year.
- Investment growth is expected to continue over the next few years. Depending on the outcome of the 2019 elections, the level of investment could even be higher than expected for 2019.



The share of used equipment purchased in Spain in 2018 remained at a stable level compared to 2017.

- Spain is the European country under study where the share of used equipment purchases is the highest.
- Used machines are generally purchased by smaller rental companies from larger ones.

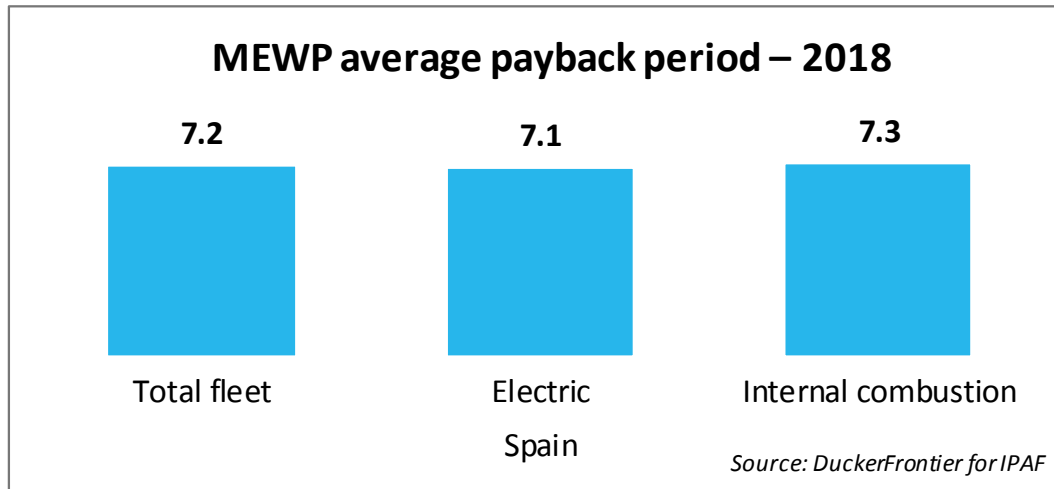


Note for the revised edition: The number of units was revised due to the identification of a higher number of used equipment than previously estimated present on the Spanish MEWP rental market. Other linked indicators have been revised too

SPAIN – TYPICAL PAYBACK PERIOD

The average payback period is similar for both electric and internal combustion machines, at slightly over seven years. Payback period decreased in 2018 owing to the effects of positive changes to key indicators overall.

- The improvement of payback period allowed rental companies to improve their profitability.
- Very little difference exists in the payback periods of electric and internal-combustion-powered machines. The slight difference is primarily owing to the equipment size, as internal combustion machines typically are bigger and can only be used outdoors, therefore they are less versatile.

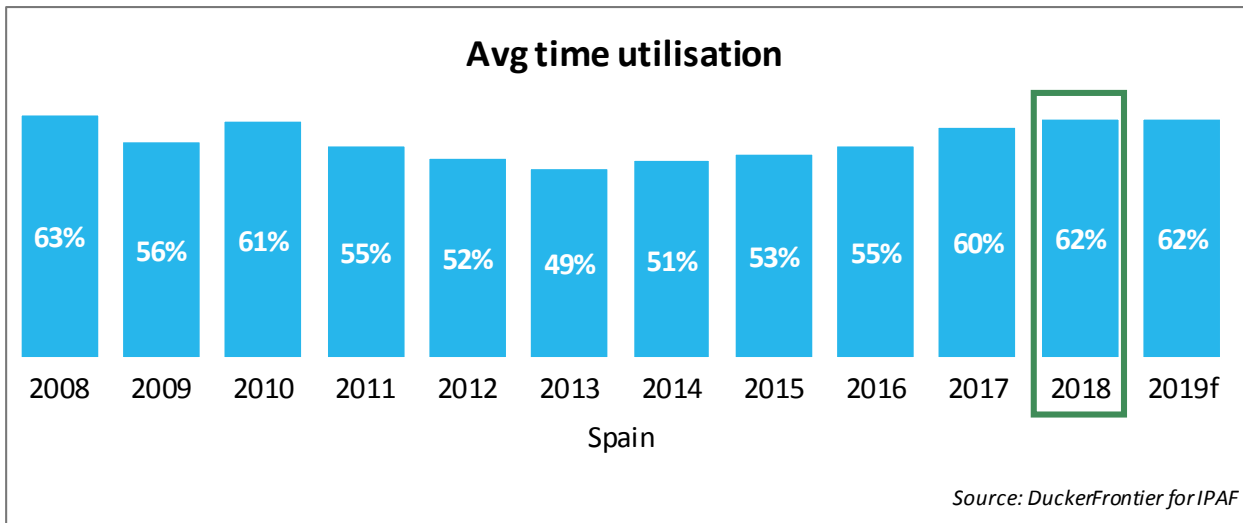


7.2 = 7 years and 2 months

SPAIN – UTILISATION RATES

Average utilisation rate has been growing in Spain for the past five years. It is expected to remain stable in 2019.

- The increasing demand in the Spanish MEWP rental market positively impacted the utilisation rate, in parallel to fleet expansion.
- Utilisation rate has now reached its pre-recession level and is expected to remain stable in 2019.



Scissors: 62%

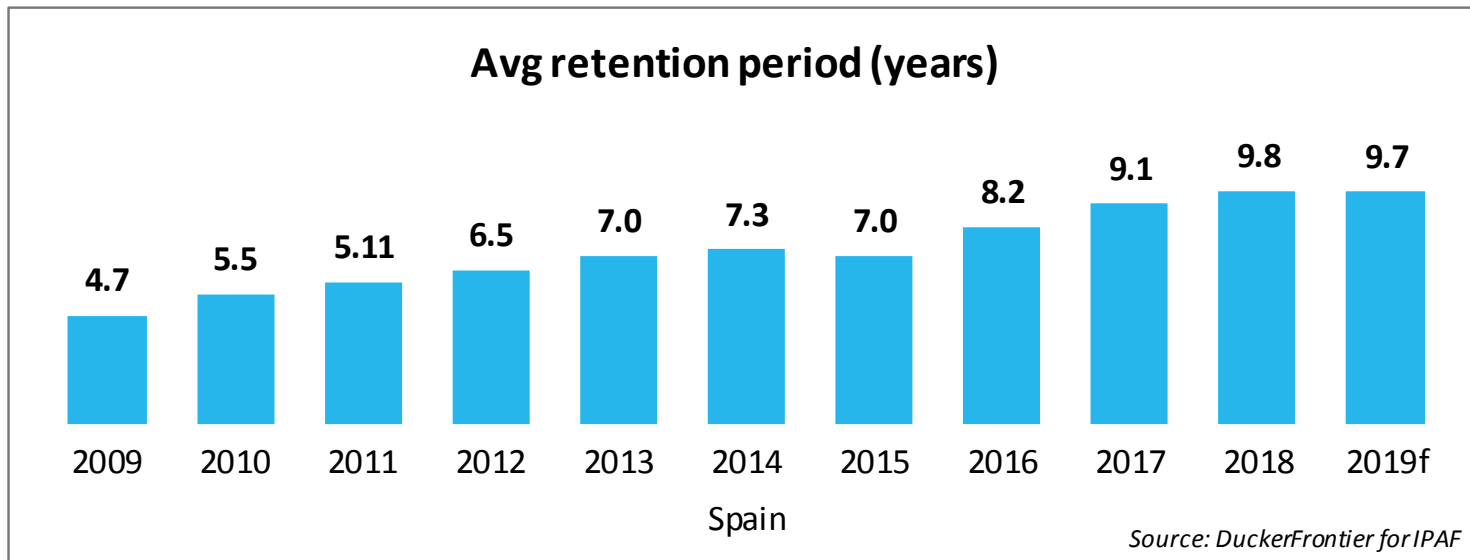
Booms: 62%

Definition: Physical number of machines out on hire as % of total number in fleet at any given time.

SPAIN – RETENTION PERIOD

The typical retention period of MEWPs increased by seven months in 2018 in Spain.
Average retention period in the country is now close to ten years.

- Changes in the Spanish MEWP rental fleet mix have impacted the retention period: Booms and bigger machines are usually kept much longer than scissors and electric equipment.



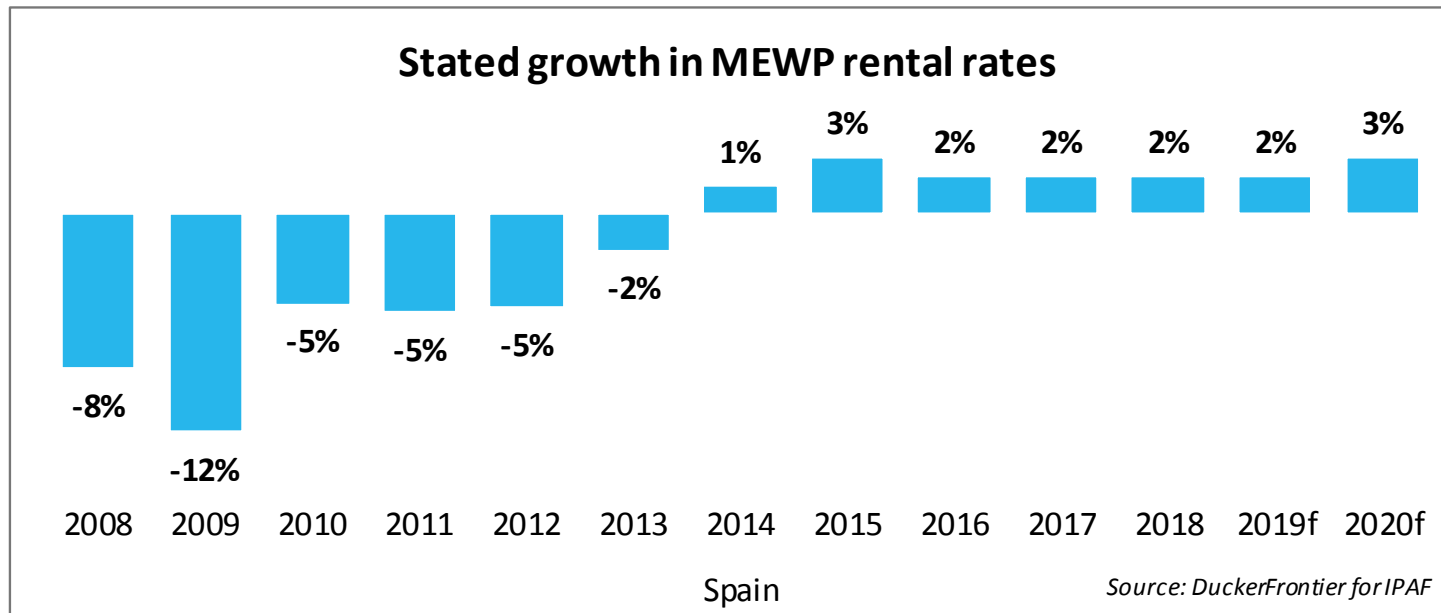
9.8 = 9 years and 8 months

Definition: Period of time that a machine is kept in fleet = selling age if acquired new

SPAIN – RENTAL RATES

The ongoing increase in rental rates continued in 2018, and an additional 2% growth is expected for 2019. The increase in rental rates is expected to remain a strong driver of Spanish MEWP rental market growth.

- Notwithstanding the uncertainty due to 2019 elections, rental rates are expected to continue to increase in 2019.
- In 2020, rental rates could also increase further, depending on infrastructure works ordered by the new government.



**A PERSPECTIVE
FROM THE
MANAGING EDITOR
OF *INTERNATIONAL
RENTAL NEWS***

***IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – SPAIN***

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*, MURRAY POLLOK



- Spain is still enjoying a healthy recovery from its ‘lost decade’ after the crash. The rental market continues to grow – the European Rental Association (ERA) forecasts around 5% growth this year and next – and the access sector is growing even faster, reaching double-digit rates of expansion last year according to this report.
- Part of that is down to Spain’s construction market, which is one of the fastest growing in Europe right now, with annual growth around the 5%-mark last year and a similar level forecast for 2019 as well.
- That optimism was backed up by the results of the latest ERA/IRN RentalTracker survey, conducted at the end of March 2019, which saw Spanish respondents among the most upbeat in Europe.
- Two thirds said business conditions were improving – and that result comes after several years of growth – with none reporting declining sales. Almost 70% reported first-quarter sales in 2019 as higher or substantially higher compared to a year ago, and 60% were forecasting higher revenues for the full year.
- This sentiment was backed up by investment plans, with 40% of Spanish rental companies expecting to invest more this year than in 2018, and 45% forecasting the same level of spending. Signs of caution crept in only when companies were asked about their investment plans for 2020, with just less than a third expecting to increase spending, and a quarter saying that they were likely to reduce investment.
- With that positive outlook comes a lively mergers and acquisitions environment, although it was the proposed majority acquisition of GAM Alquiler by private equity business Halekulani SL in January that was the big news of the past 18 months. That deal would see GAM unburdened of bank debts and would be the start of a fresh chapter for the business.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*, MURRAY POLLOK



- There were several other deals as well. TVH's rental business, Mateco, acquired Afron, one of the oldest MEWP rental companies in Spain, with 1,000 machines. As well as expanding Mateco's Spanish operation, it also gives it Afron's rental businesses in Chile and Panama.
- And Kiloutou continued to expand its Spanish operations. It has previously established an operation in the country through three acquisitions since 2015, and last year made it four with a deal to buy generalist rental firm Seralfe, based near Madrid.
- Some Spanish businesses are also expanding through acquisitions. Germans Homs, for example, in April 2019, acquired Girona-based Llogater, a generalist.
- It can be expected that more acquisitions will follow as big players seek to exploit the benevolent market environment.
- Spain's access sector suffered in the post-2008 period like no other market in Europe, so its continued recovery has been welcomed, and not just in Spain.

APPENDIX

IPAF POWERED ACCESS RENTAL MARKET REPORT 2019 – SPAIN

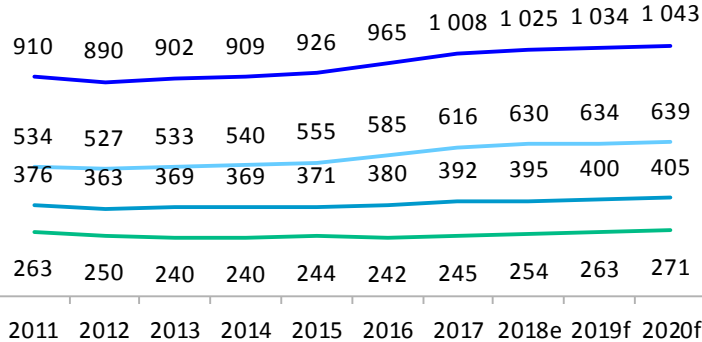
SPAIN – CONSTRUCTION STATISTICS



Macro-economic indicators such as construction sector activity and GDP per capita indicate a positive outlook for Spain. The construction sector is expected to continue growing over the next few years.

CAGR 18-20 = 0.89%

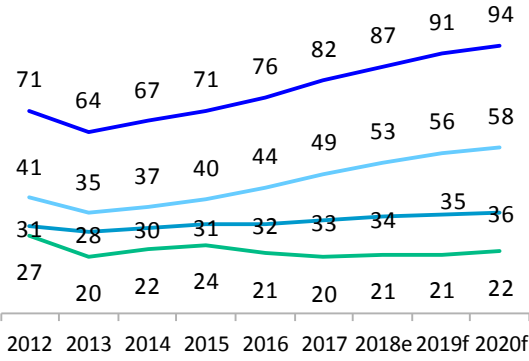
Europe – Construction data



Source: DuckerFrontier for IPAF

CAGR 18-20 = 4.05%

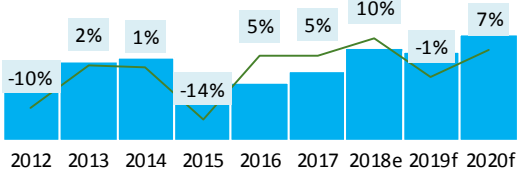
Spain



Source: DuckerFrontier for IPAF

CAGR 18-20 = 2.61%

Spain



SPAIN GDP per Capita YoY % evolution

Source : FrontierView – March 2019.

CAGR: Compound annual growth rate

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

COUNTRY REPORT – THE NETHERLANDS

IPAF Powered Access Rental Market Report 2019 – Europe

*Winner of a European Association Award 2018 for
Best Provision of Business Information and Intelligence*

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**THE EUROPEAN
ASSOCIATION
AWARDS 2018**

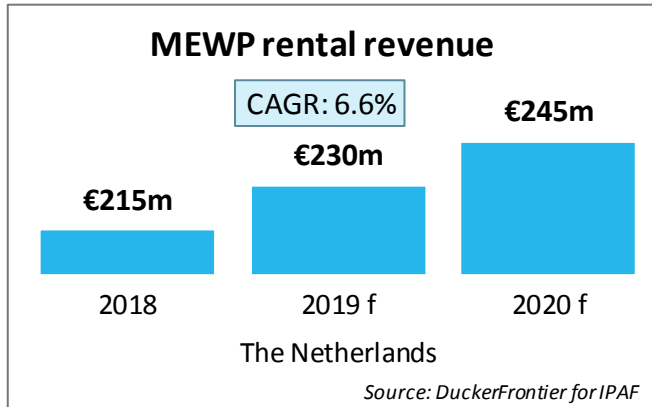
BRONZE
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IPAF has been working with DuckerFrontier to create these exclusive industry reports since 2009, making this the tenth anniversary of our award-winning collaboration

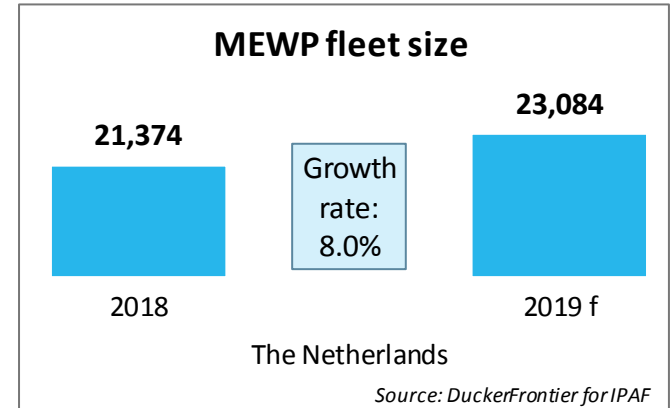
THE NETHERLANDS – KEY FINDINGS



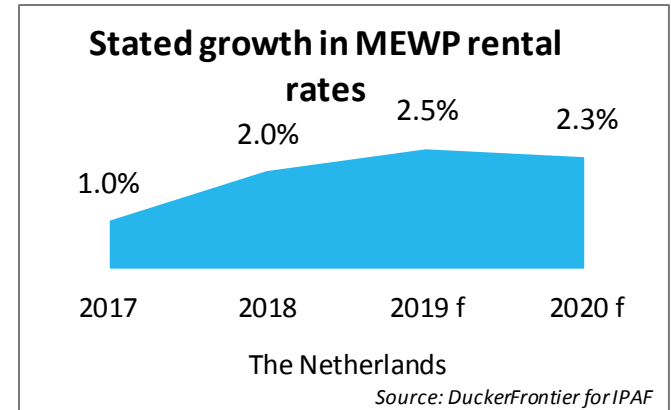
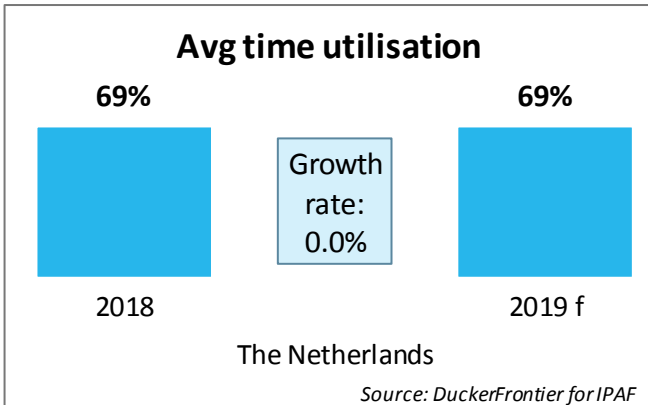
The Dutch MEWP rental market is in a strong growth phase, with positive indicators across the board. The market is expected to continue growing until at least 2020.



CAGR: Compound annual growth rate



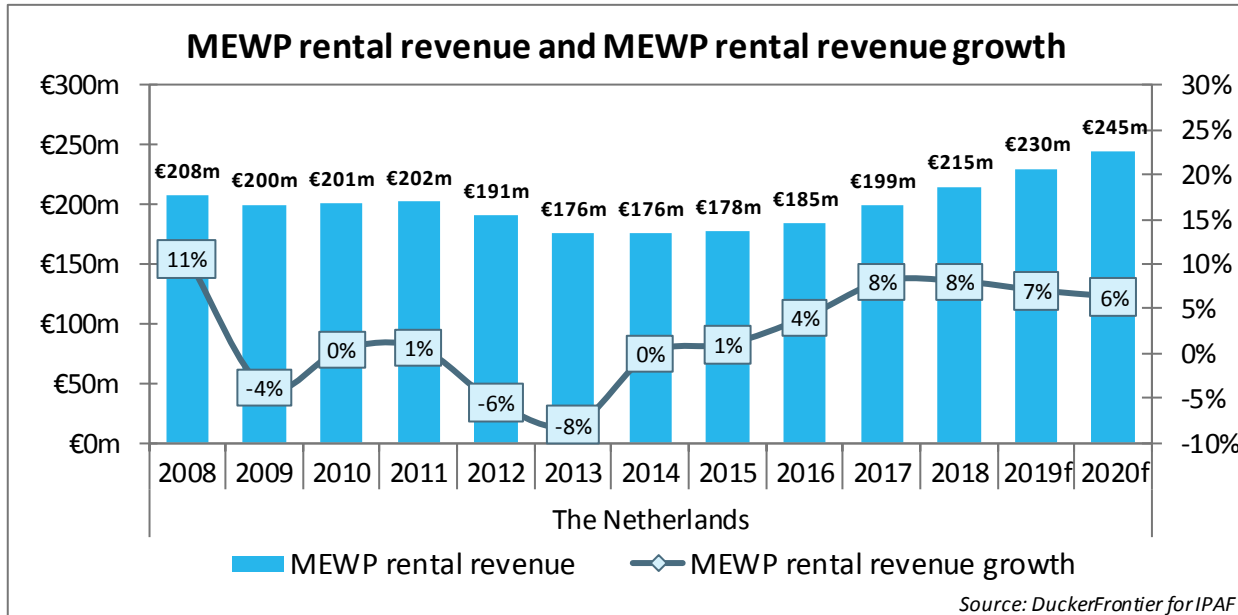
- The Dutch MEWP rental market is steadily growing, and MEWP rental revenue should reach €230 million in 2019.
- Optimism prevails as increased demand allows to push time utilisation and rental rates at higher levels.



THE NETHERLANDS – RENTAL MARKET VALUE & GROWTH



Dutch MEWP rental revenue grew significantly in 2018, driven by an overall positive economic situation and good construction activity. Forecasts for future years are positive, above 5% growth every year.



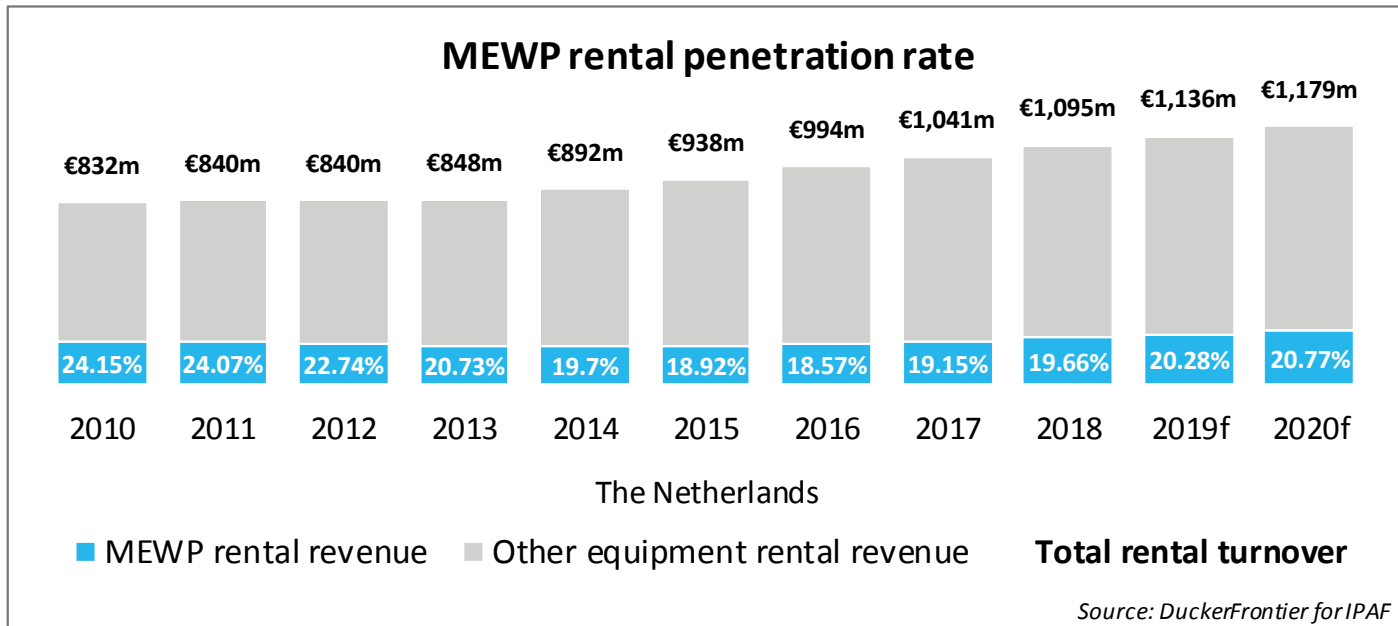
- 2018 was another good year for the Dutch MEWP rental market. The market increased by 8% compared to 2017.
- The Dutch MEWP rental industry looks in good shape and is expected to continue its sustained growth in the coming years.
- Dutch MEWP rental revenue reached €215 million in 2018.
- In 2018, the level of cross-hire was at 12.1%: The high level of cross-hire was necessary in order to satisfy the increasing demand, despite fleet expansion.



THE NETHERLANDS – MEWP RENTAL PENETRATION



Both the MEWP rental market and the overall rental market experienced growth in the Netherlands in 2018. MEWP rental penetration increased to almost 20% (source ERA).



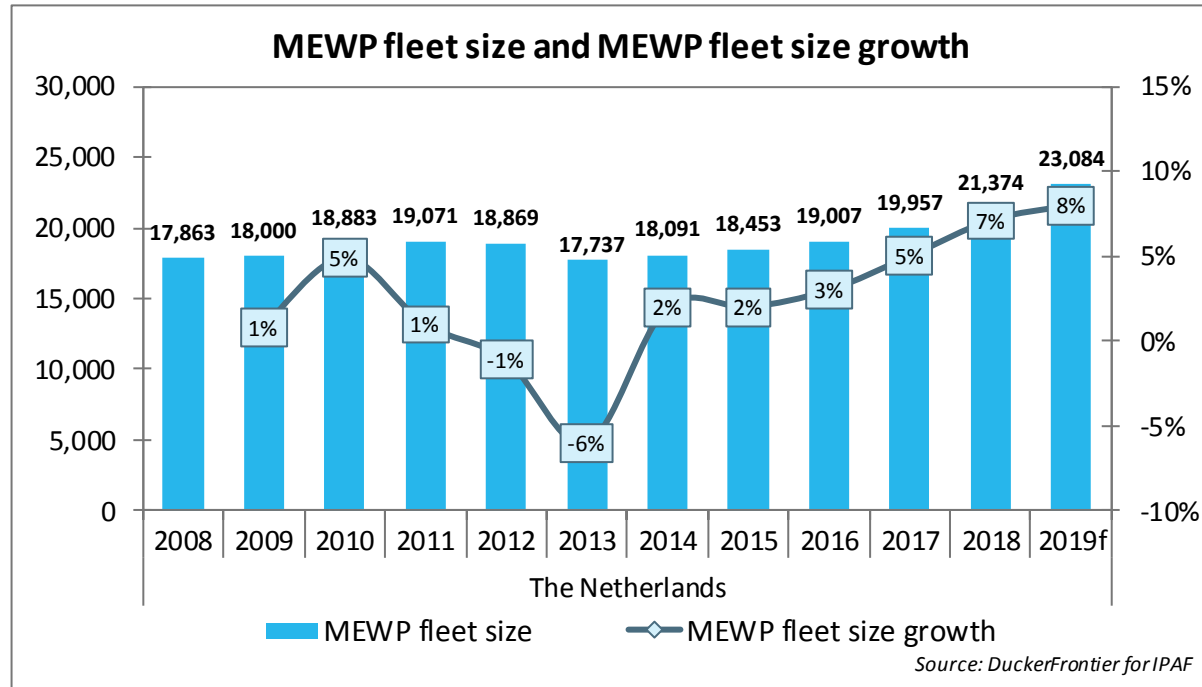
Source for total rental turnover: ERA 2018 Report.

THE NETHERLANDS – MARKET SIZE IN UNITS



Dutch rental companies continue facing an increased demand and thus, had to increase their fleet size. In 2018 Dutch fleet exceeded 21,000 units. Sustained fleet size growth is expected over the next few years.

- Rental companies report a trend towards fleet expansion to comply with increasing demand.
- There is increasing demand for both booms and scissors in the Dutch rental market.



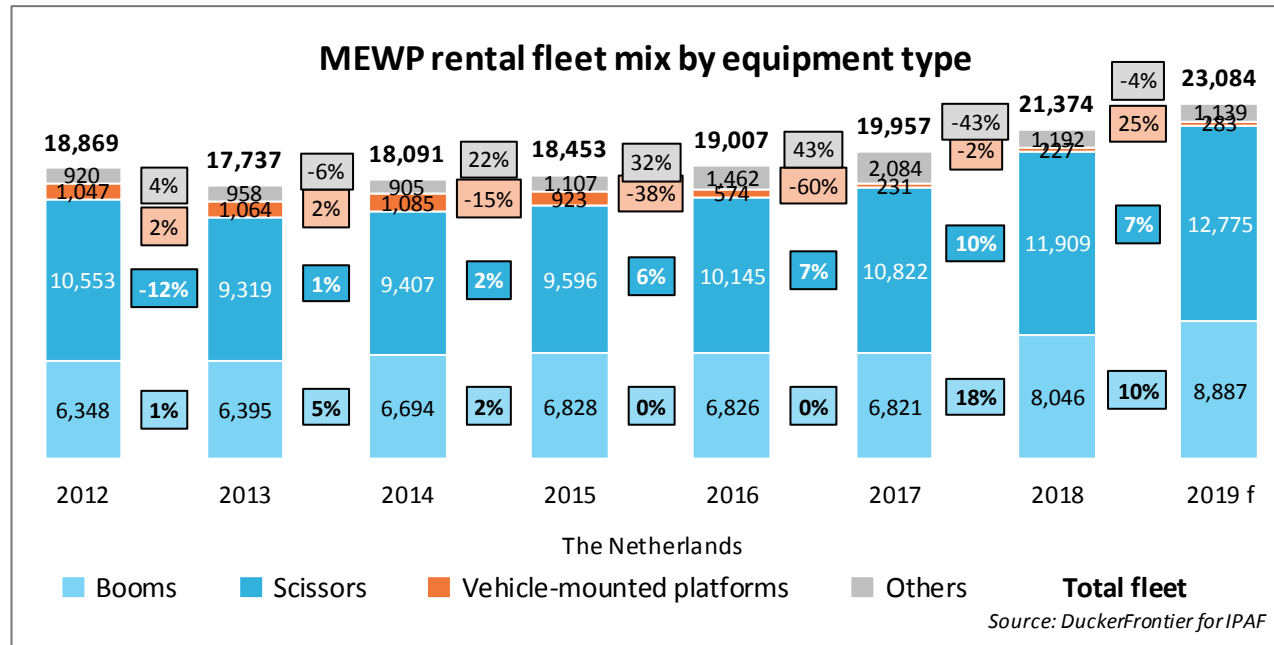
*Note: Included are powered access lifts: All booms, scissor lifts and vertical masts
Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs*

THE NETHERLANDS – MARKET SIZE IN UNITS



The Dutch MEWP fleet mix hasn't changed much over recent years: Both booms and scissors benefited from the overall fleet size growth.

- The scissors category continues to account for the lion's share of the Dutch MEWP rental fleet: they are simple and not too costly to rent machines.
- Vehicle-mounted machines are not so popular on the Dutch market and total number of units remains below 300.



Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs

+X%

% unit growth, eg booms fleet increased by 18% from 2017 to 2018.

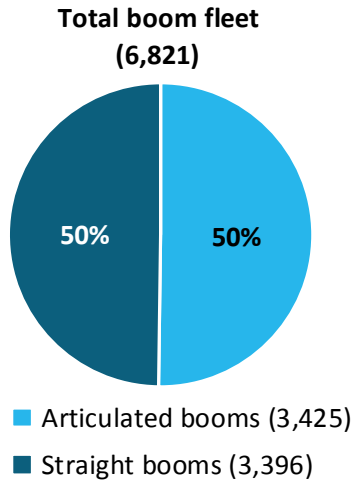
Others include: vertical lifts, vertical masts, push-around, trailer mounted/towable.

THE NETHERLANDS – MARKET SIZE IN UNITS



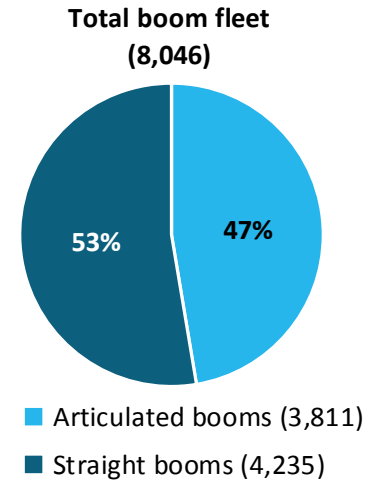
The Dutch market is the only European market under study traditionally oriented towards straight booms more than articulated ones. Nevertheless, in future the boom mix could evolve in favor of articulated booms.

MEWP Boom Fleet Mix by Type – The Netherlands – 2017



Source: DuckerFrontier for IPAF

MEWP Boom Fleet Mix by Type – The Netherlands – 2018

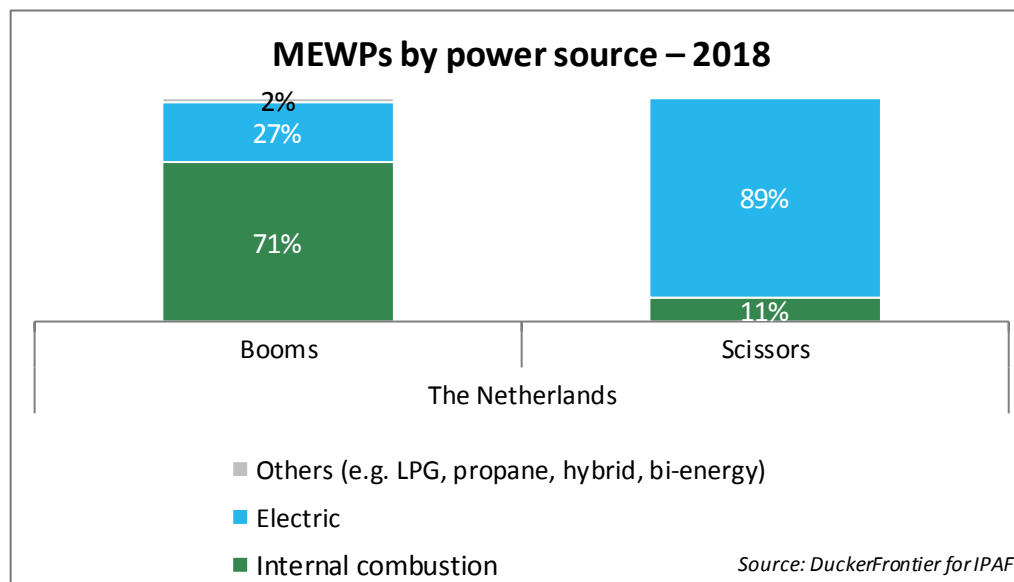


Source: DuckerFrontier for IPAF

THE NETHERLANDS – POWER SOURCES

Boom fleet continues to be dominated by internal combustion type power source, while scissors are dominated by electric source.

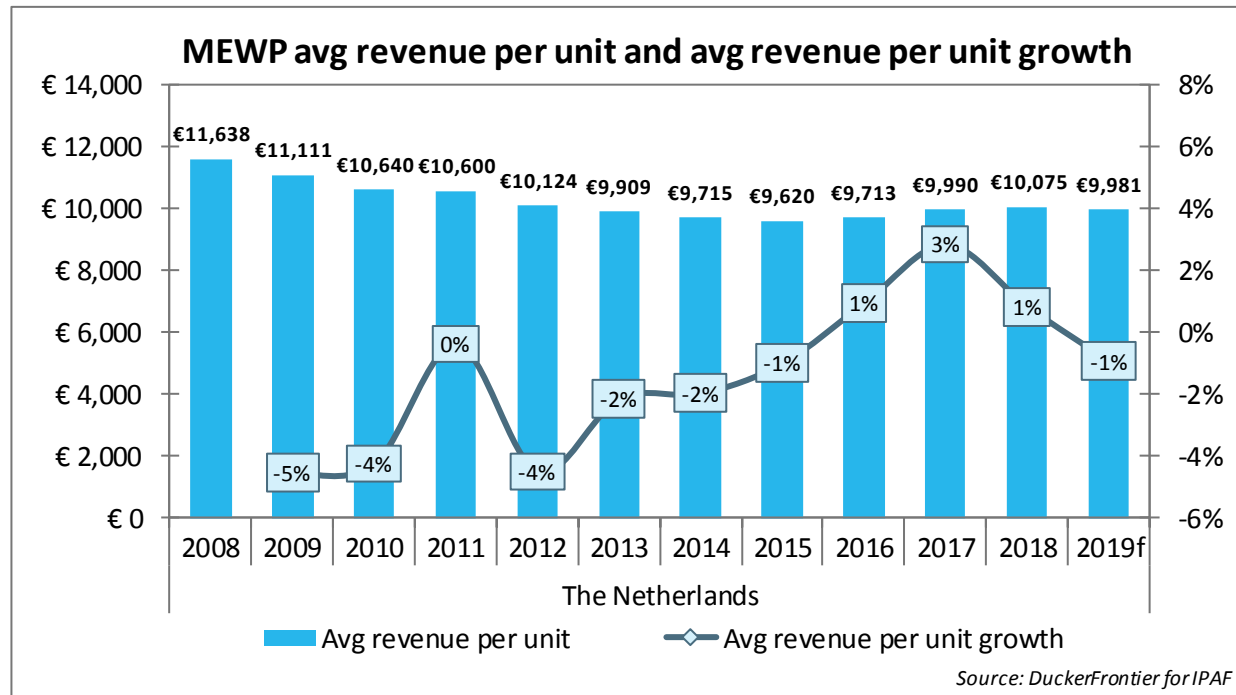
- Electric machines heavily dominate the scissor fleet.
- The share of hybrid booms remains limited but could increase in the coming years.



THE NETHERLANDS – REVENUE PER UNIT

Average revenue per unit grew by 1% in 2018 and exceeded €10,000. It is expected to slightly decrease in 2019 mostly due to fleet size adjustments and a rather stable utilisation rate.

- Thanks to the overall positive market dynamic in the country and the increase in rental rates, the average revenue per unit increased by 1% in 2018.

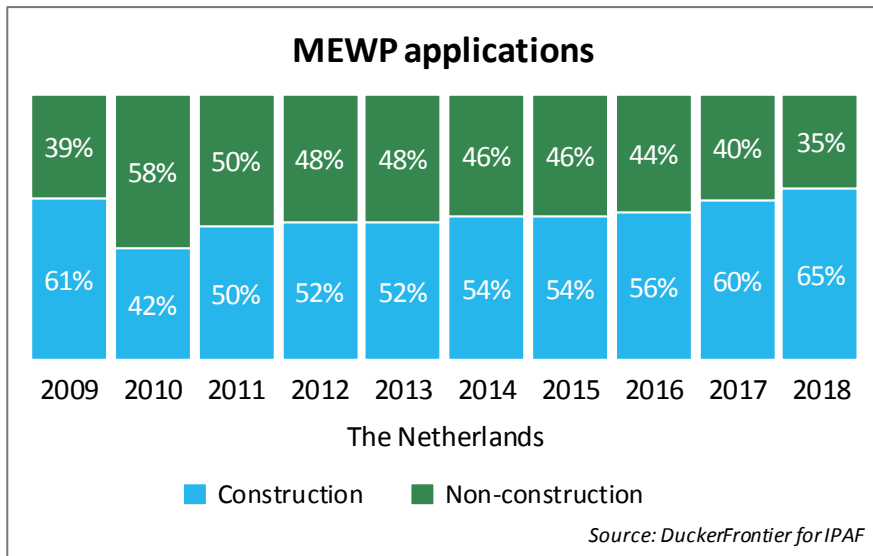


*Note: Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs*

THE NETHERLANDS – APPLICATIONS

As the construction sector is booming in the Netherlands, the share of construction end-customers increased to an unprecedented level, gaining more ground against non-construction end-users.

- Both commercial and industrial buildings hold the lion's share among the construction end-sector.
- The split of non-construction sub-sectors changed slightly compared to 2017: Utilities and facilities management are the main applications.

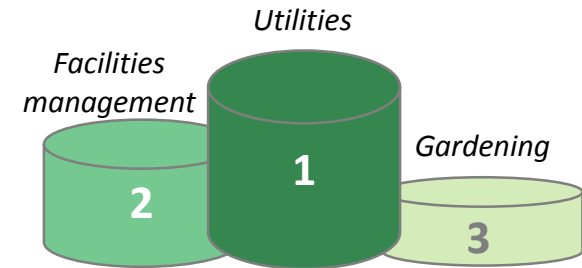


Share of rental revenues

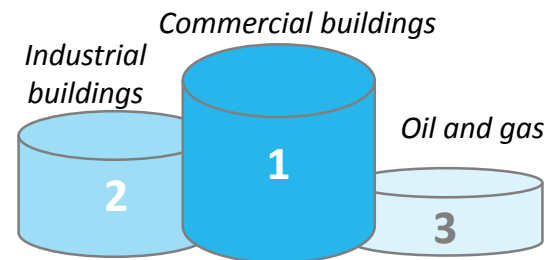
Non-construction includes industry, maintenance, cleaning, utilities, events.

Construction includes new build and renovation; including residential, commercial, retail and industrial.

Main non-construction sub-sectors



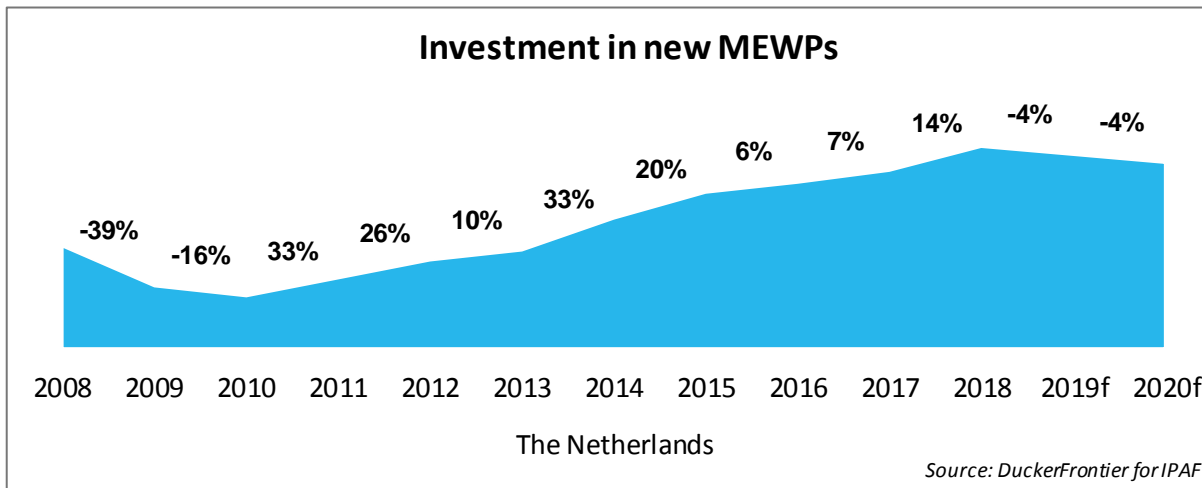
Main construction sub-sectors



THE NETHERLANDS – INVESTMENT

The investment level of Dutch MEWP rental companies increased in 2018, driven by both fleet renewal and expansion.

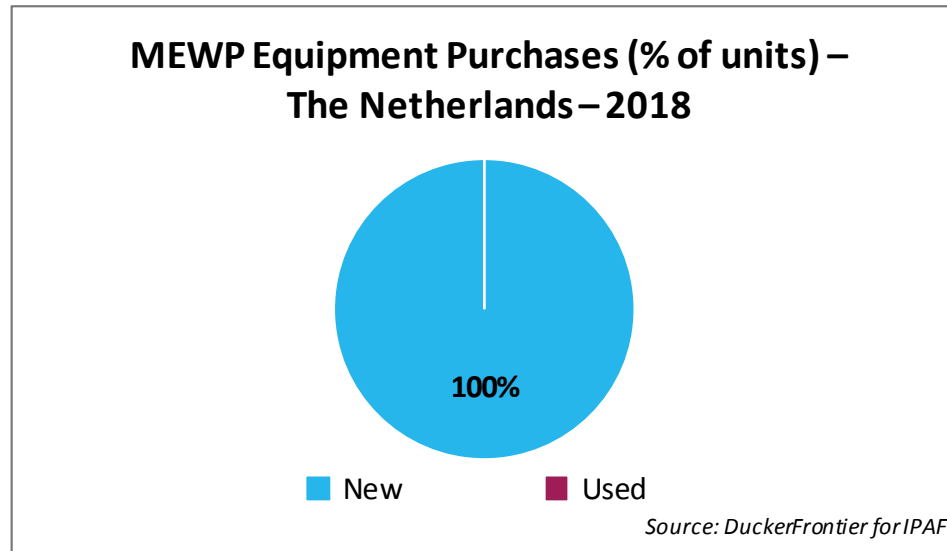
- MEWP rental companies again increased their level of investment, in order to both expand and renew their fleet.
- Total amount of investment is expected to decrease slightly in 2018, for the first time in eight years.



THE NETHERLANDS – EQUIPMENT PURCHASES

As indicated in previous years, Dutch MEWP rental companies only purchase brand new equipment.

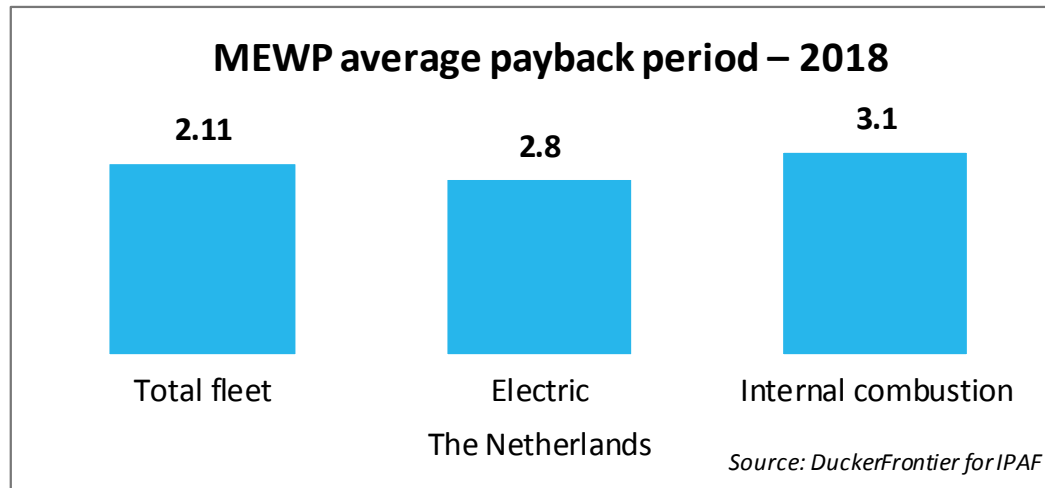
- As with the majority of European countries under study, Dutch rental companies chose to invest in new equipment only.
- As the average retention period does not exceed seven years and the payback period is relatively short, investment in new equipment remains profitable for Dutch rental companies.



THE NETHERLANDS – TYPICAL PAYBACK PERIOD

In 2018, the average payback period was slightly longer than in 2017. The Dutch payback of around three years period remains the lowest among the European countries under study.

- Investment in bigger and more expensive machines had an impact on the overall average payback period, which increased by three months.
- Electric machines tend to have a shorter payback period than internal combustion-powered ones.

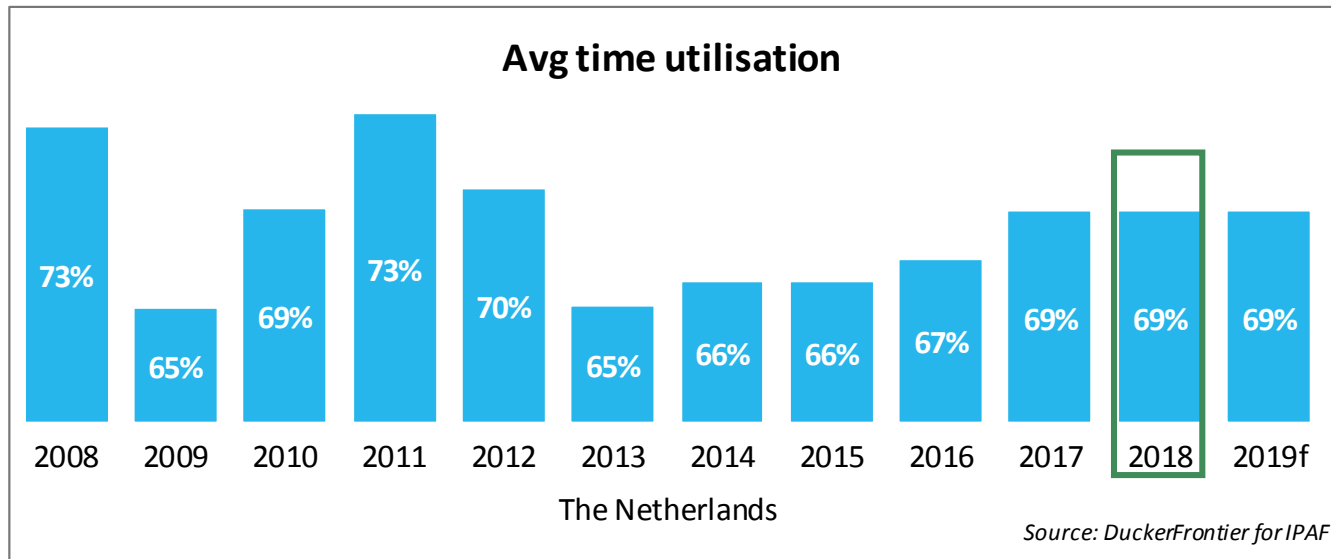


2.11 = 2 years and 11 months

THE NETHERLANDS – UTILISATION RATES

After two years of increases, in 2018 utilisation rate stabilised at around 70%, owing to the fact that fleet size has increased sufficiently to meet market demand.

- Scissors typically have a higher utilisation rate than booms as they can be rented easily, used all year round and rental rates are lower.
- A similar trend with regards to utilisation rate is expected in 2019.



Scissors: 75%

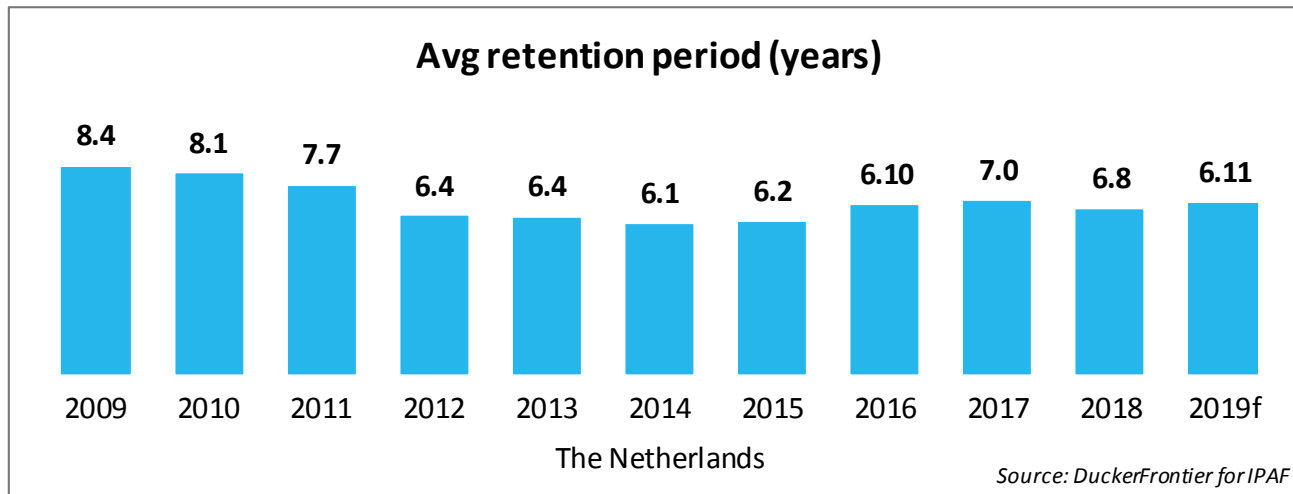
Booms: 66%

Definition: Physical number of machines out on hire as % of total number in fleet at any given time.

THE NETHERLANDS – RETENTION PERIOD

The typical retention period of MEWP equipment hasn't changed significantly in the last few years, remaining at around seven years.

- In the past few years, due to a fierce competition, rental companies were focused in limiting the age of their fleet and investing in new machines in order to be able to compete in the Dutch market.
- The retention period is expected to only slightly increase in 2019.



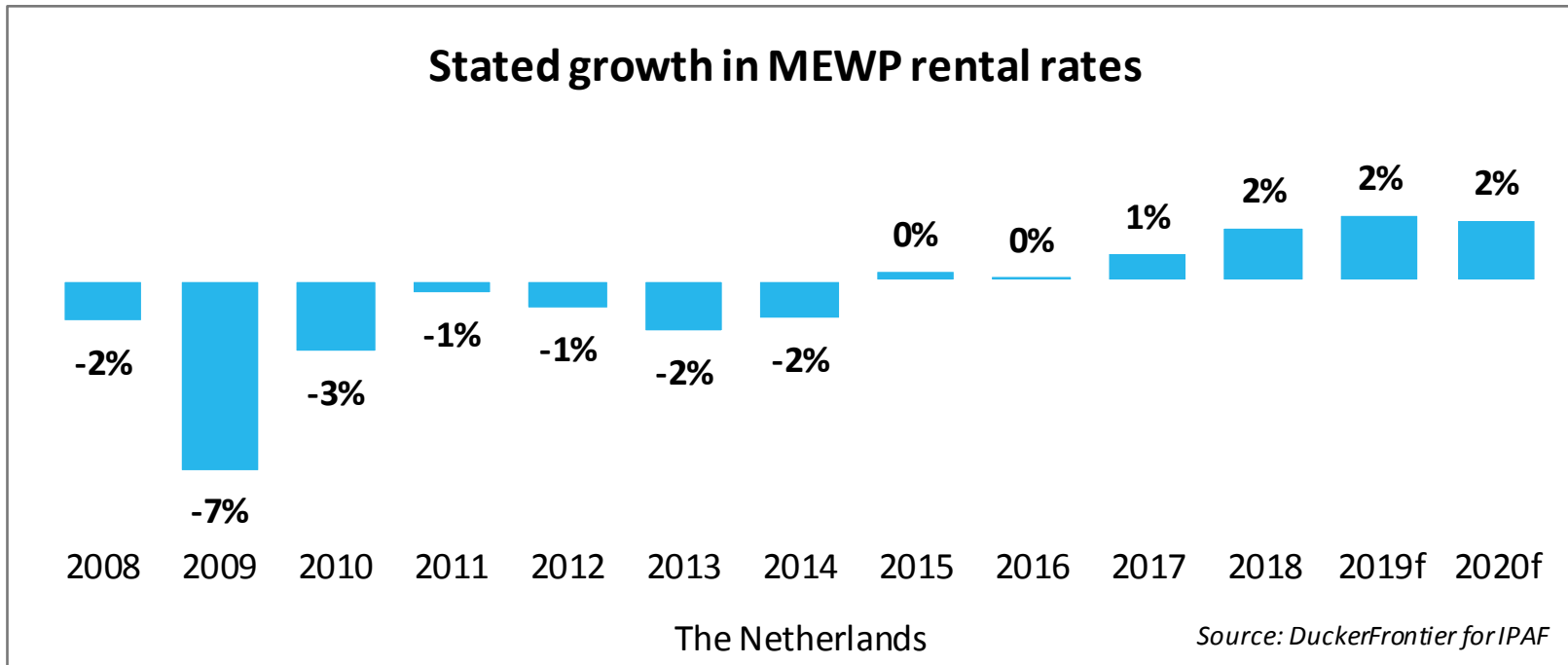
6.8 = 6 years and 8 months

Definition: Period of time that a machine is kept in fleet = selling age if acquired new

THE NETHERLANDS – RENTAL RATES

In 2018, MEWP rental companies were able to increase their rental rates further, highlighting the ongoing Dutch MEWP rental market development. This positive trend is expected to continue for the next few years.

- As in 2017, Dutch rental companies were able to increase rental rates. They expect to be able to do the same again in 2019/2020.



**A PERSPECTIVE
FROM THE
MANAGING EDITOR
OF *INTERNATIONAL
RENTAL NEWS***

***IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – THE NETHERLANDS***

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*, MURRAY POLLOK



- The Netherlands is one of many European rental markets enjoying a good moment. With access rental growth in the 5-10% range last year, and the European Rental Association (ERA) estimating total rental market growth at just under 4% last year and in 2019, there is no shortage of optimism or investment.
- And that investment continues to be skewed towards electric or hybrid machines, with companies as different as Hoogwerkt and Riwal both pushing electric and hybrid machine rental.
- In the case of Hoogwerkt there is a genuine innovation in the rental market: A start-up specialising in lithium-ion battery-powered machines, as well as hybrids, and distributed through a low-cost network of locations where customers can pick-up machines and tow them away. It already has 11 sites, plans for many more, and a fleet of 300 units, with finance in place for a fleet of up to 1,400 units, providing it meets its revenue targets.
- It is a low-overhead, eco-rental model that will have the big players of the Dutch market – Riwal, Boels, Collé Rental and Loxam Workx – looking on with interest.
- With a market performing so well, it is perhaps surprising that there has not been more merger and acquisition activity. The fact is, Loxam, Riwal and Boels have all been investing in their international operations, most notably Boels with its foray into the UK.
- Riwal, for example, was explaining last year that 75% of its record €88 million fleet investment in 2018 would be spent on expanding its fleet in support of its international operations. Still, in the year that it celebrated its 50th anniversary, the company found time to expand its Netherlands network to seven locations, with a new depot in Zwolle at the end of the year.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS, MURRAY POLLOK*



- The past 18 months have also seen the Netherlands reinforce its reputation as the ‘first choice’ location for Asian businesses entering the market. The period saw Japanese MEWP manufacturer Nagano enter Europe with an agreement with Pfeifer Heavy Machinery, while Chinese supplier LGMG was investing heavily in its European sales office and warehouse in Rotterdam – and in the process taking on Dutch access veteran Hans Aarse as an advisor. The company also sealed a deal with major access player Peinemann Hoogwerksystemen.
- In the absence of any major company acquisitions, it was left to Dutch companies to focus on fleet investment. That included some interesting deals, with Loxam’s investment in low-level access from JLG’s Power Towers division for its Netherlands fleet being a notable development. HWS Verhuur took delivery of an additional 50 GMG slab scissors, while Collé Rental & Sales reminded us of the Dutch liking for tracked booms with a deal to buy 40 Aichi models.
- The outlook remains positive for rental companies in the Netherlands. And is it possible that the focus on international expansion of its biggest players could present an opportunity for the country’s small and medium-sized renters?

APPENDIX

IPAF POWERED ACCESS RENTAL MARKET REPORT 2019 – THE NETHERLANDS

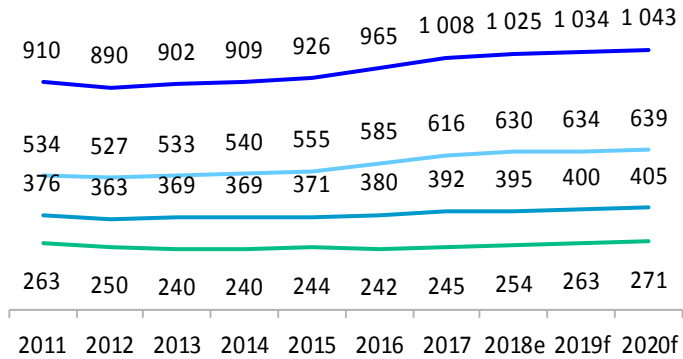
THE NETHERLANDS – CONSTRUCTION STATISTICS



Both construction and GDP per capita indicators are expected to grow steadily in the Netherlands over the next few years.

CAGR 18-20 = 0.89%

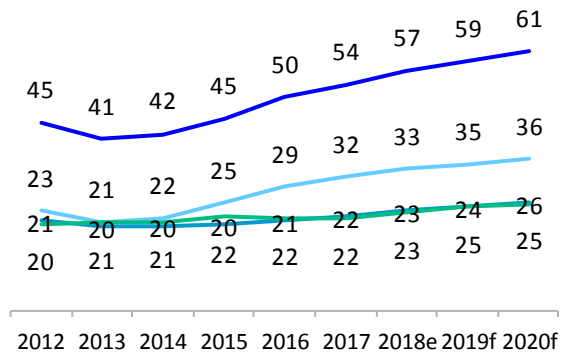
Europe – Construction data



Source: DuckerFrontier for IPAF

CAGR 18-20 = 3.86%

The Netherlands



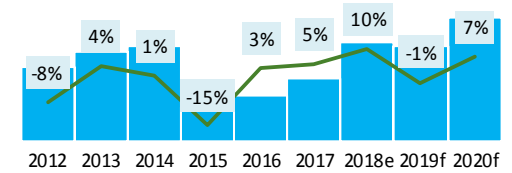
Source: DuckerFrontier for IPAF

Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

CAGR 18-20 = 2.88%

The Netherlands



THE NETHERLANDS GDP per Capita YoY % evolution

Source : FrontierView – March 2019.

CAGR: Compound annual growth rate

COUNTRY REPORT – UNITED KINGDOM

IPAF Powered Access Rental Market Report 2019 – Europe

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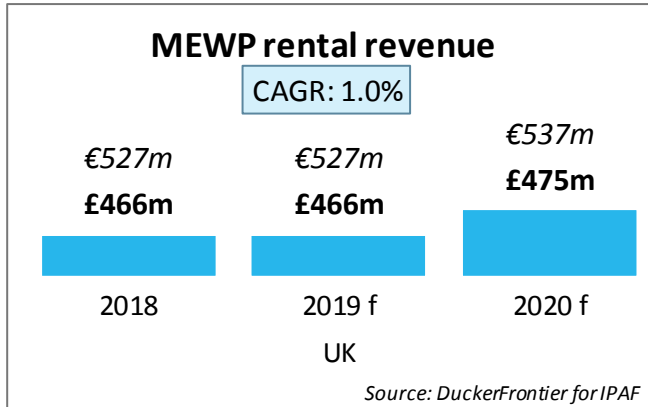
**THE EUROPEAN
ASSOCIATION
AWARDS 2018**

BRONZE
Best Provision of Industry
Information and Intelligence

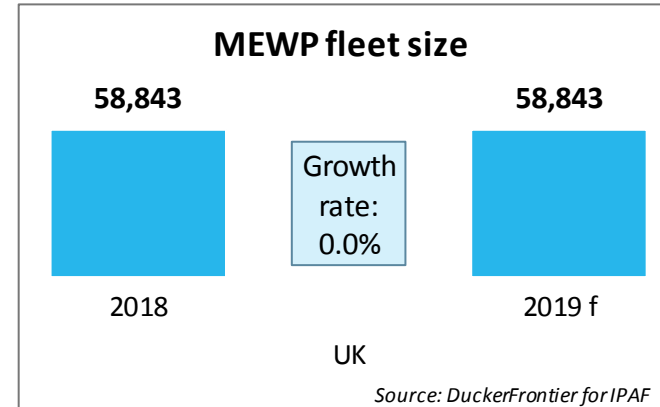
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UK – KEY FINDINGS

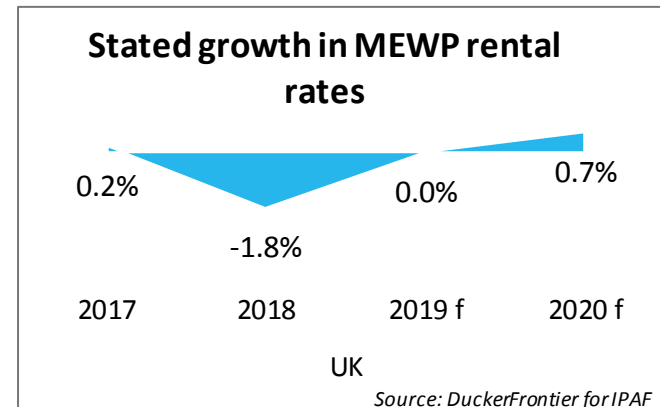
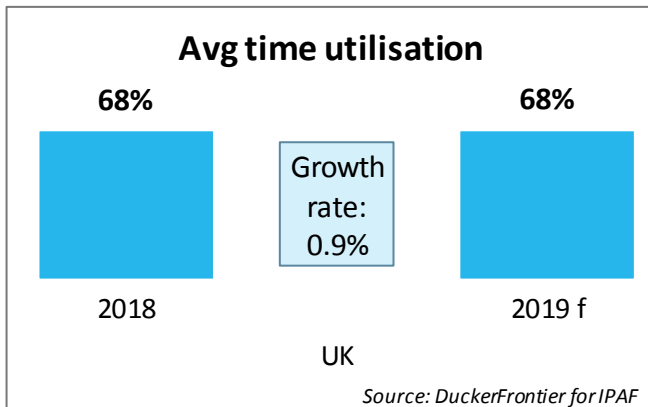
UK MEWP rental companies are adjusting their strategy in light of ongoing Brexit uncertainty and fierce market competition: 2018 was another good year, but the market is expected to remain flat in 2019.



CAGR: Compound annual growth rate

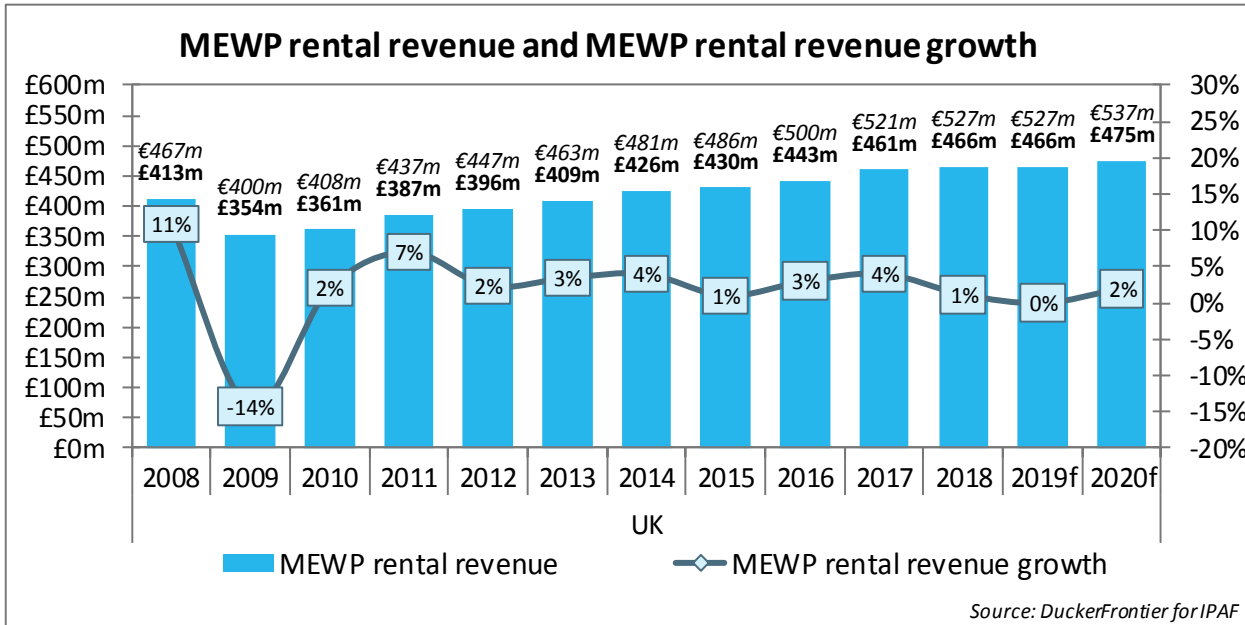


- The UK MEWP rental market grew in 2018, fuelled by positive economic conditions, continuing healthy construction activity and high levels of demand.
- First signs are showing that the pace of growth is slowing; investment and rental rates both fell slightly.

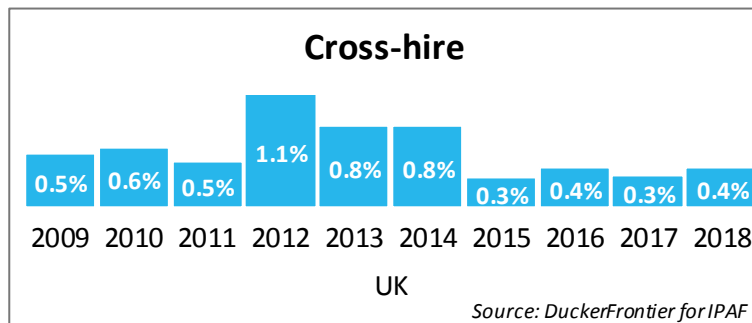


UK – RENTAL MARKET VALUE AND GROWTH

As forecast in last year's report, the UK MEWP rental market grew moderately in 2018. As competition becomes even fiercer against an uncertain economic backdrop, growth is expected to flatline in 2019.



Exchange rate £1 = 1.13€



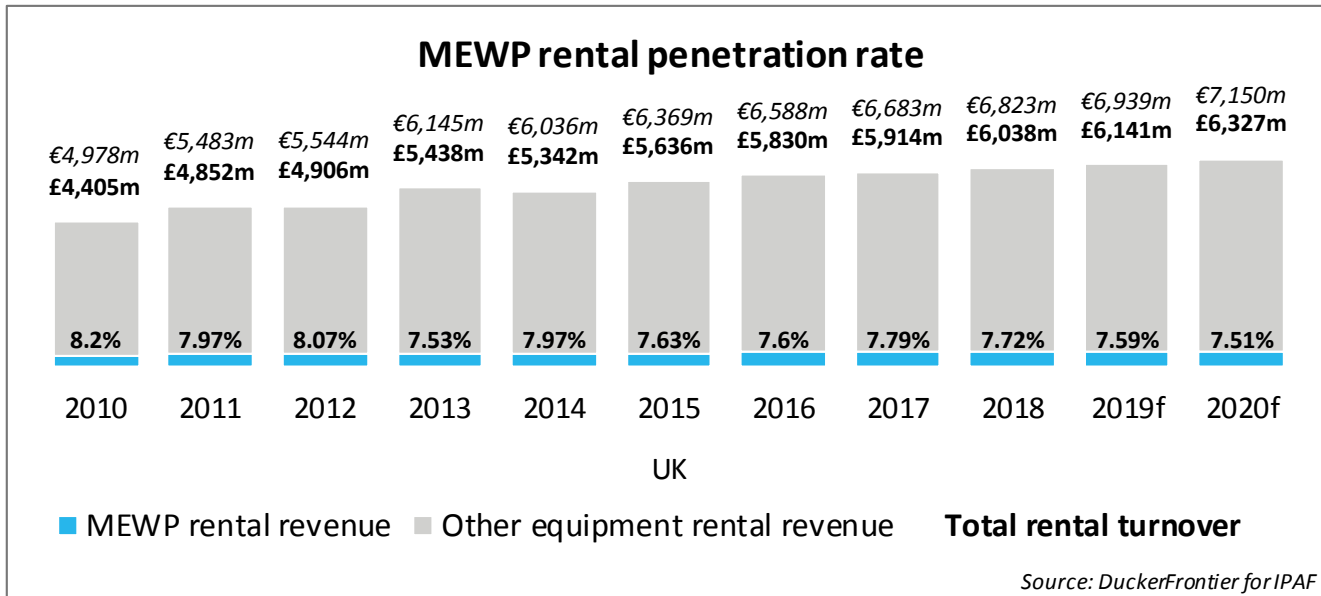
- The UK MEWP rental market continued to develop in 2018, though at a more moderate pace than previous years. Tough competition and uncertainties linked to Brexit lead rental companies to adopt a more cautious attitude.
- UK MEWP rental revenue reached £466 million in 2018.
- As the outcome about Brexit remains uncertain at the time of writing, market players focus on maintaining their current level of business and hope for a return of confidence from 2020 onwards.
- In 2018, the level of cross-hire was at 0.4%, a rather similar level to the previous few years.

UK – MEWP RENTAL PENETRATION



UK MEWP rental revenue shows a slight decrease and is expected to constitute around 7.5% of total equipment rental revenue in the coming years (source: ERA).

- MEWP rental penetration in the overall rental market decreased slightly in 2018.
- This trend is likely to continue in 2019 and in 2020.

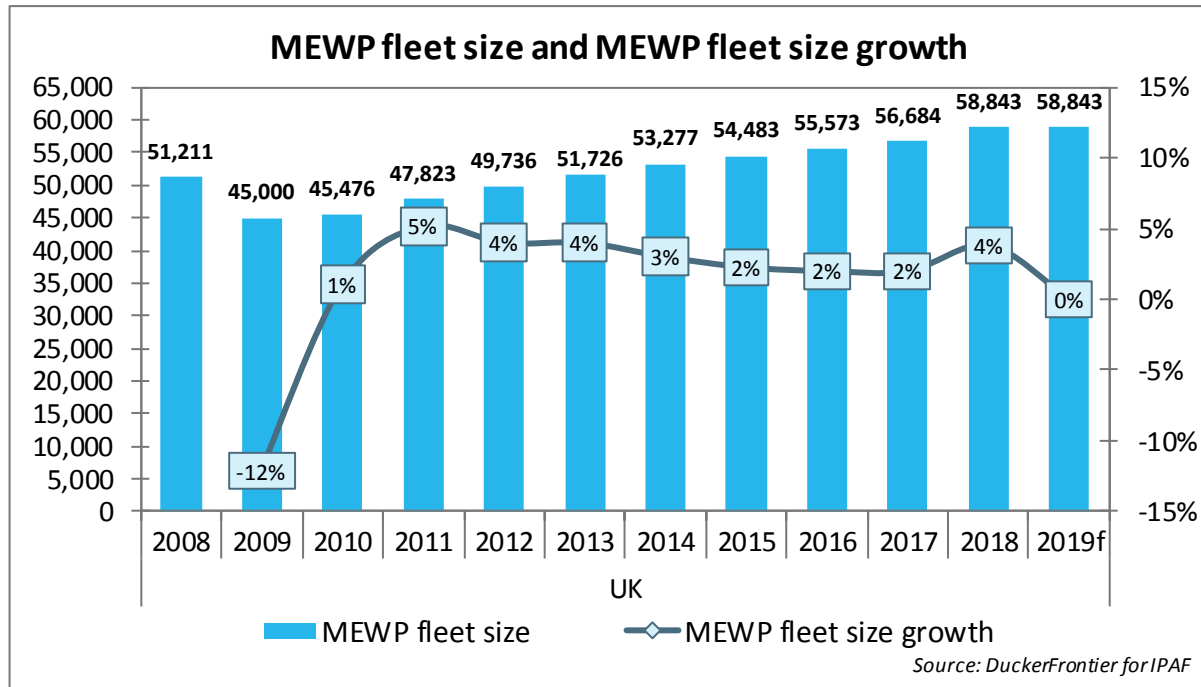


Source for total rental turnover: ERA 2018 Report.

UK – MARKET SIZE IN UNITS

After nine years of sustained fleet expansion, MEWP rental companies expect to maintain a relatively stable fleet size in 2019 and focus on fleet renewal.

- In 2018, MEWP rental companies have maintained a good level of investment and pursued their fleet expansion, encouraged by a strong demand.
- Nevertheless, the UK MEWP rental fleet size is said to be over-capacity and because of the uncertainty linked to Brexit, rental companies expect to focus mainly on fleet renewal in 2019.



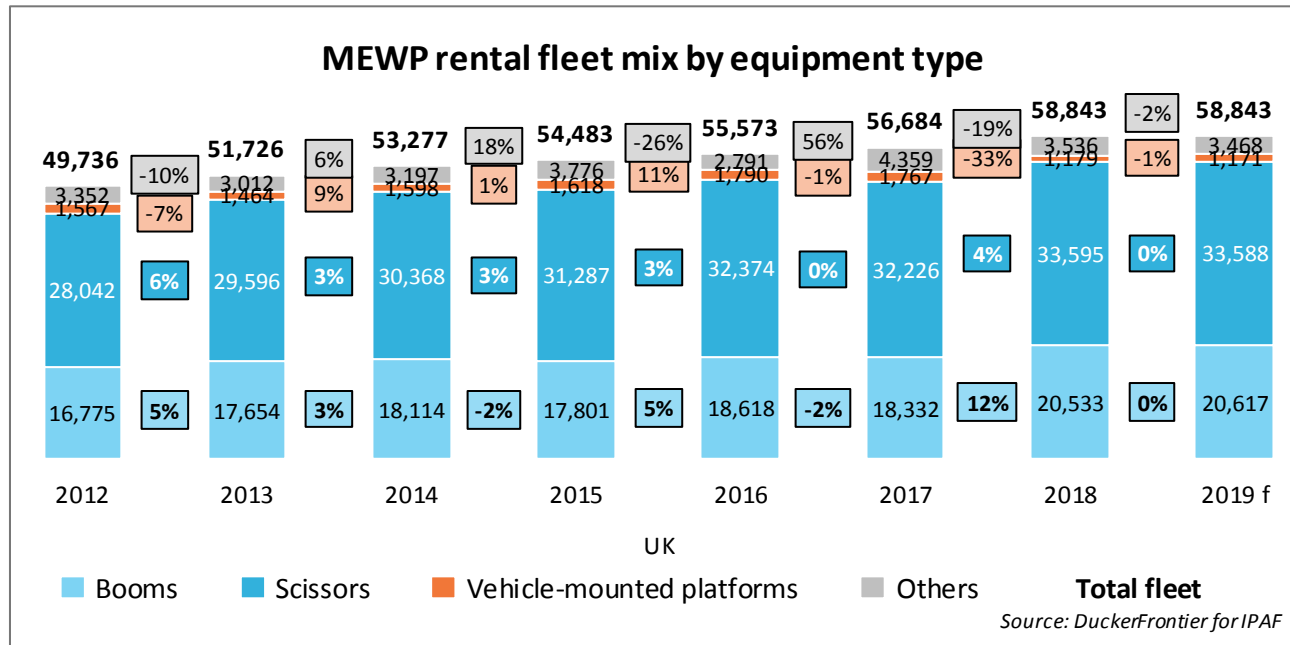
*Note: Included are powered access lifts: All booms, scissor lifts and vertical masts
 Excluded: Low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs*

UK – MARKET SIZE IN UNITS



Main categories of equipment benefited from fleet expansion in 2018: The number of scissors and booms units increased. Fleet mix is expected to remain stable in 2019.

- Though the share of booms increased significantly, scissors remain the dominant category.
- No significant change is expected as MEWP rental companies plan to renew part of their fleet on a like-for-like basis.



Included are powered access lifts: all booms, scissor lifts and vertical masts.

Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, MCWPs

+X%

% unit growth, eg scissors fleet increased by 4% from 2017 to 2018.

Others include: vertical lifts, vertical masts, push-around, trailer mounted/towable.

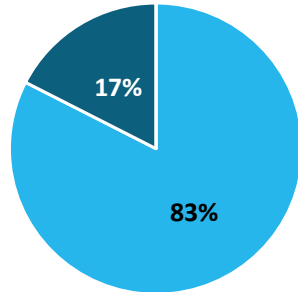
UK – MARKET SIZE IN UNITS

Total boom fleet size increased in 2018, and the proportion of straight and articulated machines did not change significantly.

- Articulated booms account for almost 85% of total booms fleet, one of the highest shares among the ten European countries under study.

MEWP Boom Fleet Mix by Type – UK – 2017

Total boom fleet
(18,332)



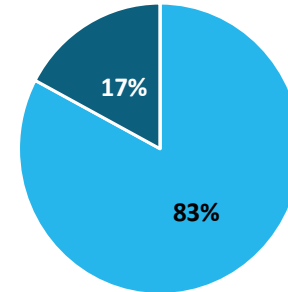
■ Articulated booms (15,129)

■ Straight booms (3,203)

Source: DuckerFrontier for IPAF

MEWP Boom Fleet Mix by Type – UK – 2018

Total boom fleet
(20,533)



■ Articulated booms (16,997)

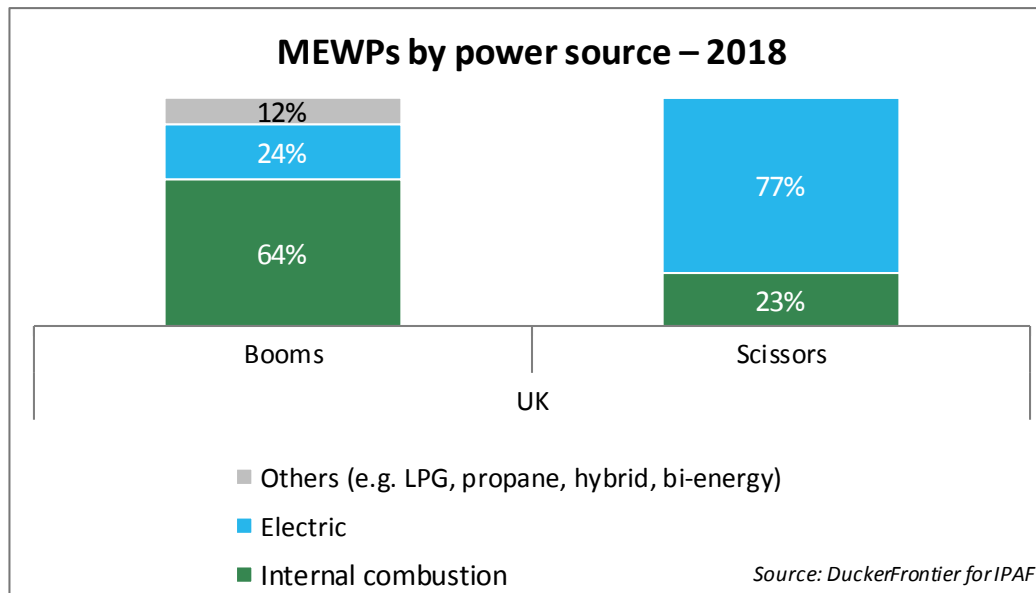
■ Straight booms (3,536)

Source: DuckerFrontier for IPAF

UK – POWER SOURCES

Electric is the dominant power source in the UK scissor fleet, accounting for more than three quarters of the fleet. Electric machines account for almost a quarter of all booms.

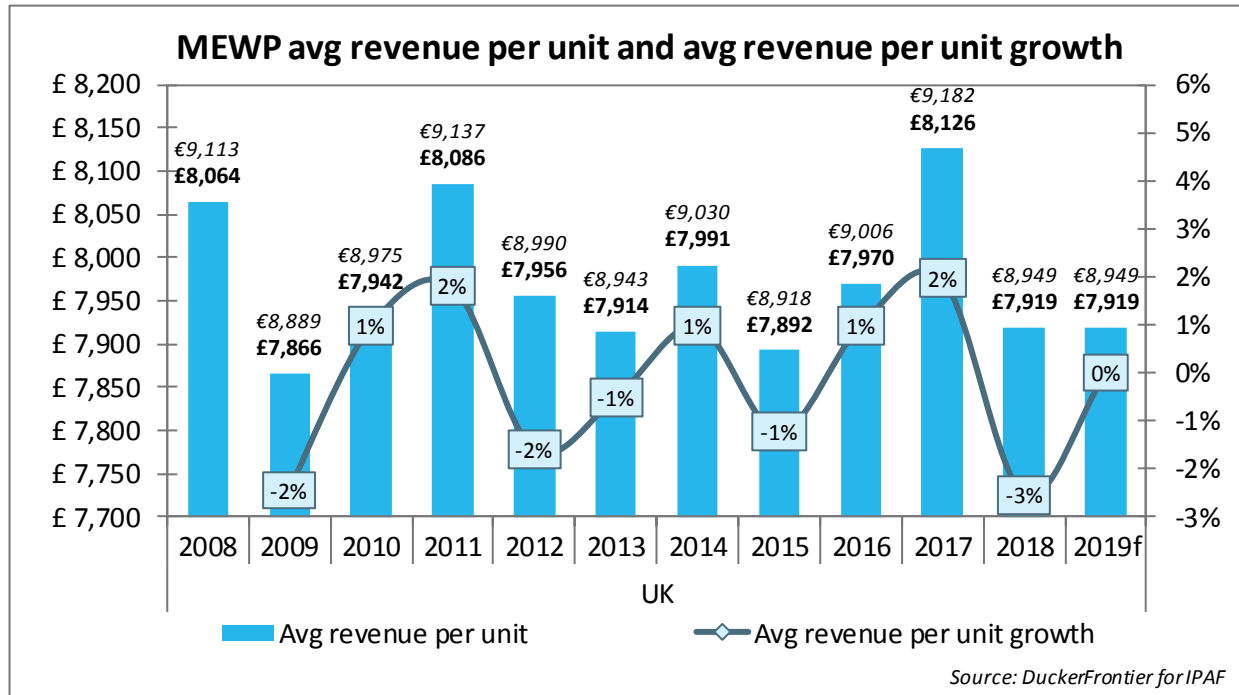
- The share of electric equipment is expected to increase among total MEWP rental fleet in the UK: Rental companies intend to replace some internal combustion engine equipment with greener alternatives when they renew their fleet.
- The type of work undertaken by booms still requires the versatility of internal combustion engines.



UK – REVENUE PER UNIT

The average rental revenue per unit went below £8,000 in 2018 as a result of increased competitive pressure on the market.

- Rental companies reported that rental rates had fallen more than anticipated, which negatively impacted average revenue per unit.



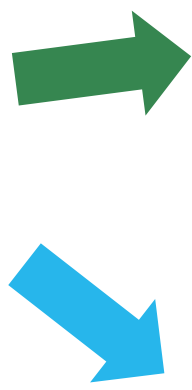
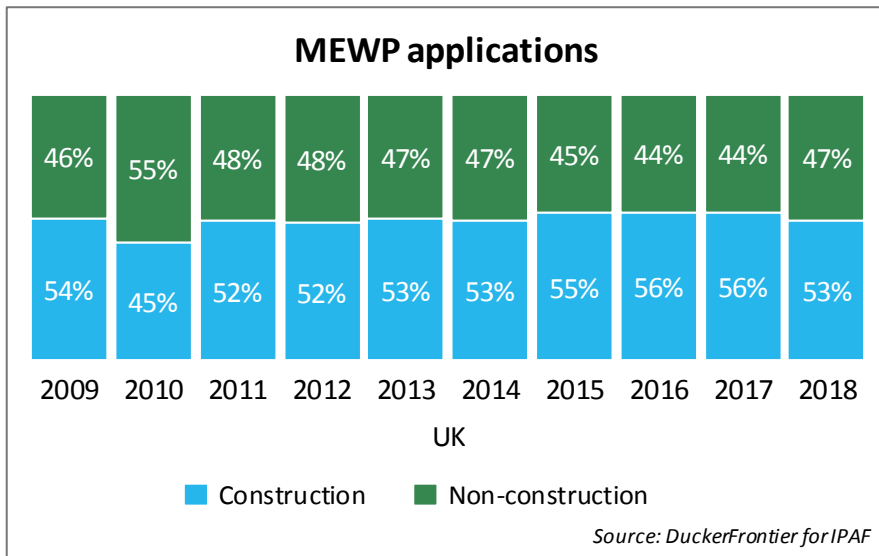
Included are powered access lifts: all booms, scissor lifts and vertical masts
 Excluded: low-level access equipment (<3m high), telescopic material handlers, forklifts, cranes, and MCWPs

Exchange rate £1 = 1.13€

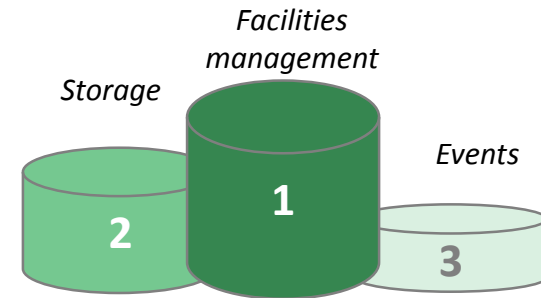
UK – APPLICATIONS

MEWP rental companies report that they are diversifying their customer base towards more non-construction applications, which are perceived as less volatile and therefore a more stable source of revenue.

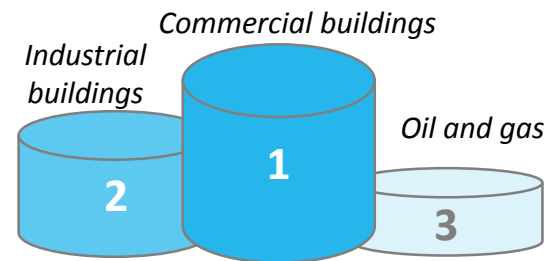
- Similar to last year, facilities management is the main application among the non-construction sub-sector.
- The split of construction sub-sectors remained broadly similar to 2017: Commercial and industrial construction being most common.



Main non-construction sub-sectors



Main construction sub-sectors



Share of rental revenues

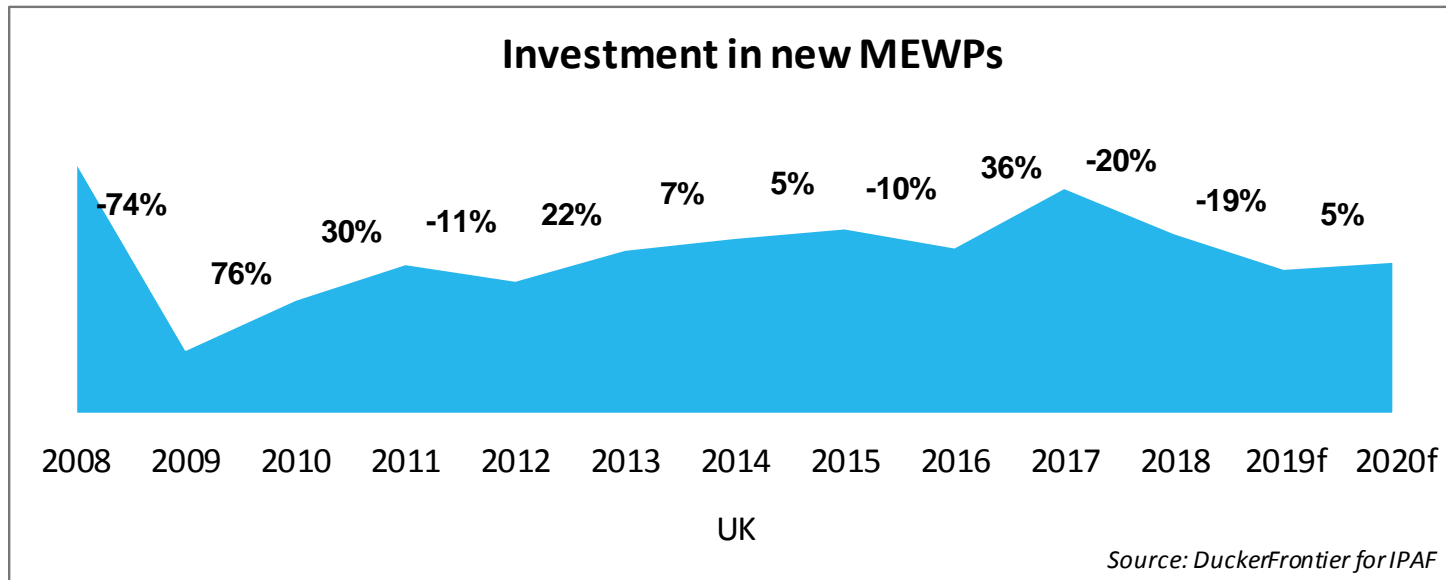
Non-construction includes industry, maintenance, cleaning, utilities, events.

Construction includes new build and renovation; including residential, commercial, retail and industrial.

UK – INVESTMENT

Rental companies reduced investment, switching away from fleet expansion and instead focusing on equipment renewals, and this strategy is expected to be maintained by most in 2019.

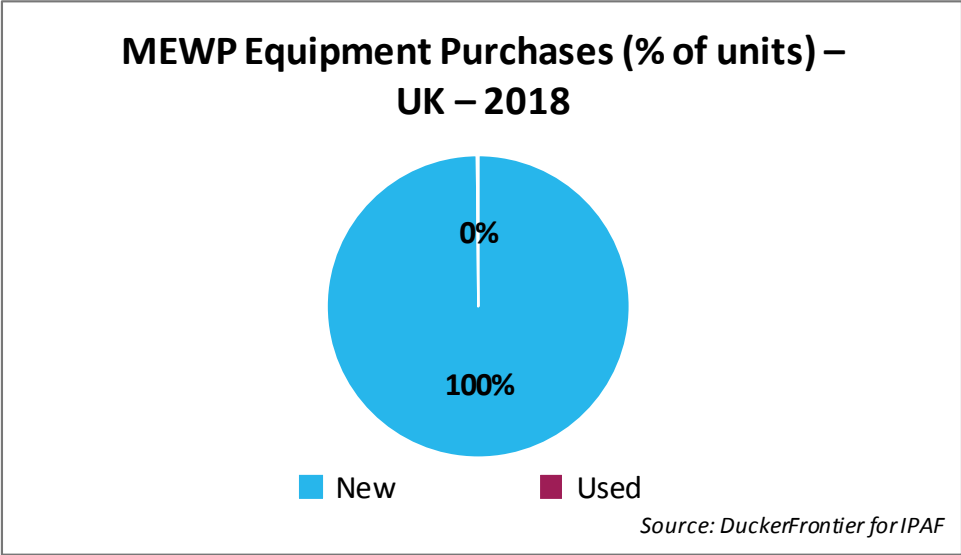
- The increasing amount of investment made in 2016 allowed rental companies to both renew and expand their fleets in 2017.
- In 2018, rental companies adopted a more cautious attitude and reduced capital expenditure, meaning little to no fleet expansion.
- This trend is expected to continue as rental companies report limited confidence regarding market evolution for 2019 and 2020.



UK – EQUIPMENT PURCHASES



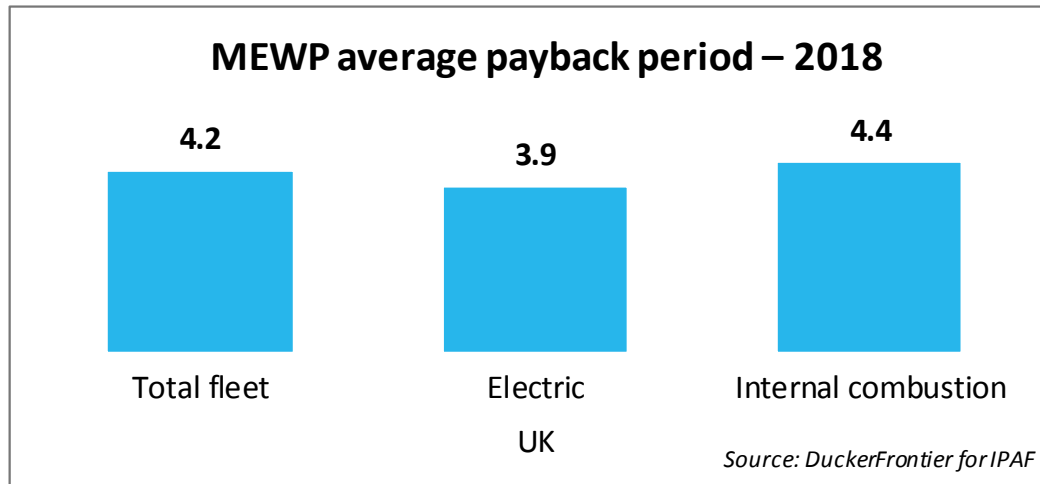
All equipment purchased by MEWP rental companies in the UK is bought new.



UK – TYPICAL PAYBACK PERIOD

In 2018, the average payback period increased to more than four years, owing mainly to fierce competition and the downward pressure on rental rates and revenue per unit.

- As a result to deteriorating rental rates, the average payback period increased in 2018: It went from 43 months in 2017 to 50 months in 2018.

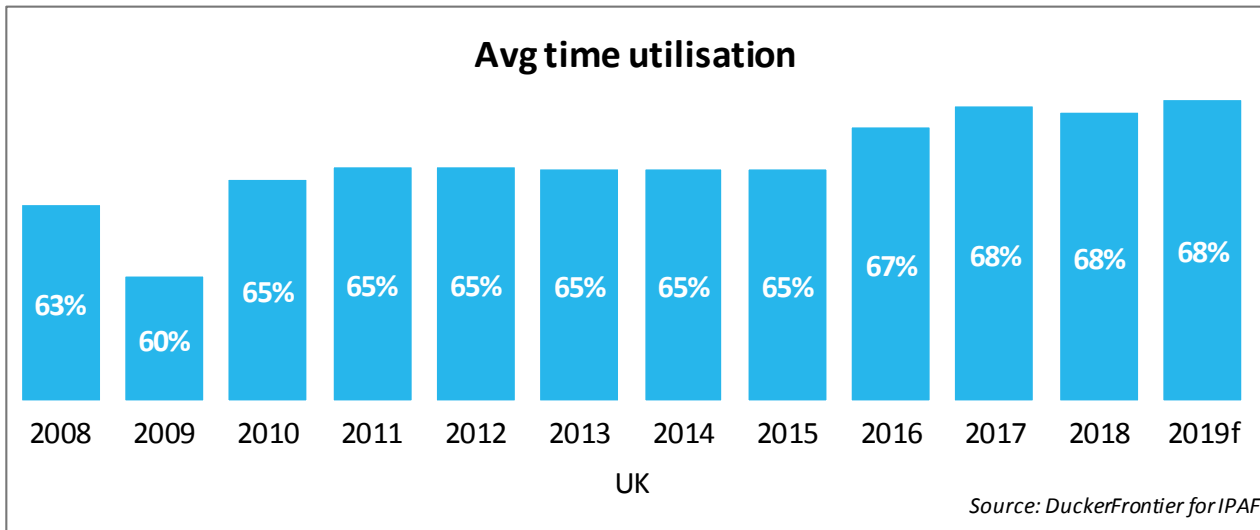


4.2 = 4 years and 2 months

UK – UTILISATION RATES

The utilisation rate remained stable in 2018, thanks to limited fleet expansion.

- Utilisation rates remained stable in 2018: Fleet expansion absorbed the increased market demand.
- The utilisation rate of scissors in the UK now exceeds 70%, a challenging threshold for completing essential maintenance and efficient equipment turnaround times.



Scissors: 71%

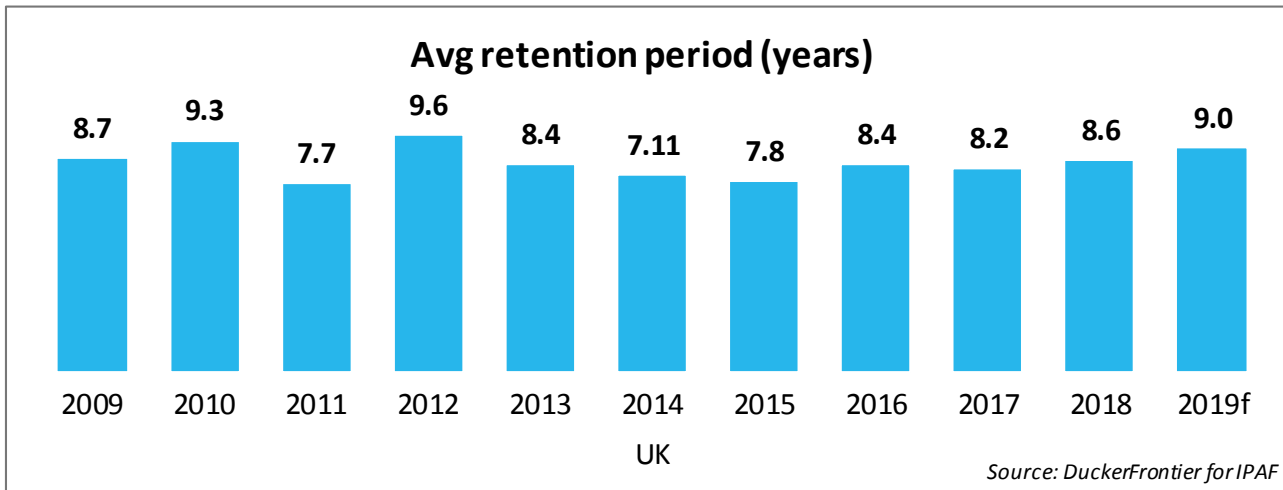
Booms: 66%

Definition: Physical number of machines out on hire as % of total number in fleet at any given time.

UK – RETENTION PERIOD

The typical retention period of MEWP equipment increased slightly. As rental companies factor in uncertainty over changes in the market in the next few years, they expect average retention periods may increase.

- Booms are typically retained much longer than scissors.
- In 2019, rental companies expect the retention period to increase again to around nine years.



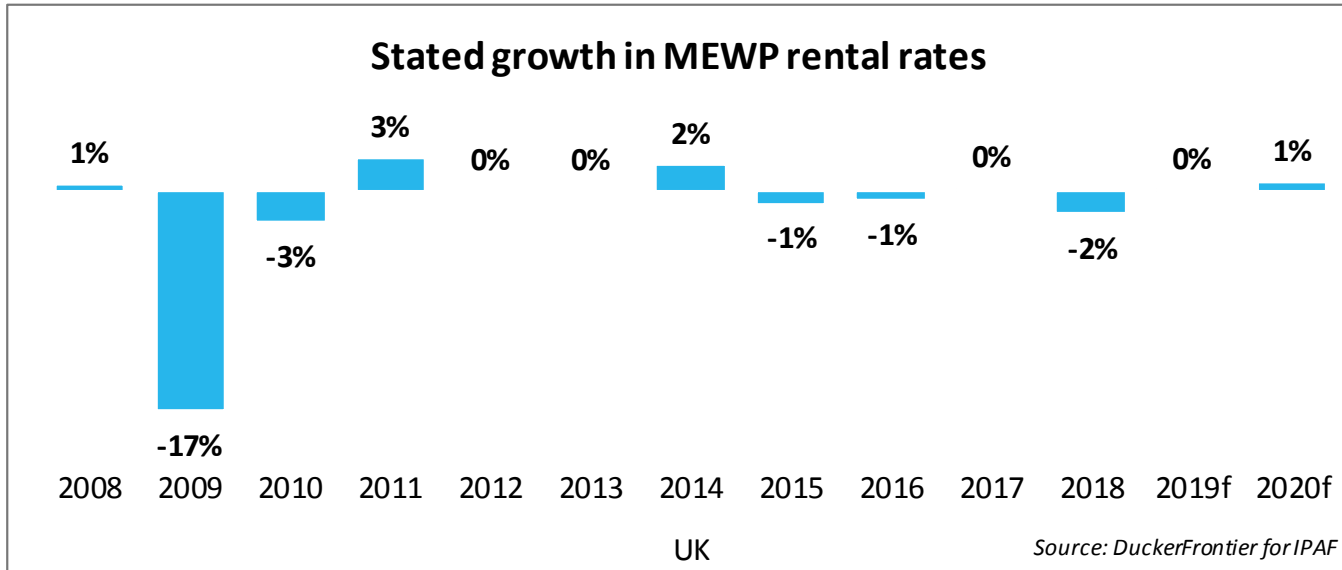
8.4 = 8 years and 4 months

Definition: Period of time that a machine is kept in fleet = selling age if acquired new

UK – RENTAL RATES

Rental rates went down in 2018 under the effect of both strong competition and lack of confidence in the potential for future market growth. Falls on this scale had not been witnessed since 2010.

- As forecast in last year's report, rental companies reported a decrease of their rental rates in 2018.
- Due to the uncertainty of the impact of Brexit on the market and strong competition, MEWP rental companies remain pessimistic regarding outlook and don't foresee rental rate increases any time before 2020.



**A PERSPECTIVE
FROM THE
MANAGING EDITOR
OF *INTERNATIONAL
RENTAL NEWS***

***IPAF POWERED ACCESS
RENTAL MARKET REPORT
2019 – UK***

- Trying to work out the implications of Brexit was the unavoidable task facing many UK businesses over the past 18 months, but it was a fruitless pursuit. The fact that sales of machines to UK access rental companies seemed to hold up pretty well last year was being used as evidence for whatever view on Brexit you happened to hold: A demonstration that everything was going to be just fine or, alternatively, that businesses were stockpiling and getting their orders in early before chaos ensued.
- Prudent companies were indeed ordering in higher parts inventories than usual, and TVH Group – one of the bigger parts suppliers – even opened a much larger warehouse in the middle of the country as part of its Brexit planning.
- But ignore Brexit and the overriding feeling from the past 18 months is that the UK remains one of the most competitive powered access markets in the world, and that the wider plant-hire sector can be a perilous business for those who are unlucky or ill-prepared.
- An example of the peril was given by Hawk Plant, one of the largest UK players in earthmoving rentals, which collapsed in early 2019 in part as a result of bad debts related to the demise of Carillion the previous year.
- More relevant to the access sector was that Loxam – buyer of Lavendon the previous year – reported a fall in its UK-related revenues in its 2018 results. Loxam’s UK business is almost entirely focused on access – it is by a large margin the biggest access rental company in the country – so its challenges were an indicator of the competitive nature of the market.
- A-Plant, for one, was holding capital investment levels steady in the current financial year (to the end of April 2019), but forecasting a 15% reduction in the following year. In March it said the UK “remained relatively flat with a competitive rate environment”.

A PERSPECTIVE FROM THE MANAGING EDITOR OF *INTERNATIONAL RENTAL NEWS*



- That view is supported by the findings of the European Rental Association (ERA), which said last year that the UK's overall equipment rental market grew at a slower rate than the European average. It estimated growth at 2.1% last year and was forecasting less than 1% for 2019, the lowest rate of any major rental market in Europe.
- A challenging market, then, and not one in which there were clear trends in terms of consolidation or acquisitions.
- In March 2019, Speedy Hire decided to invest more heavily in access with the acquisition of Lifterz, giving it an additional 1,300 access platforms. The company said it was part of a move to create a national powered access business, operated through its existing depot network.
- Taking another approach, meanwhile, was HSS Hire, which decided to sell off its UK Platforms business to Loxam, giving the Paris-based renter around 3,000 additional machines for its already very large fleet.
- So, one specialist becomes part of a generalist business, while one generalist-owned operation joins a specialist. You could call that the absence of a trend.
- There were other notable deals made during the year. A-Plant acquired the Hoist-It business – expanding its construction-hoists activities – while Netherlands-based rental giant Boels Rental further expanded its UK operation with the acquisition of Artisan Hire Centres and its sister company SAS (Survey & Safety Equipment Hire and Sales).
- The company now has 38 rental locations in the UK and company CEO Pierre Boels said that the “ultimate aim is to achieve national coverage”. That will take time but can only mean

APPENDIX

IPAF POWERED ACCESS RENTAL MARKET REPORT 2019 – UK

UK – EXCHANGE RATE

The same currency exchange rate has been used throughout the time period (2018) in order to eliminate variation in growth rates due to exchange rate fluctuations rather than to the actual MEWP rental market.

	Currency Unit	Converter to Euro
UK	£ 1	1.130

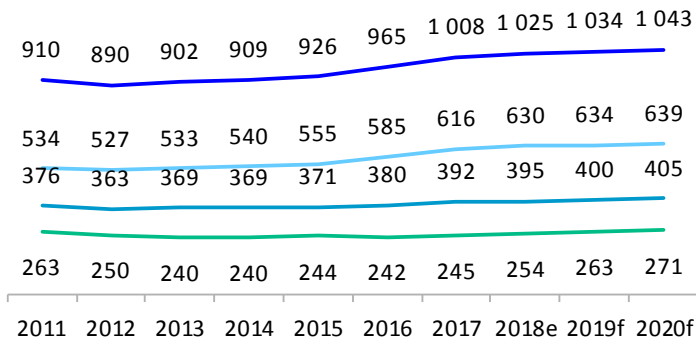
UK – CONSTRUCTION STATISTICS



At time of writing, macro-economic indicators were expected to evolve positively. The construction activity is expected to grow, fuelled by residential construction and civil engineering to a lesser extent.

CAGR 18-20 = 0.89%

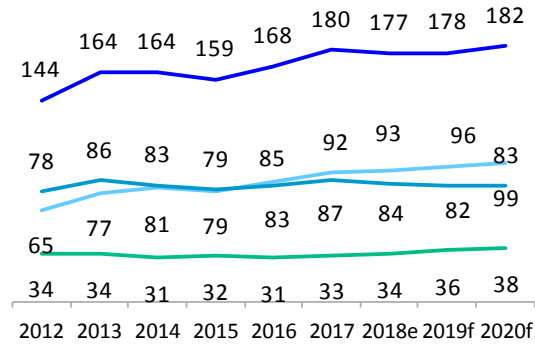
Europe – Construction data



Source: DuckerFrontier for IPAF

CAGR 18-20 = 1.35%

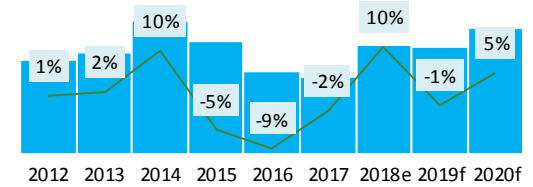
UK



Source: DuckerFrontier for IPAF

CAGR 18-20 = 2.33%

UK



UK GDP per Capita YoY % evolution

Source : FrontierView – March 2019.

Construction pipeline (billions euros) based on Euroconstruct 2018 figures.

- Residential construction
- Non-residential construction
- Total construction
- Civil engineering / Major infrastructure

CAGR: Compound annual growth rate



The International Powered Access Federation (IPAF) is a not for profit members organisation that promotes the safe and effective use of powered access equipment worldwide. Members include manufacturers, rental companies, contractors and users.

Offices in: UK, Brazil, China, Finland, France, Germany, Italy, the Netherlands, Singapore, Spain, Switzerland, UAE, USA.

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