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June 2017

The asset efficiency game

Making the most of tangible investments

Roland Berger

50 years navigating complexity

OPTIONS TO IMPROVE ASSET EFFICIENCY
→ P. 12

THE BIG 3

EUR 550 trillion

is the estimated value of the global industrial asset base – A remarkable 7.5 times the global GDP.

Page 4

EUR 2.5

is the average revenue generated by German companies for each euro invested in their asset base – Although industry leaders do significantly better.

Page 5

A Factor of 3

is the average by which each industry's leader outperforms its peers, generating EUR 7.8 euros for each euro invested.

Page 5

Many companies in asset-intensive industries struggle to maintain a high level of asset efficiency throughout the economic cycle. This has a direct impact on their bottom line.

The efficient use of tangible assets is a fundamental success factor for all businesses operating plants, equipment and machinery to a significant extent. Technological advancements and shifting customer needs frequently require capital-intensive upfront investments in new production lines, processes and fleets. Such significant investments often need payback periods of 20 years or more. But there is a danger of falling into the "asset trap": Disruptive innovations, the global trends toward sustainability and digitization as well as shifting customer requirements can leave businesses without sufficient revenue to pay off costly investments in their asset base. Therefore, asset-intensive companies like energy producers or car and machinery manufacturers need smart strategies to run their assets efficiently under all market conditions.

Our research shows that many companies in asset-intensive industries – construction, manufacturing, utilities and the like – struggle to maintain a high level of asset efficiency.

The simplified chain of events is as follows: If there are indications that a market is expanding, costly investments to increase production, market share and revenue seem to be a safe bet for companies. However,

when growth potentials were overestimated, the market begins to shrink, or when new competitors ramp up the pricing pressure, these companies see their revenues drop. In many cases, the investments do not pay off and the investing companies are too slow to adapt their strategy and asset utilization to this decline, leaving them with an unfavorably high cost base. This clearly has a negative impact on their profits since they have to maintain an expensive, inefficient asset base that is likely to be underutilized.

In this study, we look at how well global companies, headquartered in Germany, are playing the asset efficiency game. We investigate how efficiently these players adapt to changing market environments. The key indicator we look at is the "fixed asset turnover ratio" – or how many euros a company makes for each euro it has invested in assets. To cover the main players in this game, we look at the fixed asset turnover ratio of more than 150 public companies from 12 asset-intensive sectors.

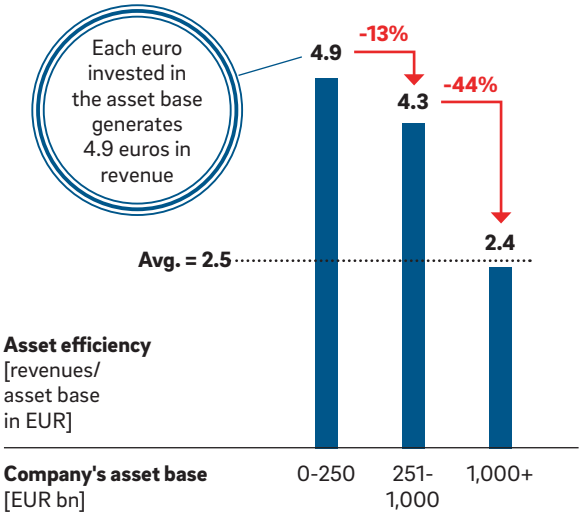
Classic business analysis would suggest considering the common metric "return on capital employed" (or ROCE) since it directly correlates to the margin. However, we decided to look at the asset turnover ratio. This gives insights into company performance one level further upstream. The efficiency of a company's asset base has a direct impact on many value creation metrics, including the well-known ROCE. There is a growing body of evidence that asset efficiency is set to become more important.

The core region for new, asset heavy and capital intensive projects is undeniably Asia – mainly driven by the advantages of close proximity to market growth, comparatively unrestrictive regulation and lower environmental standards. This shift, combined with increasingly efficient and available logistics, has enhanced global production efficiency while increasing competition. Therefore, asset-intensive ventures must be more vigilant than ever to ensure their assets are working as productively as possible – in other words established players need to up their game.

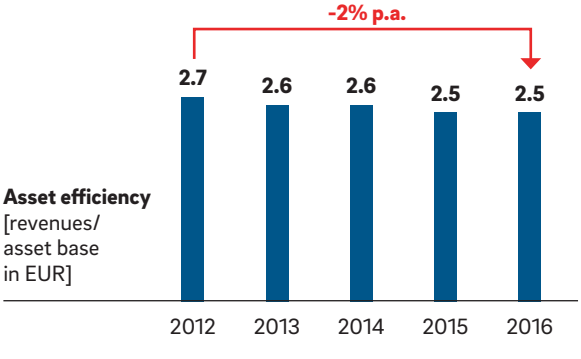
The total industrial asset base spread around the world is worth an estimated EUR 550 trillion, or seven and a half times the global GDP. Germany is home to many global leaders in asset-intensive industries while the assets of these companies are spread across many countries and continents. Based on this point of view, our recommendations are relevant for any company with substantial assets, wherever they may be located.

THE ASSET EFFICIENCY OF THE ANALYZED COMPANIES DECREASES WITH INCREASING ASSET BASE
Asset efficiency and asset base, development of asset efficiency, 2012-2016.

ASSET EFFICIENCY AND ASSET BASE



DEVELOPMENT OF ASSET EFFICIENCY



Just one in four companies has successfully adapted their asset base to changes in the market.

Our analysis is built around some core questions: How efficiently do these analyzed players use their global assets? How much revenue do they generate per euro invested in their asset base? Or to put it bluntly, how much bang do they get for their buck?

To answer these questions, we identified twelve asset-heavy sectors ranging from airports to real estate, from oil and gas to the construction industry, from chemicals and pharmaceuticals to – inevitably – automotive. We analyzed the reported performance of 150 companies from these sectors over a period of five years, from 2012 to 2016, and calculated the efficiency of their global assets.

Results show that the average revenue generated for each euro invested in the asset base is EUR 2.5. The leader in each industry does significantly better than this – on average, more than three times as well, generating EUR 7.8 for each euro invested. The flipside, of course, is that many players do significantly worse.

To visualize the asset efficiency, we have mapped each of the 150 companies in a matrix (see p. 6) along the two dimensions, growth of revenue and growth of asset base. Each company falls into one of the four categories of the asset efficiency matrix as follows:

The first category of companies can be described as **Efficiency Winners** (25%). For this group of companies, revenues grew faster than the value of their asset base. Hence, these players have improved their asset efficiency over the last five years. Only one in four of the companies observed was able to adapt their asset strategy successfully to an evolving market environment during the period under investigation – a prerequisite for long-term success.

The second group of companies occupy a category that we call **Risk Takers** (38%). There are two options to fall into this category: Either these companies saw their asset base grow faster than their revenues, or their asset base shrank slower than their revenues fell. Hence, their asset efficiency has deteriorated over the last five years. More than one in three companies was identified as a Risk Taker, and hence is not doing so well. These companies have made significant investments in their asset base in the hope of higher returns, but those returns have not (yet) materialized. By betting on the future development of the market, they are taking a considerable risk.

We identified two more categories in our analysis: Agile Adapters and Non-Adapters.

Non-Adapters (15%) saw their asset base grow while their revenues shrank. Based on our experience, investors and stock markets tend to take a very skeptical view of such businesses.

Agile Adapters (16%), by contrast, managed to reduce the size of their asset base faster than their revenues fell. They effectively managed to bring their assets into line with declining sales or to generate more revenue by increasing asset-light activities. Finally, 6% of the companies can be considered special cases – A category that we exclude for the sake of simplicity. → A

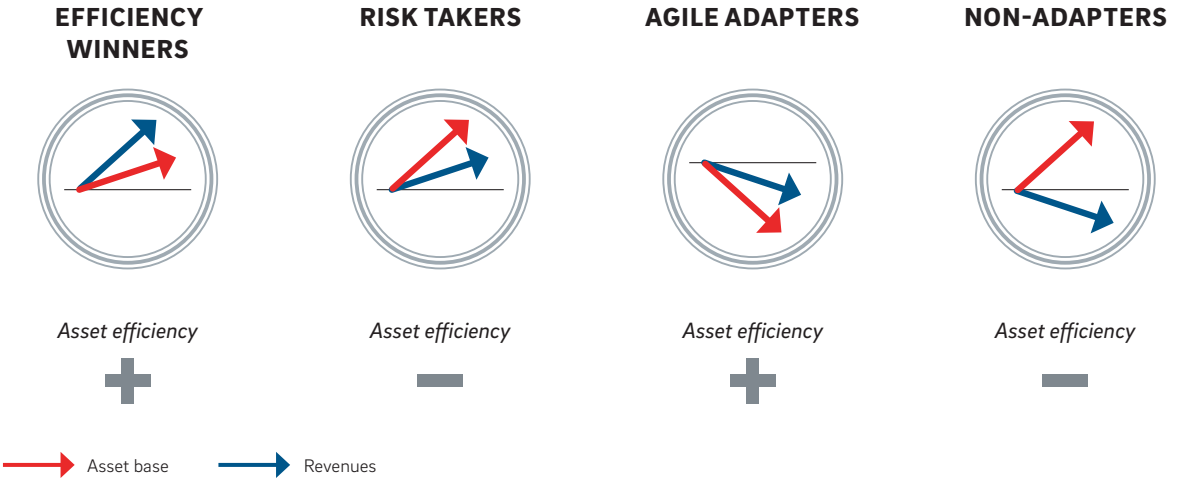
This analysis also confirmed what might be expected in terms of correlations: The bigger the company in terms of its asset volume, the lower its asset efficiency tends to be. This is hardly surprising – as companies grow in terms of assets, their level of complexity also increases.
Our Industry Barometer (see p. 8) shows the percentage growth experienced by various asset-intensive industries over the last five years, and which of our defined categories of companies tend to correspond to which levels of growth. The Industry Barometer provides a snapshot of the market and where the different industries predominantly find themselves at the time of our analysis. Vastly simplified market conditions, the position in the industry barometer correlates to the maturity of the industry life cycle. Looking at the barometer, several patterns emerge.

Efficiency Winners appear to be mainly companies operating in industries that exhibit slow but steady market growth – major airports, for example, or machine-builders. Risk Takers, by contrast, are typically found in industries that experienced rapid market growth over the past five years, such as real estate, the automotive industry or construction. In this environment, it seems to be the obvious choice to invest to cater to a growing market. However, players dealing with these conditions should closely monitor asset operations and look for further improvements here – Optimizing asset operations is frequently advantageous over placing large investments because they are quicker to implement and offer faster payback. Non-Adapters generally operate in markets that are shrinking fast – by as much as four percent over the last five years in the case of chemicals and pharmaceuticals or oil and gas. Agile Adapters are mostly found in markets experiencing slow decline, such as regional airports or conventional energy.

Obviously, asset efficiency depends fundamentally on the market environment in which companies operate. For instance, the automotive industry is facing its fourth consecutive year of record car sales with over 93 million vehicles forecasted to be sold globally in 2017. This growth-driven market leads decision-makers in the industry to invest in production assets to keep up with the increasing demand and, of course, to harvest profits.

FOUR TYPICAL TYPES

Based on their asset efficiency performance, companies can be categorized as one of four types.



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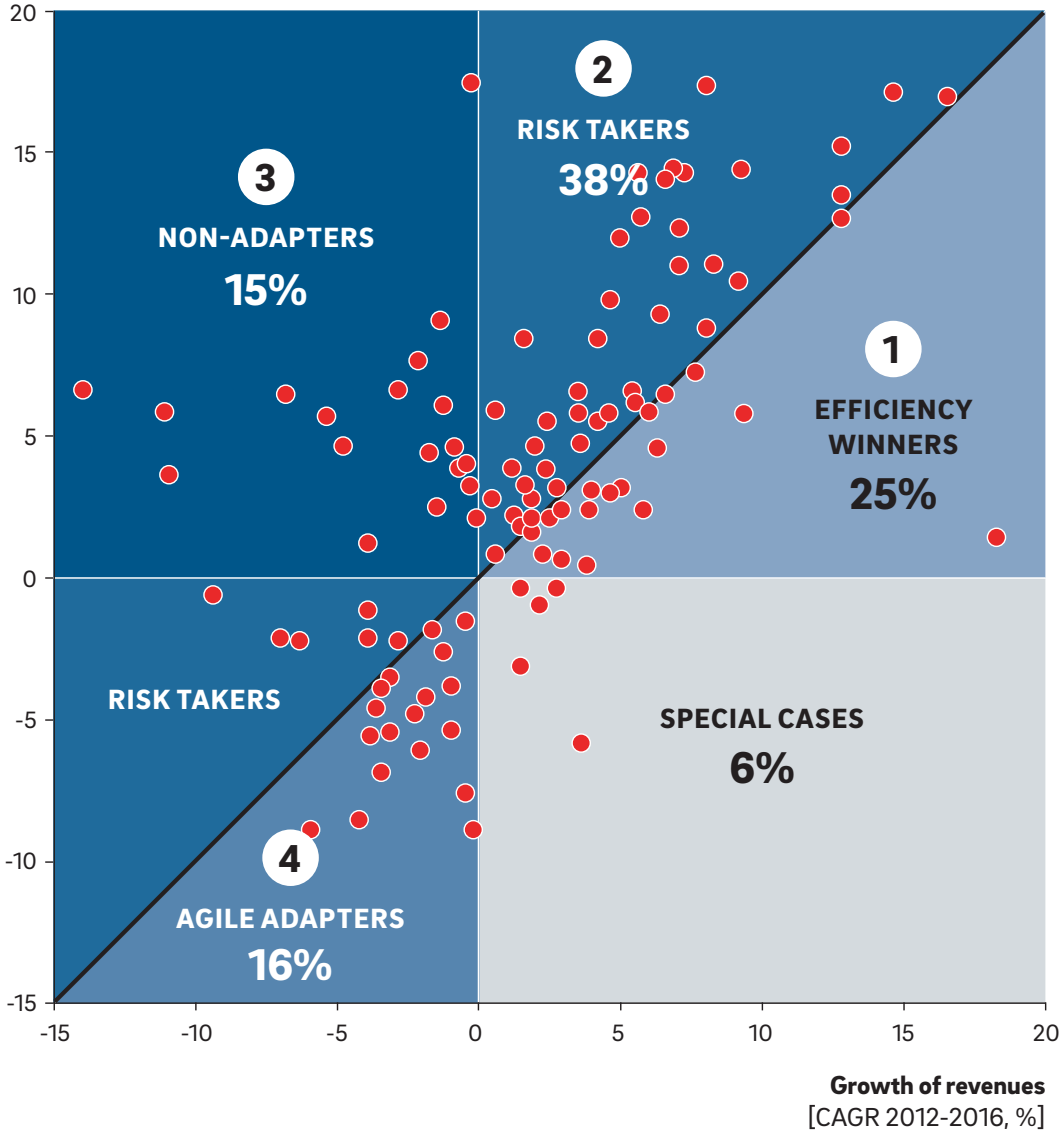
THE ASSET EFFICIENCY MATRIX

Risk Takers significantly outnumber Efficiency Winners

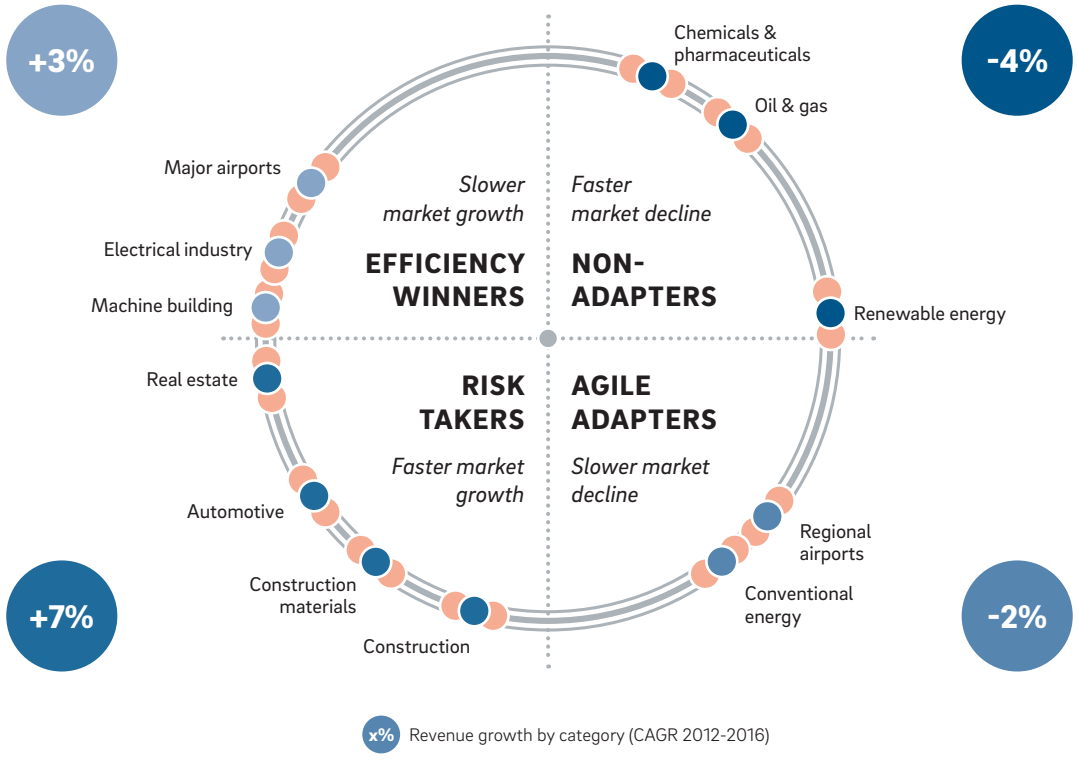


Source: Roland Berger

B

THE INDUSTRY BAROMETER

Asset efficiency depends fundamentally on how your industry is performing.



Source: Roland Berger

However, the market in which the automotive industry operates is also characterized by significant risks: New approaches to car sharing, mixed ownership and on-demand ride hailing could heavily impact demand. Innovation from other transportation technologies and increased efficiency of public transportation also pose a threat. Hence, heavy investments in production capacity upgrades might not pay off for all car manufacturers. Most car manufacturers will therefore find themselves as "risk takers" in our asset efficiency matrix.

To illustrate this further, let's look at major airports: Over the past five years, global air travel has grown by over 20 percent now totaling over 3.4 bn passengers globally. Most airports have managed to handle increased passenger flows by intensifying the use of their existing infrastructures, serving more customers through the efficient use of the same assets – especially in Germany, where airports have not seen expansion. Hence, the airports in our analysis feature as "efficiency winners" in our asset efficiency matrix. → B

The Industry Barometer is also dynamic, however. Like a real barometer, the readings go up and down over time. Companies can use it as a forecasting tool: If you know whether your market is declining or expanding, you can tell where on the Industry Barometer you are likely to find yourself in the coming years. The Industry Barometer enables you to take action now by adapting your asset investment strategy in line with likely future market development, and so maintain maximum asset efficiency.

We identify four transformation areas where firms can take action on asset efficiency. Companies must decide which area to address first.

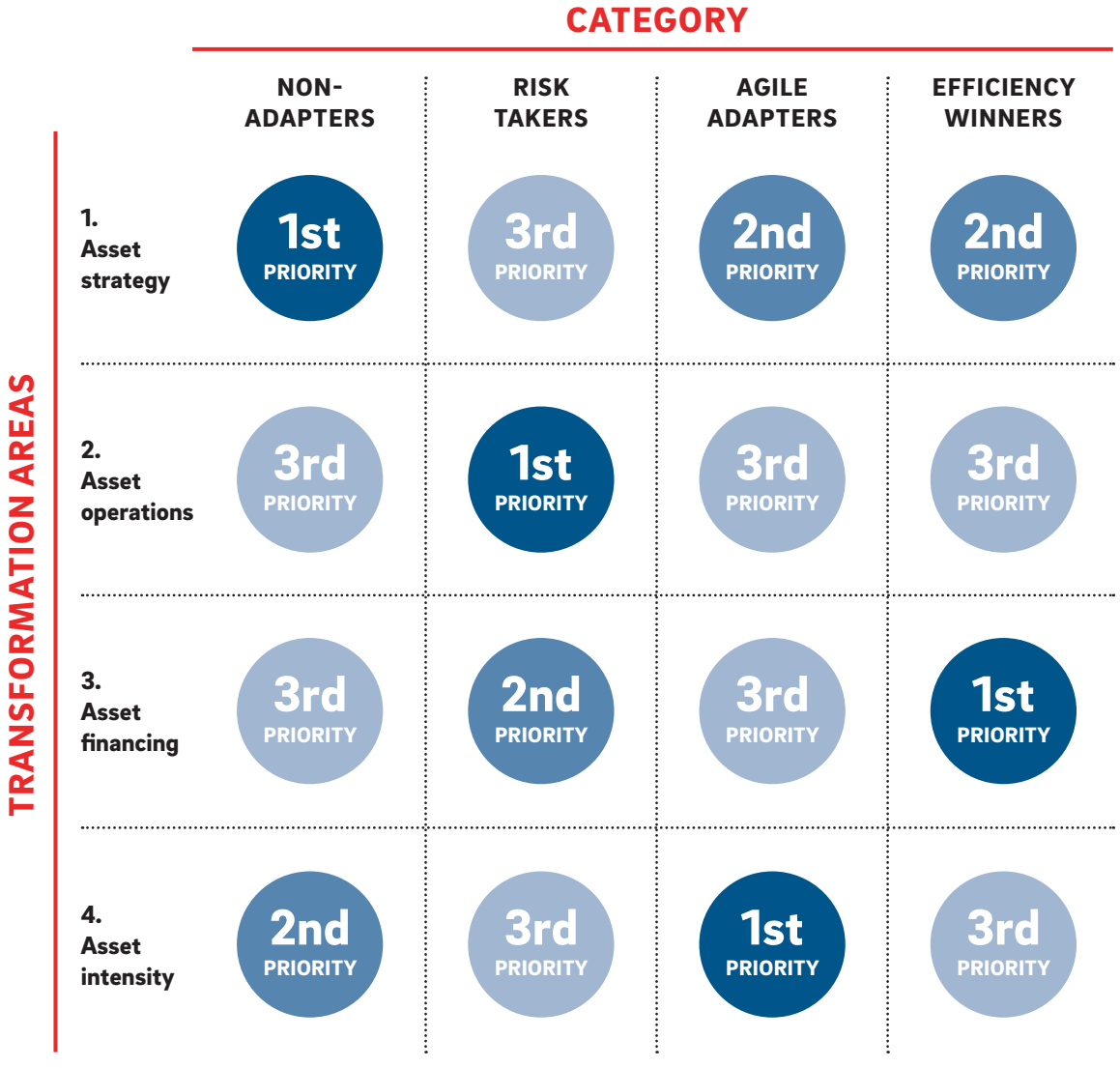
What should companies be doing to optimize their asset efficiency? This is where the advantages of taking a systematic approach are felt most strongly. Below, we provide a framework consisting of four "transformation areas" – areas where firms can take action with regard to asset efficiency. We then prioritize each of these transformation areas for our four different company categories.

The first of the four transformation areas is **asset strategy**. The idea behind this concept is to draw up a comprehensive medium-to-long-term plan for developing and utilizing the asset base owned by the company. The goal is to put clear plans in place for utilizing, modernizing or replacing assets as necessary. Non-Adapters, in particular, can benefit from a professional approach to asset strategy since it is evident that they were not capable of executing the right strategic moves in the past. There are many approaches and frameworks to draw up a company-specific asset strategy. Options include relocating assets to capture local advantages, increasing the share of external asset use and designing flexible layouts to adapt to different utilization, to name but a few. By optimizing its global production footprint and production flexibility, one of our clients – an American agrochemicals company – was able to increase the net present value of its investment portfolio by USD 130 m. Another of our clients, a global logistics company and ocean carrier owner, was able to cut costs by EUR 1.1 bn by optimizing their fleet procurement schedule, renegotiating service contracts with more than 1,000 stakeholders, optimizing routes and entering into strategic partnerships along the

C

FOUR TRANSFORMATION AREAS

Companies must identify which transformation area to address first.



Source: Roland Berger

entire value chain. Market players with innovative approaches can even redefine their entire business based on a new asset strategy: For example, one manufacturer of air compressors – an industry traditionally dominated by players earning profits by developing and assembling compressors sold on the basis of technical specs – started to offer contracting solutions to its customers. Under this concept, the manufacturer delivers a compressor to the customer but remains the owner and is solely paid for the volume of compressed air used. Moving forward, this company started to collect data from sensors integrated into its globally connected fleet of machinery. Specifically, operational readiness, power consumption, safety aspects and air quality are monitored in real time. Now, the company can leverage this data to offer services that are tailored to customer needs. This data is also used for predictive maintenance. As a result, machine downtime could be reduced by 30% and unforeseen breakdowns by 75%. Since the implementation, their service business unit has seen double-digit growth while product development times have fallen by 40%.

By optimizing its global production footprint and production flexibility, an American agrochemicals company was able to increase the net present value of its investment portfolio by USD 130 m.

The second transformation area is **asset operations**. Working in this area means improving the availability and quality of operations. In particular, this involves minimizing downtime, setup times and throughput times. Many companies aim to improve their process controls and reduce administrative and contractual complexity. In addition, businesses can avoid faulty processes through the use of simulations and quality management. This transformation area is especially valuable for companies identified as Risk Takers. One of our clients, an onshore wind power player, was able to reduce overall operations costs by 45% by implementing a new maintenance approach, improved property lease contracts and optimized project management. The advancements in digital electronics and information technology are now pushing the boundaries for the optimization of asset operations. Condition-based prognostic solutions using self-learning algorithms to predict the likelihood and timing of failures are readily available on the market. A recent implementation at a major European chemicals company produced a reduction of error notifications to 3-4 per week, down from over 100 per day.

Predictive maintenance: Machine downtime could be reduced by 30% and unforeseen breakdowns by 75%.

The third transformation area is **asset financing**. Companies focusing here have to aim at reducing their capital costs by optimizing their financing concepts. The key is to ensure that they are exploiting equity and loans as effectively as possible, while also making use of public subsidies and refinancing where appropriate. Asset leasing and sale-and-leaseback options can improve creditworthiness and reduce corporate risk. Companies should also explore the full possibilities of asset-backed securities and public-private partnerships. The impact of this transformation area can be seen at one of our North American utilities clients, where a holistic new asset financing concept brought the firm's credit rating up from BBB+ to A-.

Another example from our consulting practice comes from an international logistics company: Refinancing by replacing several commercial bank loans with a credit facility from a specialized industry fund increased the client's drawing limit by EUR 1.2 bn. As a further example, a jet engine company introduced an "on-demand" concept as a financing option for the avi-

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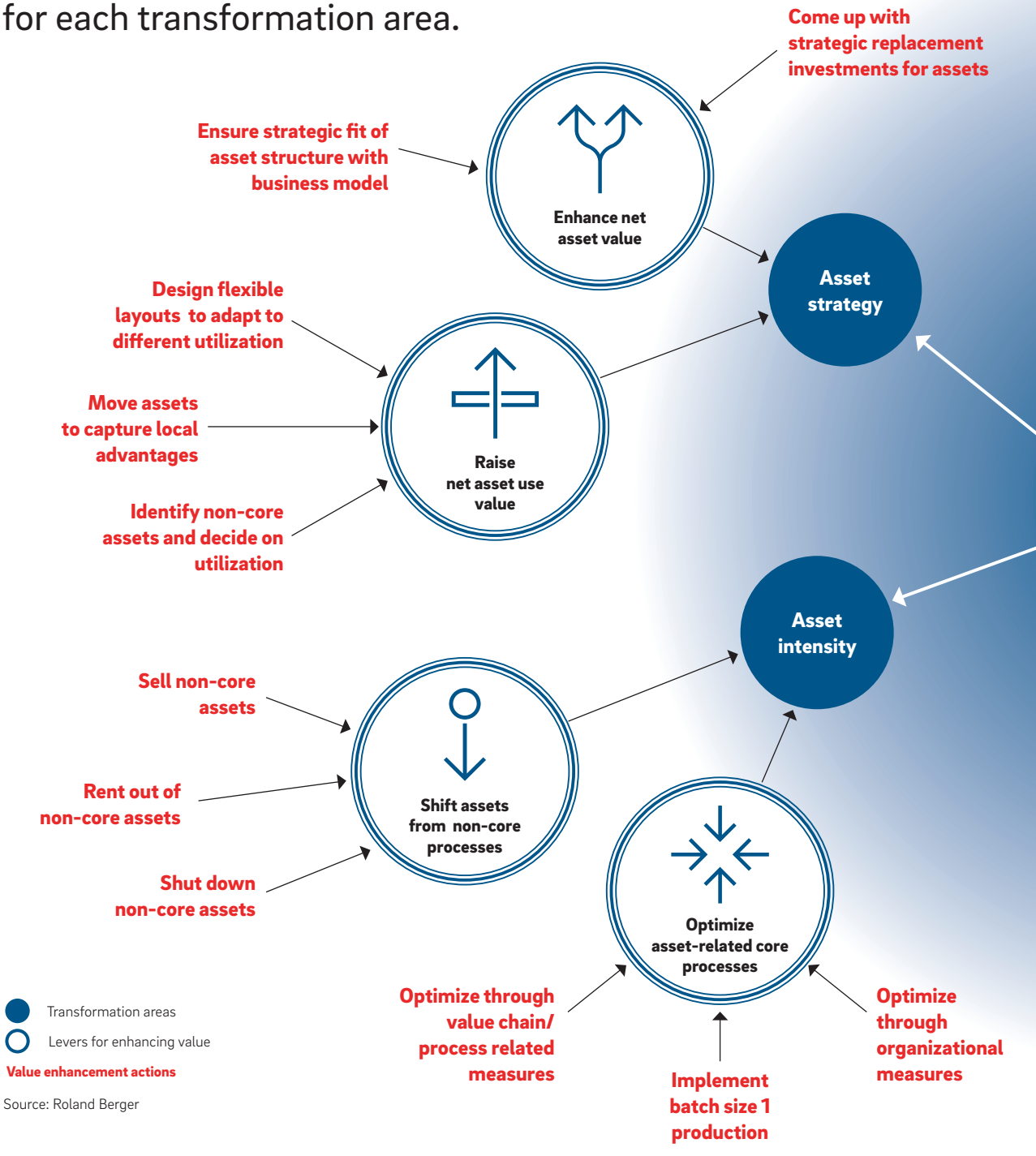
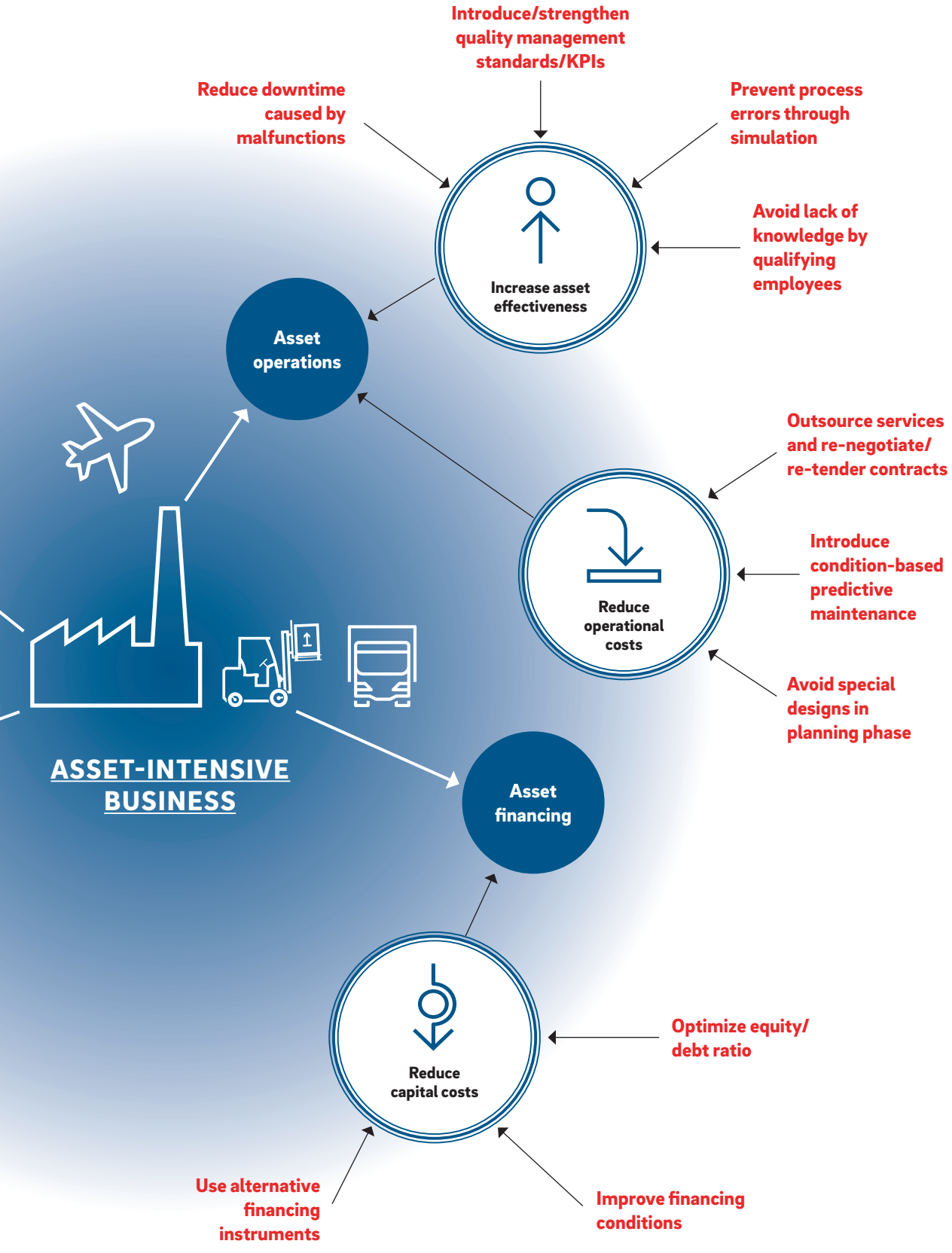
ASSET EFFICIENCY LEVERS

Options to improve asset efficiency for each transformation area.



Source: Roland Berger


Introduce/strengthen quality management standards/KPIs
Reduce downtime caused by malfunctions
Prevent process errors through simulation
Avoid lack of knowledge by qualifying employees
Increase asset effectiveness
Asset operations
Outsource services and re-negotiate/ re-tender contracts
Introduce condition-based predictive maintenance
Avoid special designs in planning phase
Reduce operational costs
ASSET-INTENSIVE BUSINESS
Asset financing
Optimize equity/ debt ratio
Reduce capital costs
Use alternative financing instruments
Improve financing conditions

ation industry. Under this concept, airlines pay the jet engine company by the hour rather than by purchasing one of the company's jet engines. The engine company remains the producer, owner and maintainer of the engine – and the airlines can avoid spending time and money on what is for them a non-core activity. This new financing concept benefits the airlines as it links their financial expenses directly to their revenue stream. They also profit from reduced capital requirements and increased predictability. Today, 65% of the customers opt for this arrangement. For the manufacturer, the concept offers increased control of the aftermarket and builds customer loyalty while leveraging a steady profit pool now generating EUR 1.5 bn in annual revenue – A win-win situation based on major asset financing innovation.

The fourth transformation area is **asset intensity**. This involves the companies optimizing their core and outsourcing non-core processes (both in terms of technology and process organization). This transformation area should be the main focus for the Agile Adapters. Usually, it leads to the closure, renting out or divestment of assets or production facilities. A recent example from our project work shows the power of this transformation area: A player from the electronics industry was able to generate an additional EUR 1.7 bn in revenue by reducing its vertical range of manufacturing by 38%. The vacant production capacity could successfully be utilized to produce higher-end components with significantly higher margins. Digital business models have also emerged to enhance asset intensity: For example, a recently established US-based start-up facilitates the supply of on-demand flexible warehouse space to companies via an online platform. Making warehouse assets flexible is a win-win solution – Companies with excessive warehouse space can now monetize this asset by renting it out.

This is an interesting concept for automotive suppliers, for example, that were able to increase their logistics efficiency significantly over the last decade and now have excessive warehouse space. In the US, average prices per m^2 start at USD 4 per pallet per month. Combined with the fact that there are no upfront costs and no long-term contracts, this is attractive to clients such as fast-growing start-ups that need reliable logistics when scaling their operations.

Companies should not try to address all four transformation areas at once and with the same level of intensity. They should look instead at the industry and their specific situation. On that basis, they can identify which area to address first. As a guide, we mapped the four types of companies identified earlier – Efficiency Winners, Risk Takers, Non-Adapters, Agile Adapters – onto the four transformation areas, ranking the different areas as first, second and third priority. This gives a general indication of where to start, and where the most effective levers are to be found. → C

A electronics industry player was able to generate an additional EUR 1.7 bn in revenue by reducing its vertical range of manufacturing by 38%.

Based on our wide experience working with clients, and using the examples as presented above, we can help companies draw up a set of recommendations tailored to their specific situation and industry setting. We selected these recommendations from a set of more than 60 actions that we have developed, each of the actions relating to specific value drivers. The illustration on page 12 gives an indication of the range of actions and drivers that companies can contemplate. → D

CONCLUSION

Asset efficiency is a key differentiating factor for companies working in asset-intensive industries, especially in light of increasing competition and commoditization. It is therefore essential that companies maintain a high level of asset efficiency wherever they find themselves in the economic cycle – be it growth, boom or bust. A robust framework and systematic approach, such as those suggested above, are of immeasurable value when identifying which steps need to be taken. Working by your side, we can develop a bank of actions tailored to your particular industry and asset situation. Our tried-and-tested solutions, combined with innovative approaches and a radically digital mindset, can help make you a winner in the asset efficiency game. ◆

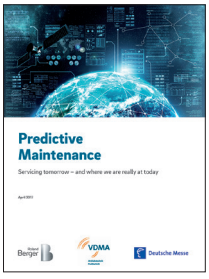
ABOUT US

Roland Berger, founded in 1967, is the only leading global consultancy of German heritage and European origin. With 2,400 employees working from 34 countries, we have successful operations in all major international markets. Our 50 offices are located in the key global business hubs. The consultancy is an independent partnership owned exclusively by 220 Partners.

Navigating Complexity

For half a century, Roland Berger has helped its clients manage change. Looking at the next 50 years, we are committed to supporting our clients conquer the next frontier. To us, this means navigating the complexities that define our times. We help our clients draft and implement responsive strategies essential to success that lasts.

FURTHER READING



PREDICTIVE MAINTENANCE
Servicing tomorrow – and where we are really at today

Predictive maintenance is an area where technology-driven innovation philosophies are still going strong. In many cases, other success factors – such as a precise understanding of customers' needs and the clear alignment of business models with these needs – have not yet been tackled with systematic rigor. This study analyzes the current status of PM solutions and the degree to which German engineering has adopted and implemented them.

SMART CITY, SMART STRATEGY
Cities around the world are embracing the digital revolution. But how well are they really doing?

More and more cities are taking the necessary steps to become smart cities. But often what they're lacking is connected end-to-end thinking. Considering the strategic possibilities across six interrelated action fields, we take an in-depth look at where there's room for improvement – and just as importantly, who is leading the pack and why.

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Publisher

ROLAND BERGER GMBH
Sederanger 1
80538 Munich
Germany
+49 89 9230-0

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RALPH BUECHELE
Partner
+49 89 9230-8541
ralph.buechele@rolandberger.com

MARTIN ERHARTER
Partner
+49 89 9230-8414
martin.erharter@rolandberger.com

DR. TORSTEN HENZELMANN
Partner
+49 89 9230-8185
torsten.henzelmann@rolandberger.com

Contributors

GORDON WOLLGAM
Project Manager
+49 89 9230-8706
gordon.wollgam@rolandberger.com

DR. LUKAS NONNENMACHER
Consultant
+49 89 9230-8742
lukas.nonnenmacher@rolandberger.com

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