Kemény Boehme & Company

ReMaTec

REMANUFACTURING STUDY 2017

RESULT REPORT – Munich, November 2017

- In co-operation between the management consultancy **Kemény Boehme & Company and rai Amsterdam**, a study on the topic of remanufacturing was carried out at the trade fair **ReMaTec 2017**.

- The aim of the survey is to provide deeper insights into the topics of **markets**, **product & process**, **core management**, **quality** as well as **marketing & sales**. Furthermore the aim is to find out more about the **development and orientation of the asked companies** in the area of remanufacturing.

- In total more than **90 feedbacks** from company representatives from **all over the world** were collected at the fair as well as via the website and social media channels.

- It needs to be noted that remanufacturing is a **strongly growing market** in which **diversification**, **professional core management** and **high quality standards** are of increasing importance.

REMANUFACTURING STUDY 2017

TOPICS OVERVIEW

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GENERAL COMPANY PROFILE

More than **90 participants** –
OEM/OES, IAM, Tier-n and others…

MARKETS

active in more than
10 different countries...

PRODUCT & PROCESS

mainly active in **automotive industry**
and on the way to **diversify**…

CORE MANAGEMENT

challenged for **good quality cores**
in their market…

QUALITY

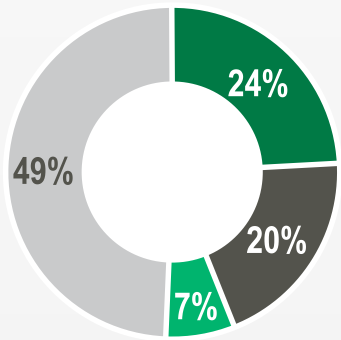
whilst ensuring a **high level of quality**
in remanufactured products…

MARKETING & SALES

in the expectation of a **strongly growing remanufacturing market**.

WHO WAS PART OF THE STUDY?

TYPES OF PARTICIPANTS



n = 91

22	OEM/OES[1)]
6	IAM[2)]
18	Tier-n[3)]
45	Others[4)]

n = 91

RELEVANCE OF REMANUFACTURING BUSINESS?

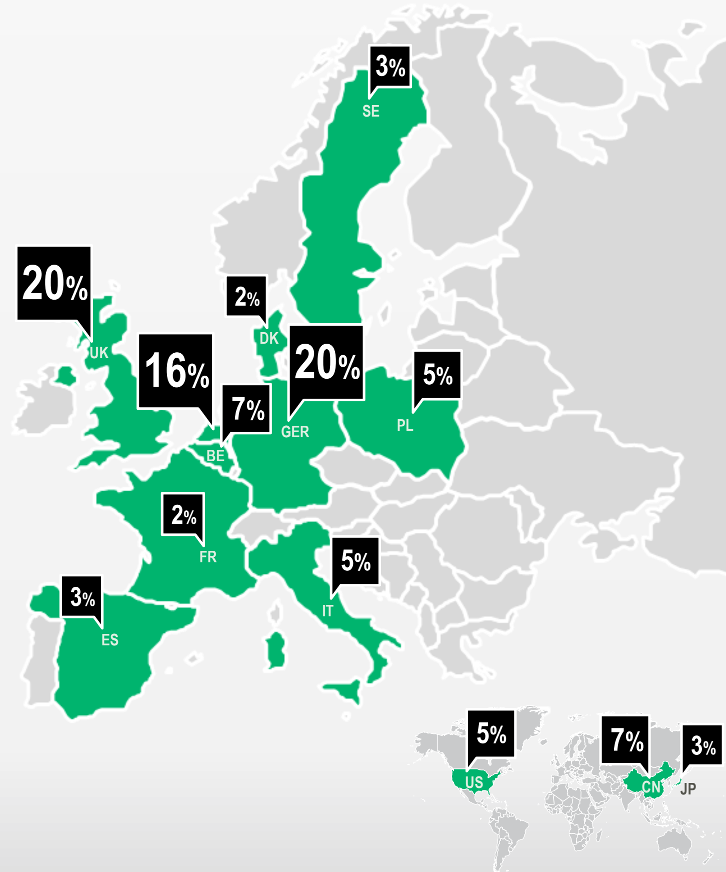
STAFF WORKING IN REMANUFACTURING IN THE ASKED COMPANY

% of staff	OEM/OES	IAM	Tier-n	Others	TOTAL
<25%	52%	42%	43%	43%	43%
25% - 50%	4%	5%	14%	14%	7%
50% - 75%	17%	26%	14%	14%	22%
>75%	26%	26%	29%	29%	28%

n = 91

WHERE ARE THE PARTICIPANTS FROM?

PARTICIPANT ORIGIN



n = 91

1) OEM = original equipment manufacturer/OES = original equipment service 2) IAM = independent aftermarket 3) Tier-n = suppliers 4) e.g. service, government, university, consultancy

HOW IMPORTANT IS REMANUFACTURING?

SHARE OF COMPANY REVENUE GENERATED BY REMANUFATURING

share of revenue	<25%	25-50%	50-75%	>75%
OEM/OES	52%	17%	4%	26%
IAM	26%	21%	21%	32%
Tier-n	43%	29%	14%	14%
Others	71%	14%	0%	14%

- For approximately 70% of the OEM/OES and Tier-n respondents remanufacturing means 50% or less of total sales.
- For more than 50% of IAM surveyed remanufacturing means 50% or more of total sales.
- Nearly one-third of IAM's generate more than 75% of their total sales by remanufacturing – more than a quarter of respondents at OEM / OES.

» Remanufacturing is a central pillar of the surveyed companies. «

HOW IMPORTANT IS REMANUFACTURING?

MAIN CHALLENGES IN REMANUFACTURING

RANKING

very important → less important

	1	2	3	4	5	6	7	8
OEM/ OES	3,8	3,9	4,1	4,5	4,6	4,9	5,0	5,3
	quality	strategic positioning	technical product know how	pricing	market access	core manage-ment	consistent processes	marketing & sales
IAM	3,6	4,1	4,2	4,7	4,8	4,8	4,9	5,0
	pricing	technical product know how	quality	strategic positioning	market access	marketing & sales	core manage-ment	consistent processes
Tier-n	2,8	3,0	3,7	4,7	4,7	5,0	6,0	6,2
	technical product know how	market access	quality	pricing	strategic positioning	consistent processes	core manage-ment	marketing & sales
Others	3,2	4,0	4,0	4,0	4,5	5,2	5,5	5,7
	strategic positioning	technical product know how	core manage-ment	marketing & sales	quality	consistent processes	pricing	market access

n = 91

- Technical product know-how and quality are key challenges for OEM/OES, IAM and Tier-n.
- Marketing & Sales as well as consistent processes are less critical for the surveyed companies.
- Since the difference between the best and the worst ranking is significantly lower for OEM/OES and IAM than for Tier-n, it can be assumed that the challenges vary or are not yet completely clear.

» Challenges in the remanufacturing industry are company-specific. «

REMANUFACTURING STUDY 2017
MARKETS (1/4)

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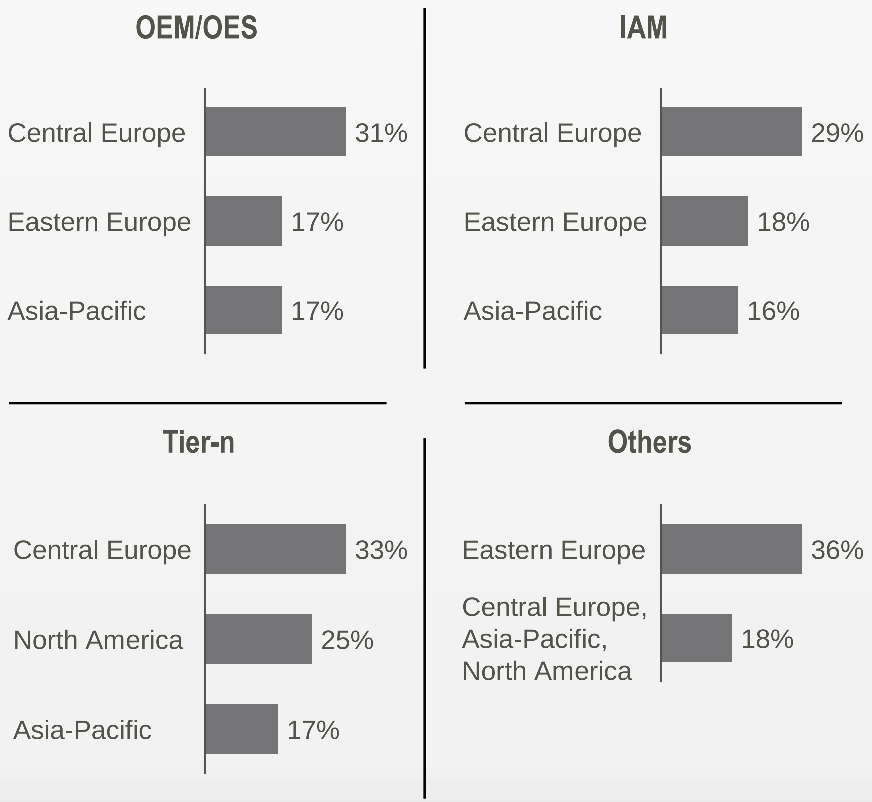
WHAT ARE THE FOCUS MARKETS?[1)]
TOP 3 GEOGRAPHICAL FOCUS MARKETS



n = 91

- Central and Eastern Europe are the markets in the focus of the surveyed companies.
- The market Asia-Pacific also plays a crucial role.

» At present Europe is still the main market for remanufactured parts – new markets arise. «

1) multiple answers possible

WHERE IS REMANUFACTURING LOCATED?[1)]

LOCATION OF REMANUFATCURING PLANTS/SITES

Region	OEM/OES	IAM	Tier-n	Others
Central Europe	47%	42%	80%	30%
Eastern Europe	9%	11%	0%	20%
North America	12%	21%	0%	20%
Asia-Pacific	24%	21%	20%	20%
Africa and Middle East	3%	0%	0%	0%
South America	6%	5%	0%	10%

n = 91

- Parts remanufacturing sites are located mainly in Central Europe and Asia.
- North America and Eastern Europe also play a crucial role as location sites.
- In South America, Africa and the Middle East, on the other hand, there is hardly any reprocessing of parts.
- >> The market proximity plays in comparison to other aspects, such as low labor costs, a key role in the choice of location for reprocessing.

» The market proximity plays in comparison to other aspects, such as low labor costs, a key role in the choice of location for remanufacturing. «

1) multiple answers possible

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WHAT ARE THE FOCUS INDUSTRIES?[1)]

TRENDS TODAY AND IN THE FUTURE

n = 91

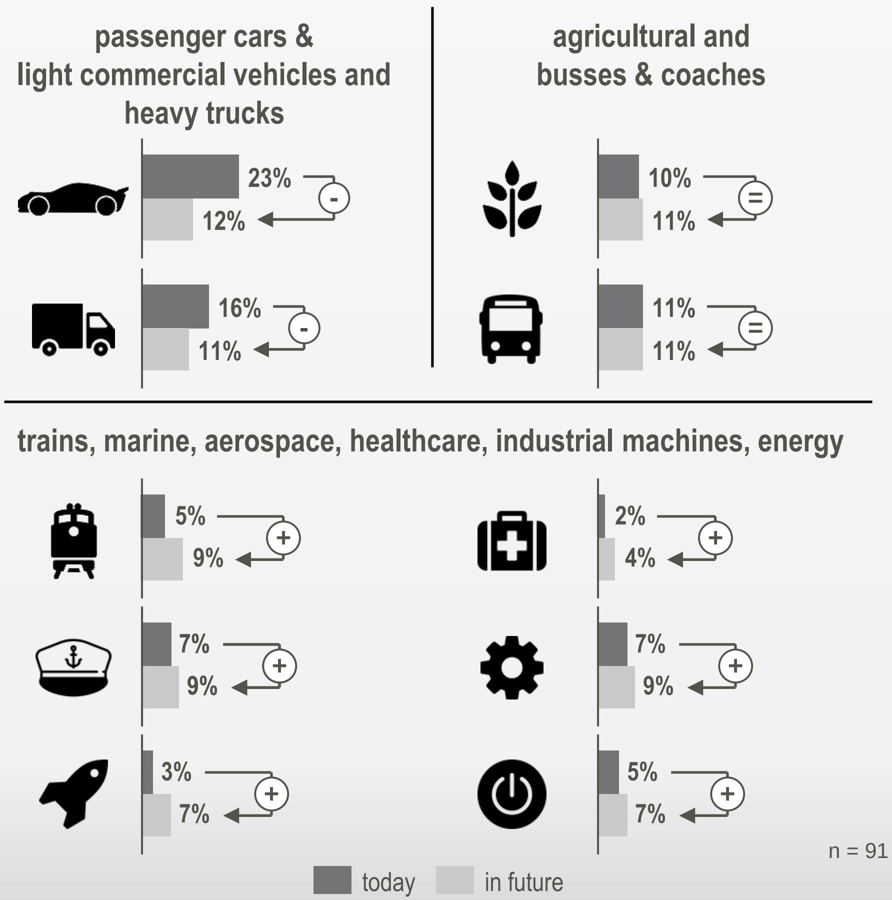
(today / in future)

	OEM/OES today	OEM/OES in future	IAM today	IAM in future	Tier-n today	Tier-n in future	Others today	Others in future
passenger cars & light commercial	21%	15%	23%	6%	50%	25%	19%	19%
agricultural	10%	8%	12%	11%	0%	13%	12%	19%
heavy trucks	13%	13%	18%	11%	25%	13%	12%	6%
busses & coaches	9%	11%	15%	11%	13%	0%	8%	19%
road machinery	10%	8%	12%	8%	0%	13%	12%	13%
trains	5%	8%	5%	9%	0%	13%	8%	6%
marine	9%	8%	6%	9%	0%	13%	8%	6%
aerospace	5%	6%	0%	8%			0%	6%
healthcare	0%	3%	2%	6%			8%	0%
industrial machines and/or electronics	9%	11%	5%	9%			8%	6%
energy	5%	6%	3%	9%	13%	13%	8%	0%

1) multiple answers possible

WHAT ARE THE FOCUS INDUSTRIES – ACROSS ALL TYPES?[1)]

TRENDS TODAY AND IN THE FUTURE



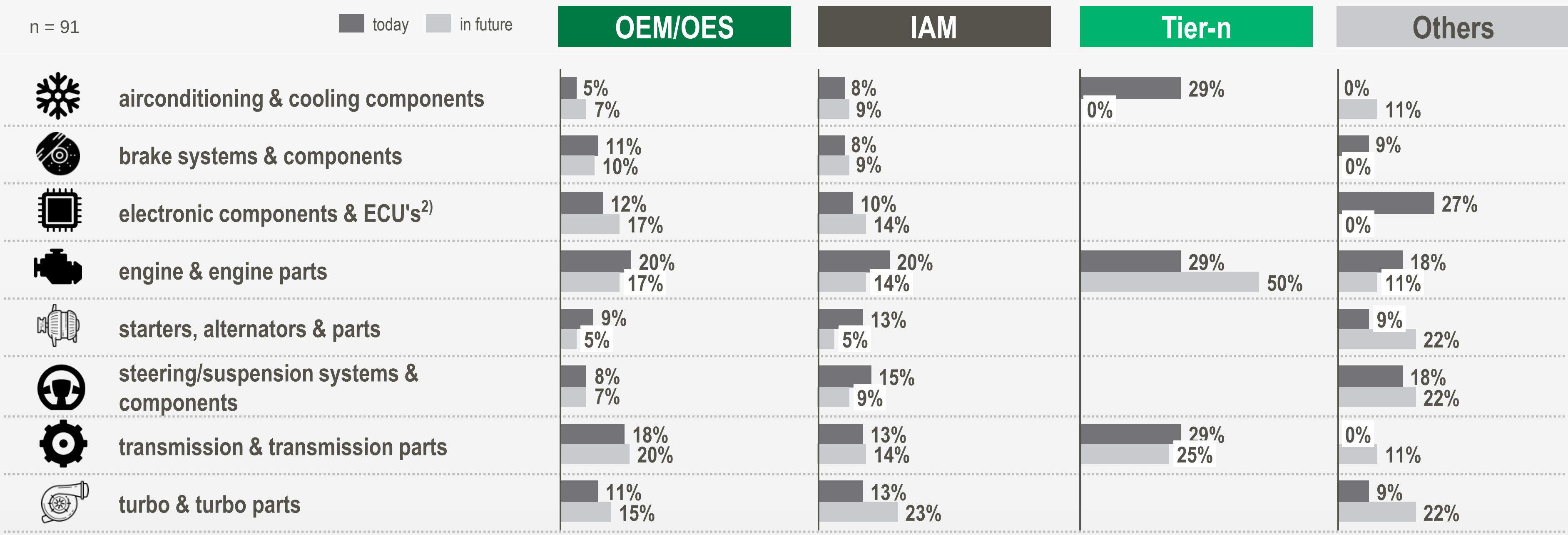
1) multiple answers possible

- The remanufacturing industry is currently dominated by the automotive industry (cars, commercial vehicles, buses, agricultural machinery).
- According to the respondents, however, the automotive industry will decline or stagnate in all areas.
- New industries such as trains, marine or aerospace are becoming increasingly important.

» The diversification of the remanufacturing industry is increasing – new industries are opening up. «

WHAT ARE YOUR FOCUS PRODUCTS?[1)]

TRENDS TODAY AND IN THE FUTURE



1) multiple answers possible 2) ECU = electronic control units

WHAT ARE YOUR FOCUS PRODUCTS?[1)]

TODAYS FOCUS

OEM/OES

- 20% engine & engine parts
- 18% transmission & transmission parts

IAM

- 20% engine & engine parts
- 15% steering/suspension systems & components

Tier-n

- 29% airconditioning & cooling components
- 29% engine & engine parts

Others

- 27% electronic parts
- 18% steering/suspension systems & components

n = 91

- At OEM/OES today (and in future) the focus is on the remanufacturing of engines and engine parts as well as transmission and transmission parts.
- Today IAM are also focusing on the remanufacturing of engines and engine parts as well as steering/ suspension systems – in the future turbo and turbo parts will become increasingly important.
- Today Tier-n are remanufacturing engines and engine parts, transmissions and transmission parts, as well as airconditioning systems – in the future, the focus will be on engines and engine parts.

» The remanufacturing of engines and engine parts is in the focus today and in the future. «

1) multiple answers possible

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PRODUCTS & PROCESS (3/4)

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WHAT ARE YOUR CORE COMPETENCIES?[1)]

TRENDS TODAY AND IN THE FUTURE

n = 91

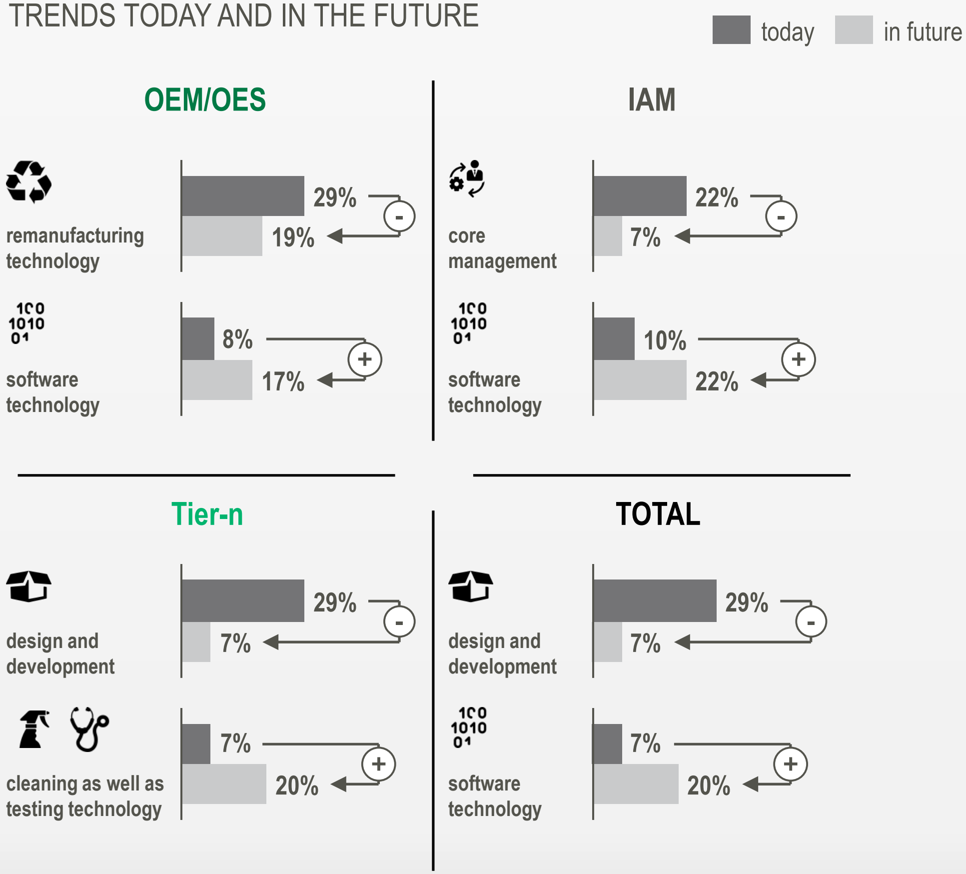
today / in future

	OEM/OES today	OEM/OES in future	IAM today	IAM in future	Tier-n today	Tier-n in future	Others today	Others in future
design and development of components and/or parts	12%	11%	18%	15%	29%	7%	8%	6%
design and development of remanufacturing equipment and tools	11%	17%	8%	15%	21%	13%	8%	6%
cleaning technology	5%	6%	6%	11%	7%	20%	15%	6%
core management	15%	11%	22%	7%	7%	7%	15%	13%
remanufacturing technology	29%	19%	20%	11%	14%	13%	23%	25%
software technology	8%	17%	10%	22%	14%	20%	8%	25%
testing & diagnostic technology	20%	19%	18%	19%	7%	20%	23%	19%

1) multiple answers possible

WHAT ARE YOUR PRIMARY COMPETENCES?[1)]

TRENDS TODAY AND IN THE FUTURE



n = 91

- The primary competence of OEM/OES is today and in the future in the remanufacturing technology as well as in the field of testing and diagnostics.
- Today IAM have their primary competences in core management and remanufacturing technology.
- The primary competences of Tier-n are the design and development of components/parts and the development of tools for remanufacturing.
- In the future the importance of software competence will increase significantly for OEM/OES, IAM and Tier-n.

» New technologies require the development of new skills, such as software technology. «

1) multiple answers possible

HOW DID YOU GET BACK OLD PARTS/CORES?

MAIN CHALLENGES

RANKING

	1	2	3	4
	very important			less important
OEM/ OES	2,2 not enough parts/cores in the market	2,4 customers do not return cores	2,6 bad quality of cores (bad cores)	2,9 core brokers in the markets pay more
IAM	2,4 core brokers in the markets pay more	2,5 bad quality of cores (bad cores)	2,6 customers do not return cores	2,6 not enough parts/cores in the market
Tier-n	1,8 bad quality of cores (bad cores)	2,4 core brokers in the markets pay more	2,6 not enough parts/cores in the market	3,2 customers do not return cores
Others	2,3 core brokers in the markets pay more	2,5 not enough parts/cores in the market	2,5 customers do not return cores	2,8 bad quality of cores (bad cores)

n = 91

- The challenges of core extraction are completely different for the companies surveyed.
- Since the difference between the best and the worst ranking is low, it can be assumed that the challenges vary or are not yet completely clear.

» The challenges of core extraction are company-specific. «

HOW DID YOU GET BACK OLD PARTS/CORES?[1)]

MAIN SOURCES

Source	OEM/OES	IAM	Tier-n	Others
my own products (sales w/o warranty)	41%	29%	17%	0%
warranty return products	28%	5%	50%	67%
second/third party products	10%	24%	17%	0%
core/part dealers	21%	43%	17%	33%

n = 91

- OEM/OES mainly procure their cores for remanufacturing (about 70%) from their own products or warranty returns.
- In addition to their own products, IAM use (about two thirds) the parts of other manufacturers and procure from core/part dealers.
- Tier-n's focus (50%) is on warranty returns.

» The source of core procurement depends on the type of business or access to the end customer. «

1) multiple answers possible

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HOW DID YOU GET BACK OLD PARTS/CORES?

TYPES OF INCENTIVES FOR CORE RETURN & GOOD CORE QUOTA

incentive	OEM/OES	IAM	Tier-n	Others
deposits	75%	56%	25%	0%
adjustment surcharges	25%	44%	75%	100%
good core quota	69%	54%	38%	23%

n = 91

- Three-quarters of the OEM/OES use deposits as an incentive model for the return of cores – and vice versa for Tier-n, where three-quarters stake on adjustment surcharges.
- At the IAMs there is no clear trend between deposits and adjustment surcharges.
- The share of good cores is clearly highest at OEM/OES with almost 70%.

» There is a positive correlation between a deposit model and good cores. «

HOW DO YOU ENSURE QUALITY?

DIFFERENT OFFERS OF GUARANTEE TO CUSTOMERS

	OEM/OES	IAM	Tier-n	Others
no guarantee	10%	18%	20%	50%
one year	45%	47%	60%	0%
two years	30%	35%	20%	0%
more than two years	15%	0%	0%	50%

n = 91

- 75% or more of the surveyed companies give a one or two year warranty on remanufactured parts – a one year warranty is the rule.
- More than two years warranty are only given by OEM/OES.
- Some interviewees even offers no guarantee on the remanufactured parts.

» There is usually a warranty on remanufactured parts – but there are many exceptions. «

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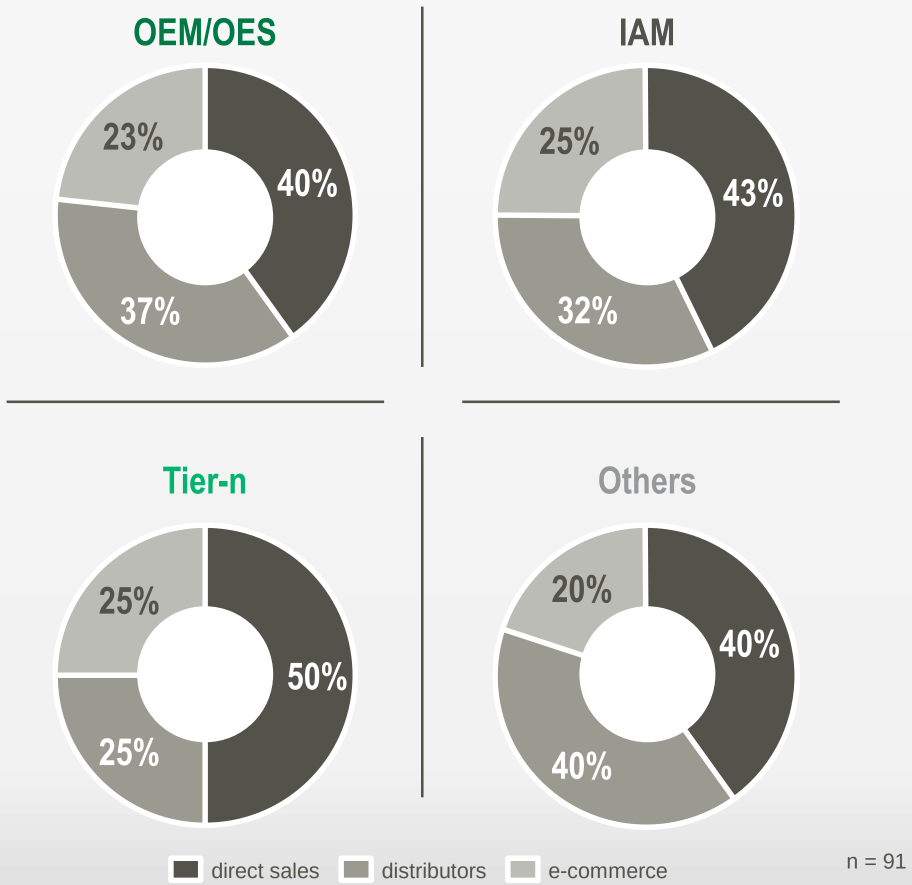
WHAT SALES CHANNELS DO YOU EMPLOY?
PREFERED SALES CHANNELS



- Three-quarters or more of the companies surveyed sell their remanufactured parts by direct sales or distributors – direct sales is still dominating the business.
- E-commerce means nearly a quarter of the business for OEM/OES, IAM and Tier-n.

» E-commerce is already an important pillar – future growth can be expected. «

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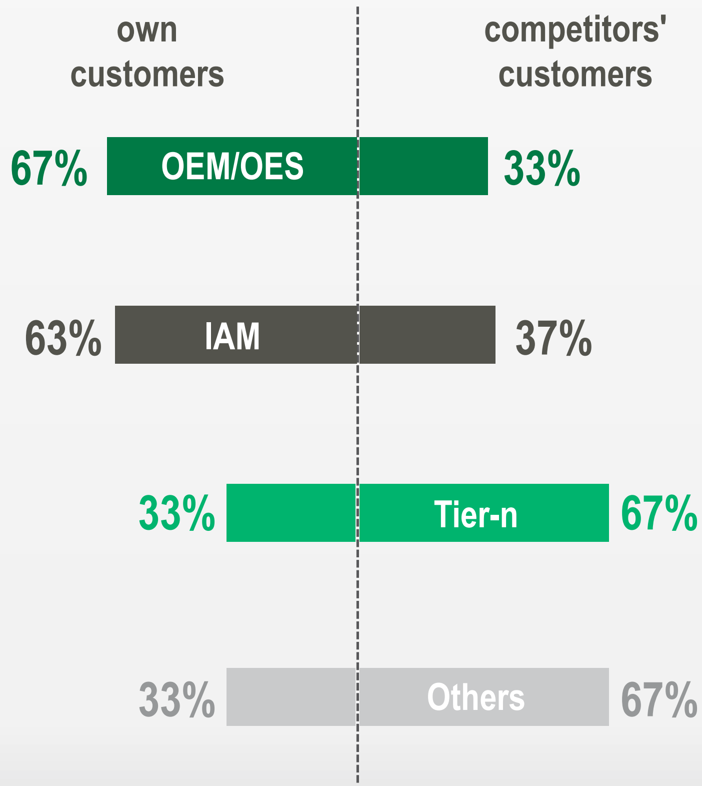
WHAT IS YOUR SALES-STRATEGY?

TARGET CUSTOMERS



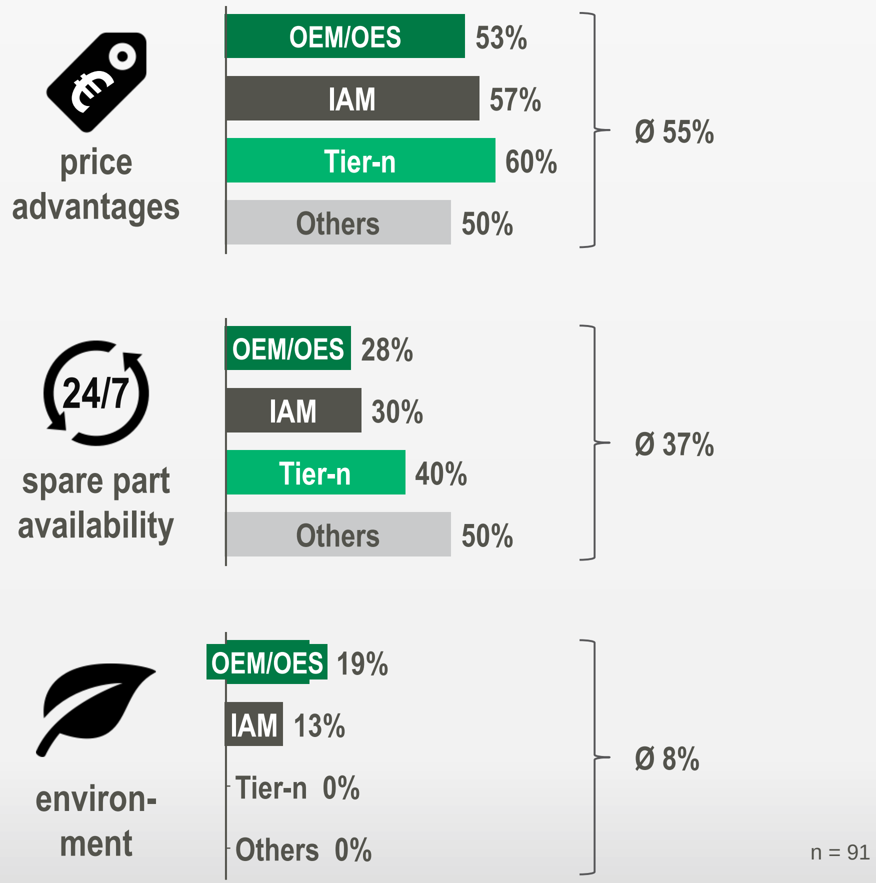
n = 91

- For about two-thirds of the OEM/OES and IAM their own customers are also target customers for remanufactured parts.
- More than two-thirds of Tier-n's customers focus on competitors' customers.

» There is strong competition in the reprocessing business – especially for Tier-n. «

WHAT DO YOU THINK IS YOUR UNIQUE SELLING POINT?

KEY-MOTIVES FOR CUSTOMERS



- From a customer view the price advantage of remanufactured parts is for more than half of the companies surveyed most important.
- Secondly the (fast) spare part availability is named.
- The environmental aspect as an argument for the purchase of remanufactured parts plays only a minor role.

» Economic factors are key arguments for end customers to buy remanufactured parts. «

WHAT IS YOUR ASSESSMENT ON FUTURE SALES POTENTIALS?

SALES POTENTIAL IN THE NEXT 5 YEARS

	decrease	0%	+5%	+10%	>+10%
OEM/OES	0%	0%	27%	23%	50%
IAM	11%	22%	44%	6%	17%
Tier-n	0%	20%	20%	0%	60%
Others	0%	17%	17%	33%	33%

n = 91

- More than half of the OEM/OES and Tier-n are forecasting a growth of more than 10% in the next 5 years.
- IAMs expect a growth of more than 5%-10% in the next 5 years.
- Only a fraction of the IAMs sees a slump in the remanufacturing business – less than a quarter of the surveyed IAMs and Tier-n expect a stagnation.

» The remanufacturing industry expects a strong growth in the upcoming years – provided that the existing challenges are met. «

REMANUFACTURING STUDY 2017

Further questions or interest in your own study?

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