

TRENDRADAR

2021



Circular economy, e-commerce, digitalisation – the packaging industry is being influenced by strong currents, but can also reshape many areas itself. The FACHPACK Trendradar 2021 shows which of the currently observable trends really are attractive and which will change the industry in the next three to five years.

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What are the most attractive trends? Which ones hold the greatest potential for change? The core results of the study in a nutshell.

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THE STUDY

For the second time, the FACHPACK Trendradar has had a total of 21 trends in four categories evaluated by representatives and connoisseurs of the packaging industry. The results provide an overview of the most attractive trends for the industry as well as the trends with the greatest potential for change. Compared to the results of the first Trendradar 2019, foci can also be identified.

THE MOST ATTRACTIVE TRENDS

There is no doubt: the topic of sustainability is a central component of the ten most attractive trends. Resource-saving packaging is at the top, followed by the trend towards mono-materials to achieve better separability, which in turn would enable an increase in the use of recyclates, without which circular economy (#4) is unthinkable.

Digital watermarks help to recycle by type, intelligent packaging and track & trace as quality assurance instruments in the food industry contribute to minimising losses due to spoilage.

But even trends such as e-commerce-optimised packaging design and brand experience must be viewed in their importance, not least in the context of the sustainability megatrend. Studies show the growing tendency among consumers to evaluate brands according to their eco-friendliness and to increasingly pay more for this.

Finally, reusable packaging is an integral part of circular economy. From this point of view, it is not surprising that PLA (polylactide acid) ranks at the bottom of the scale. The plastic is indeed produced from renewable raw materials is biodegradable, however, it is processed into disposable products among others.

TRENDS WITH THE GREATEST POTENTIAL FOR CHANGE

The Circular Economy will change the packaging industry the most. Among the ten trends that are considered to have the greatest potential for change, the most attractive trends are represented, with two exceptions, only Track & Trace and Brand Experience are missing. Both trends seem to be well established

in the industry already, so that they are predominantly seen as having little potential for change.

The situation is different for artificial intelligence and the Internet of Things (AI & IoT) in production and blockchain in the supply chain: both trends are associated with investments in digital technology and altered processes, which would signify a strong change for many in the industry it seems.

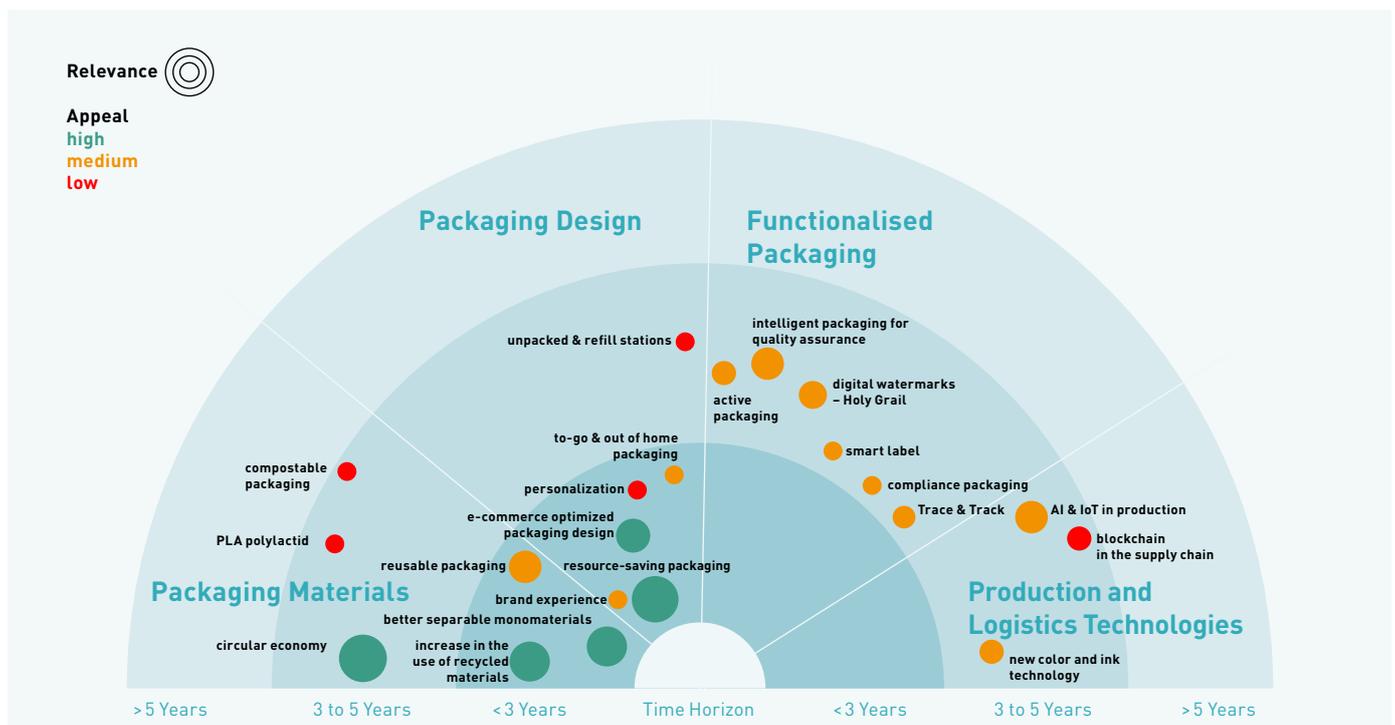
TIME HORIZON

For the circular economy to become a reality in three to five years, the necessary foundations must be laid in the next few years. Accordingly, the industry representatives interviewed for the Trendradar assume that resource-saving packaging, reusable packaging, mono-materials and an increase in the use of recycled materials will be implemented throughout the industry in the next few years. The time horizon also affects personalisation, which is already widespread today, and should also be the standard for optimising packaging in e-commerce.

CHANGES

In 2019, experts timed the widespread adoption of the Secure Supply Chain trend at around 2022. This year's survey specifically asked about the time horizon for blockchain in the supply chain. The average response is rather sceptical regarding implementation in the near future, with widespread use expected around the year 2026. In terms of smart packaging, there has also been no change compared to 2019: the time horizon is still three to five years. The industry representatives see the circular economy (which is required by law) coming closer: as in 2019, it is expected for 2025.

TRENDS OF THE PACKAGING INDUSTRY



What are the really relevant and important trends in the packaging industry? Which of them have the greatest potential to change the industry? If you know how industry experts and insiders evaluate and classify the trends, you can prepare for coming changes.

GENERAL

For the second FACHPACK Trendradar, 21 trends identified in the market were clustered into four categories. These were then presented for evaluation to 108 industry representatives, over 60 per cent of whom hold management level positions. About one third of the respondents work in companies with at least 1,000 employees.

The industry representatives could rate on a scale of 1 to 5 how attractive a trend is for the packaging industry (1: very unattractive, 5: very attractive) and how strongly this trend will change the packaging industry (1: not at all, 5: very strongly).

Furthermore, an assessment was to be made as to when the trend will have fully arrived in the packaging industry; here it was possible to choose

between “less than 3 years”, “3 to 5 years”, “more than 5 years” and “not at all”.

The results provide a compact graphic overview of the most important trends in the form of a Trendradar. In the graphic you can see at a glance:

- Which trends will be important in the market in the next five years?
- What relevance do they have for the industry?
- How attractive are they rated as today?

On the following pages, we present the expected developments in the market in more detail and classify them.

PACKAGING MATERIALS

Among the four trends to which industry representatives attribute the greatest scope of change, three come from the packaging materials category. The most far-reaching changes are those that will occur on the way to a **circular economy**, which will require profound deviations from previous processes and principles in all areas. “Companies have to transform themselves,” Sören Grumptmann, Policy Advisor at the Waste and Recycling Technology Association of the VDMA, emphasised when speaking to Packaging 360°, describing the scope as follows: “To give the circular economy momentum, ideally, material flows, product and production data have to be recorded, analysed and exchanged along the entire supply chain – from material composition to service life to reparability.”

Increasing the **use of recycled materials** and **mono-materials – better separability** are also among the top trends with a high scope for change, according to the industry insiders surveyed, with values of around four. In terms of attractiveness, all three of the above-mentioned trends occupy places two to four.

Of course, this focus is no coincidence: according to the Packaging Act, almost 60 per cent of all plastic packaging licensed by the packaging industry for the Dual System must already be recycled – so appropriate concepts are needed.

“Newly produced plastic is between 20 and 30 per cent cheaper than recycled material of comparable quality. So there is no incentive to use recycled plastic.”

Gabriele Hässig, Managing Director Communications and Sustainability at Procter & Gamble

Increasing the share of recycled material is one of the biggest challenges for the industry and FMCG manufacturers. This is because “virgin” plastics made from petroleum are still significantly cheaper than recyclates.

In order to increase the use of recyclates, material qualities must also be defined, ideally on an inter-

national level. For most recyclates, there is still a lack of clear definitions for various material properties or health-related limit values that buyers can use and which at the same time ensure legal certainty.

“Internationally, assured recyclate qualities can only be achieved through only be achieved through standards.”

**Sören Grumptmann, Policy Officer for the Waste and Recycling Technology Association
Recycling Technology Association in the VDMA**

“Particularly in the personal care and beauty sectors, but also when it comes to household cleaners, it is difficult to procure packaging solutions made from recyclate,” Gabriele Hässig, Managing Director of Communications and Sustainability at Procter & Gamble, has gone on record. And Bernd Büsing, Head of Packaging at Nestlé Deutschland AG, states: “Recycled polyethylene and polypropylene that are suitable for foodstuffs are only available to a very limited extent today.”

The situation looks somewhat better for recycled PET. Since June 2021, all disposable PET bottles produced by Schwarz Produktion for the Lidl and Kaufland private labels in Germany have been made of 100 per cent recycled plastic (rPET), excluding the cap and label. Each of these new bottles is produced entirely from old bottles. With the increase to 100 per cent rPET for non-returnable PET bottles, the Schwarz Group in 2021 will save 48,000 tonnes of new plastic in 2021 compared to PET bottles without recyclate.

As important as the increase in recyclate quotas is on the way to a circular economy, monomaterials are equally important for increasing said recycled content:

The first step is to design disposable packaging in such a way that it can be separated by material type. In other words, they should consist of only one material or be able to be separated into individual materials. “The most important thing is that we get out of composites and focus on mono-materials as far as possible,” Rudolf

Trettenbrein, Managing Director of Inverto, emphasises. Composites end up in residual waste or can only be separated for recycling at great expense. The first step, then, is to design disposable packaging in such a way that they can be separated neatly by material type. They should therefore only be made of one material or should be separable into individual materials. "An important task of packaging design is the use of recycled plastics," Bernd Draser, lecturer at the ecosign / Academy of Design, has written into the log book of the designers in the industry.

Fortunately, there are always successes to report in material development. UPM Specialty Papers, for example, has developed a double-sided coated paper that guarantees the safety of dry, greasy and frozen foodstuffs with improved grease resistance, good moisture resistance and mineral oil barrier properties, but also has a print side on which high-quality graphics can be displayed and thus fulfils all the requirements of packaging and is also made of easily recyclable mono-material.

Rügenwalder Mühle has also been involved in the development of packaging and wraps some products almost completely in transparent polypropylene (PP), which can be extracted from the recycling stream and excellently recycled: the mono-material solution was certified to have a recyclability of 96 per cent; only the paper label, which comes off easily in the recycling process, cannot be returned to the material cycle, as was reported by Fleischwirtschaft in April 2021.

"Circular economy refers to the entire value chain. As a result, there will be a high demand for new cooperations in the future."

Dr. Björn Moller, Fraunhofer Institute for Systems and Innovation Research ISI

In other areas, hopes continue to rest on research and development. Take thermoformed packaging, for example: "Unfortunately, virtually all thermoformed packaging today is basically non-recyclable." The demands of the end product on the material have so far made it

almost impossible to develop a pioneering mono-material solution Thomas Regenhardt, Head of Packaging at HelloFresh SE, laments in Packaging360° magazine. There is still a lot to do.

Monomaterials – Better Separability

Important:

- Avoid composite materials.
- Design disposable packaging in such a way that it can be separated by type.

Challenge:

- Containers must be collected or separated according to type.

Increasing the Use of Recycled Material

Important:

- PE, PET and PP are internationally recyclable.

Challenge:

- sufficient amount of plastic waste
- Material properties and limit values are hardly defined.
- Price – new plastics are still cheaper.

Circular Economy

Important:

- Companies must transform themselves.
- design all processes economically

Challenge:

- Record, analyse and communicate material flows, product and production data along the entire supply chain.
- Reduce complexity in materials, design and packaging.

PACKAGING DESIGN

The trends described in the chapter on packaging materials are closely linked to fundamental questions of packaging design. In order for packaging to be truly resource-saving, it must be designed accordingly regarding the choice of materials. The industry representatives surveyed see this as the most attractive of all the trends, but also attribute almost the greatest scope of change to this trend – the difference to the top-rated circular economy is only 0.02 points.

Both **e-commerce optimised packaging design** (4.24) and **brand experience** (3.99) are among the trends that are rated as extremely attractive. The scope of change is seen as less dramatic: while the optimisation of packaging for e-commerce receives an average value of 3.83, measures for brand experience basically do not require any major changes – the value is 3.28.

Resource-saving packaging has already arrived in practice. The reason is simple: demand is increasing. The global packaging survey conducted by McKinsey & Company in August 2020 showed that sustainability is of relatively little importance as a purchase criterion among the end consumer factors – in Japan, environmental factors are even significantly less important (21 per cent) than in the United States (43 per cent). However, they rank somewhat higher in Germany (56 per cent).

Yet, when asked what they would like to see in the future, consumers say they are almost equally interested in reusable and recycled plastic packaging as well as fibre-based substitutes. Among consumers with a high sense of responsibility, 68 per cent plan to look more closely at brands that reduce environmental impact (source: Forbes).

In this context, brand purpose is becoming increasingly important to consumers: brands should be sustainable, transparent and aligned with their customers' core values. In January 2020, IBM published a study on global consumer trends. It showed that one third of all consumers would stop buying their favourite products, if they lost trust in the brand, while a third has stopped buying long-standing favourites as early as 2019.

The study also found that on average, 70 per cent of "purpose-driven" shoppers will pay an additional 35 per cent premium for sustainable purchases (recycled or eco-friendly goods), writes NSPackaging.com.

"Waste and pollution are not accidents, but the consequences of decisions made in the design phase, where about 80 per cent of the environmental impact is determined," is a guiding statement by the Ellen MacArthur Foundation. There are already numerous examples of companies whose redesign is based on this assessment:

"The more we reuse materials once they have been used, the less we have to pull new ones from nature."

Bernd Draser,
lecturer at ecosign / Academy of Design

Easy2Cool, for example, has developed a refrigerated and frozen product-protecting shipping insulation made of cellulose fibres. The drugstore chain dm changed the construction of the packaging for some products in such a way that packaging material was reduced and the packaging became recyclable. And SealPac has developed FlatMAP, a recyclable packaging for cold cuts. The packaging has a high cardboard content, contains 70 per cent less plastic, and is smaller and lighter than comparable reference products.

And even global players like Samsung and McDonald's have recognised their responsibility: According to Samsung, the packaging of the current Galaxy S21 series 5G contains only four per cent of the plastic that was used in a Galaxy S7 package in 2016. And the fast-food chain McDonald's, which many citizens associate with mountains of waste, has pledged to make its packaging 100 per cent renewable and recycled by 2025.

With e-commerce sales forecast to reach US\$4.89 trillion worldwide in 2021 (US\$101.51 billion in Germany, source: emarketer.com), **optimising packaging for e-commerce** follows both marketing requirements – the shipping box should also match the

brand – and sustainability requirements – the urgency with which consumers, manufacturers and politicians discuss the topic has, as already mentioned, increased significantly.

Whether it is a shipping box or the packaging of a high-value product: its importance as a communication and marketing tool is beyond question. Shipping packaging is also part of the **brand experience** as the first physical touchpoint that the customer has with the product ordered. And here, the first question is: in what condition does the package reach the customer?

Resource-Saving Packaging

Important:

- Reduce the amount of material used.
- Pay attention to easy separability of recyclable materials.

Challenge:

- best possible protection with lowest possible use of resources
- Design must keep recycling processes in mind.
- Industry must implement new processes.

E-Commerce Optimised Packaging Design

Important:

- Unboxing videos can significantly increase reach.

Challenge:

- Adapt packaging to the size of the goods.
- Ensure protection and minimise material.

Gavin Mounce, E-Commerce Design Manager at DS Smith, says that seeing what really happens at each step in the supply chain has been critical to supply chain-specific packaging solutions. Supply chain suitability testing has been one of the most important elements in the move towards sustainability.

New generations of consumers have higher expectations of packaging sustainability. This corresponds to a trend in packaging design observed by Packhelp's team of experts: the increased use of logos that emphasise the environmental properties of the packaging used. According to them, the symbols for recycled, biodegradable and environmentally friendly were the most frequently used forms in the program Packhelp Designer alongside the social media logos from Facebook and Instagram, which are indispensable in e-commerce.

This is where the circle closes – via social media, the staging of the brand on the shipping packaging also offers the opportunity to increase reach: many online shoppers have already shared the image of a package that was unique or branded on social media. And the number of those who have not yet shared an image but would likely do so because of beautiful packaging is growing as e-commerce grows.

Brand Experience

Important:

- A person needs 3 seconds to form an opinion about a product.
- Shipping boxes are communication and marketing tools.
- Packaging is part of the customer journey.

Challenge:

- Identify and understand customer needs.

FUNCTIONALISED PACKAGING

In the top ten of the most attractive trends, three trends from the category Functionalised Packaging were placed: **digital watermarks – Holy Grail** (3.87), **intelligent packaging for quality assurance** (3.83) and **Track & Trace** (3.80). To a certain extent, these three trends can also be assigned to the sustainability megatrend, as they ensure the optimisation of recycling and thus an increase in the proportion of recycled material, help reduce spoilage and the resulting destruction of foodstuffs, and enable deliveries to be tracked seamlessly.

The scope of change inherent in these trends is rated rather average overall: **intelligent packaging for quality assurance** (3.78), **digital watermarks – Holy Grail** (3.65) and **Track & Trace** (3.52) do not seem to change the industry much in essence, according to the respondents.

“It’s about advancing the circular economy in plastic packaging” is how the motivation of companies committed to the application of **digital watermarking** could be summarised. Its discovery was made as part of the Ellen MacArthur Foundation’s New Plastics Economy programme, which investigated various innovations to improve post-consumer recycling and evidently came across the Holy Grail. It is a code that is invisible to humans and is applied to plastic packaging, showing, for example, what material the packaging is made of and what has been packaged in it. The digital watermark is easily recognised by special scanners in the sorting machines.

Procter & Gamble (P&G), in cooperation with partner companies including consumer goods manufacturers, retailers and recyclers, has launched the “HolyGrail 2.0” project to improve the sortability of plastic waste. BASF and the Schwarz Group are also among the more than 120 companies involved.

P&G has been marking the Lenor Unstoppables laundry perfume bottles with a digital watermark on their label sleeves since autumn 2020; not many more practical applications are known yet.

According to the Food and Agriculture Organisation of the United Nations (FAO), about 30 per cent of all food produced worldwide was destroyed along the

Digital Watermarks – Holy Grail

Important:

→ “Digital watermarks” can improve sorting in recycling facilities.

Challenge:

→ One data standard must be defined for all market participants.

Intelligent Packaging for Quality Assurance

Important:

→ Optimised packaging helps to minimise food destruction.

→ Time-temperature indicators (TTI) record the path of a product along the entire food chain.

→ With NFC and RFID technology, even more extensive monitoring is possible.

Challenge:

→ high costs per packaging unit

→ Due to EU legislation, smart packaging from the USA can only be imported with difficulty.

Track & Trace

Important:

→ With RFID, reading and writing of tags can take place without direct, optical visual contact.

→ high reading reliability

→ complete transparency and real-time tracking

Challenge:

→ comprehensive knowledge of the needs in the supply chain

→ possibly, high development and implementation costs

supply chain in 2019, with the majority of food losses due to improper packaging, according to the FAO. The ecological backpack of food is much bigger than that of packaging. So, it is worth investing in this, to be able to, for example, use smart packaging to monitor and display the quality status of food throughout its journey from the point of production to the customer.

Smart packaging for quality assurance provides information about the condition of a product, similar to smart labels, without any direct action being taken. One of the simplest methods is the application of a freshness indicator. It is applied to the inside of the packaging and reacts to chemical compounds formed during food spoilage by changing the colour of the label.

“When plastics are properly sorted, we can provide a suitable additive package, to reuse them for demanding applications.”

Dr. Achim Sties, Senior Vice President, Performance Chemicals Europe, BASF

The use of RFID (Radio Frequency Identification) and NFC (Near Field Communication) technologies has become more cost-effective in recent years, and the range of applications is likely to expand.

Timestrip has developed a solution that not only records every time the temperature exceeds the designated range, but also has an upper and lower limit alarm. Using NFC, the data can be communicated wirelessly via a free app, if required.

But the potential uses go much further: NFC-enabled blister packs can ensure patients adhere to their medication regimen while providing appropriate feedback to remote family members.

The smart packaging market was estimated by Mordor Intelligence at \$38.16 billion in 2019; it was

“Improved recycling will increase the value of packaging waste, leading to higher collection rates and making it a valuable commercial resource of the future.”

Graeme Smith, Head of Product Sustainability, Mondi Flexible Packaging and Engineered Materials

expected to reach \$48.72 billion by 2026. The largest market is North America. For a long time, there was no legal framework for smart packaging in the EU. Therefore, these systems are less widespread here than in the USA, Australia or Japan. A complicating factor is that the stricter legislation in the EU makes it difficult to import smart packaging from the USA.

Pharmaceutical companies worldwide are struggling with counterfeit drugs, supply chain theft and packaging errors. The industry is, by its very nature, highly sensitive to these issues, not least because of very tight regulatory control. To protect against product piracy and plagiarism, pharmaceutical companies have long since implemented track & trace solutions, which involve more than just attaching barcodes to personalised medicines: the aim is to maintain transparency for each individual medicine.

According to industry observers, by 2023, more than 90 per cent of medicine shipments worldwide will be verified under track & trace regulations to increase patient safety by combating counterfeit medicines.

RFID-based labelling solutions are being used in other areas of the packaging industry. The particular advantages of this technology for this application include the reading and writing of tags without direct, optical visual contact, identification even over longer reading ranges and high reading security.

PRODUCTION- AND LOGISTICS TECHNOLOGIES

The use of artificial intelligence (AI) and machine networking (IoT) in production was, remarkably, attributed below-average attractiveness: the value of 3.66 means 13th place among the most attractive trends. The scope of change was rated slightly higher (3.80), which means sixth place here.

This ranking is surprising insofar that the application of AI in many areas will lead to a significant increase in efficiency and the associated financial and time-wise investments will pose challenges for every single company.

On the other hand, AI has long since arrived in practice: Amazon, for example, has used AI to make its packaging processes more sustainable. By analysing data from customer complaints, it can now select the optimal packaging for each product. With its box sizing algorithm, Amazon has reduced shipping damage by 24 percent and at the same time lowered shipping costs by 5 percent.

If companies want to use AI with similar success, they must first identify use cases with the greatest business impact. Then, they can learn from this example what a difference AI can make.

One specific use case is particularly well suited to AI: quality control. In contrast to conventional spot checks, AI can be used to extend quality control to 100 per cent of the goods produced. With AI, countless individual defect patterns and anomalies can be reliably detected.

Sesotec uses artificial intelligence for its metal detectors in the inspection of meat and sausage products. Until recently, this often resulted in false error messages. Now, the machine is learning better and better how to classify different signals and is thus capable of a very high level of differentiation.

“In times when far more than 50 per cent of all packaging redesigns still fail to achieve real improvements (...) it is worth thinking about AI in packaging research.”

**Christian Dössel, Senior Research Director,
PRS IN VIVO Germany GmbH**

In other areas, AI can control the pick-and-place tasks of robots using image recognition systems: the robots receive information about the position, location or quality of the product to be packaged and then automatically readjust their grips.

An equipment element already widely used in mechanical engineering is predictive maintenance. For this, sensor and machine data are continuously analysed, so that conclusions can be drawn regarding possible declines in performance or maintenance cases.

AI & IoT in Production

Important:

- AI requires sufficiently specific data.
- Data collection is a must.

Challenge:

- Selecting the right use cases.
- Investing in sensors, connectivity, cloud solutions and image recognition systems.

ATTRACTIVE CHANGES

Of the 21 trends submitted to the industry representatives for evaluation, eight received an average score of over 4.0 in 2019 and, thus, were rated as tendentially very attractive. In 2021, participants were more critical, assigning appropriate scores to only six trends. With regard to the changes associated with these trends, the panel has become more sensitive: whereas in 2019 only one trend tended to be associated with very strong changes, in 2021 there are four.

In 2019, the top spots in the ranking of the most attractive trends were taken by three trends from the packaging materials category. This is no different in 2021: the ratings of the trends **monomaterials – better separability** (#2, 4.44), **increasing the use of recyclates** (#3, 4.38) and **circular economy** (#4, 4.32) show that the industry is not only actively working on the implementation of the socially and politically desired sustainability goals, but also sees opportunities herein.

However, according to the panel's assessment, these three trends will also tend to change the industry very strongly: **circular economy** (#1, 4.21) is attributed the greatest momentum for change, the **increase in the use of recycled materials** (#3, 4.00) as well as the trend towards **monomaterials – better separability** (#4, 3.99) also require changed procedures and the implementation of new processes and specifications at all points of packaging design and use.

There has been no change in the other top trends either: in 2019, three trends from the packaging design category had average scores above 4 in terms of attractiveness. Essentially, this has not changed: **brand experience** (#6, 3.99) and **e-commerce optimised packaging design** (#5, 4.24) again tend to be seen as very attractive. It is noteworthy that **resource-saving packaging design** is now the most attractive of all trends; the score of 4.48 is not only higher than in 2019 (4.13), it is also higher than that of **recyclable packaging** (4.37), which was rated as the top trend at the time.

The picture is similar for the potential for change: the changes associated with the focus on re-

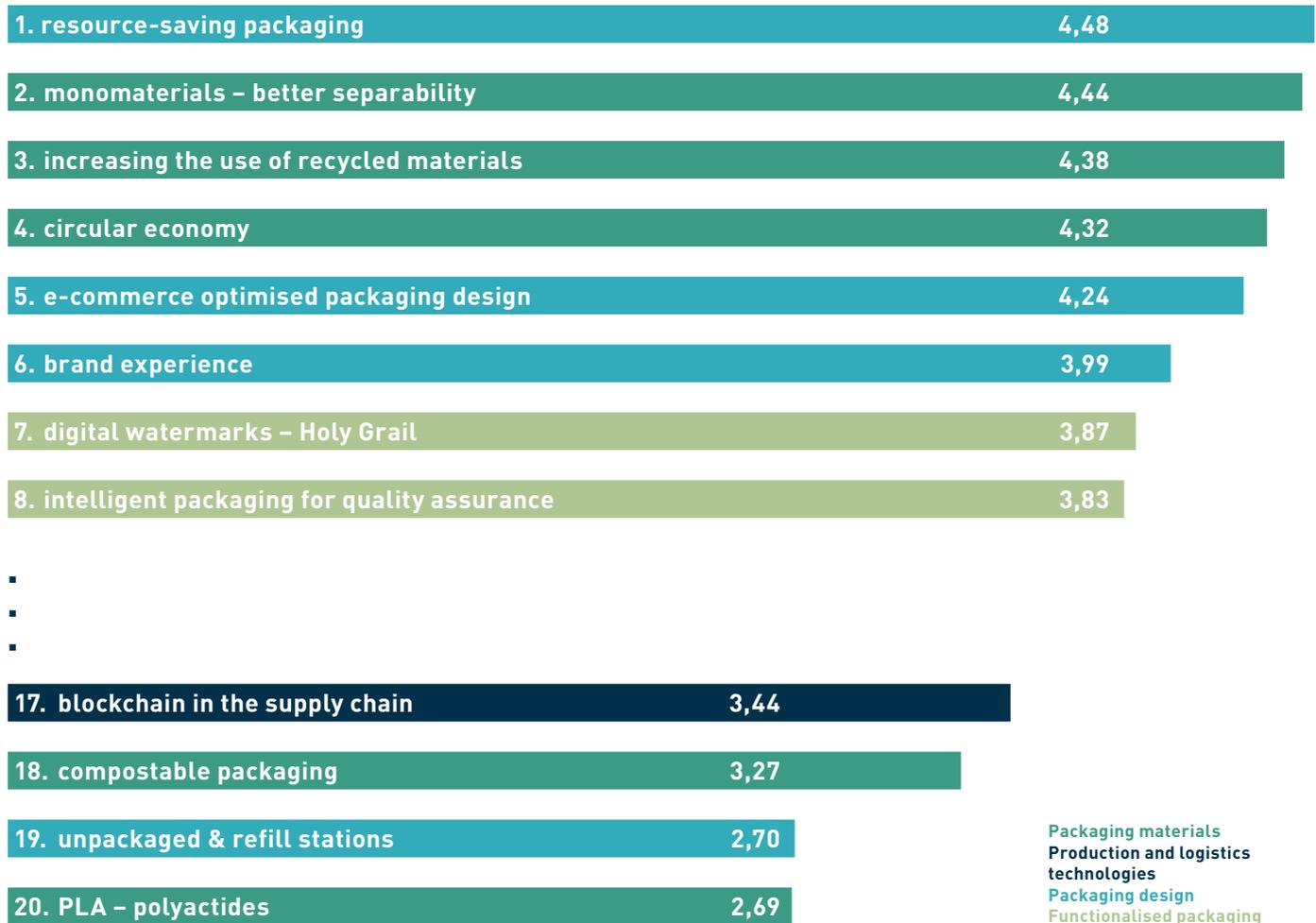
source conservation tend to be seen more strongly today – the value of 4.19 is 0.3 points higher than in 2019. All in all, these are indicators that the topic of sustainability is being prioritised and taken seriously in the industry.

The other two very attractive trends for the industry from the packaging design category could be attributed to growing e-commerce in 2019 already. The lockdowns of the pandemic have once again lastingly fuelled the e-commerce boom. Today, packaging optimisation and marketing issues are relevant for many more market participants, and the trend has stabilised.

The various factors that are part of a positive brand experience for the consumer are widely known – on the customer journey, every contact with the brand must be coherent. In e-commerce, the moment of receiving the goods is often the only physical touchpoint, which is, therefore, of considerable importance. It is worth investing in the visual and haptic design of the shipping carton and product packaging. In this respect, **new colours and ink technologies** could offer interesting profiling opportunities. On average across all respondents, however, the attractiveness tended to be seen as rather low (#14, 3.62). Among those who had described themselves as experts on this trend, the picture was clearly different: 4.53 was the value here. The difference of 1.08 compared to the non-experts on the panel (3.45) was the largest of all trend ratings.

The second largest difference (1.06) represented the assessment of **AI & IoT in production**, which was rated rather averagely attractive at 3.66. Experts see significantly better prospects here with 4.50 compared to non-experts (3.44), especially with

THE TRENDS WITH THE GREATEST (AND LEAST) APPEAL FOR THE PACKAGING INDUSTRY



regard to the control of robots, which are being used more and more frequently: Nestlé is already working side by side with a “cobot” in the “chocolate factory” in Hamburg and the Thomy factory in Neuss. And the packaging machine manufacturer Gerhard Schubert has now developed a prototype of a flexibly deployable robot controlled by AI.

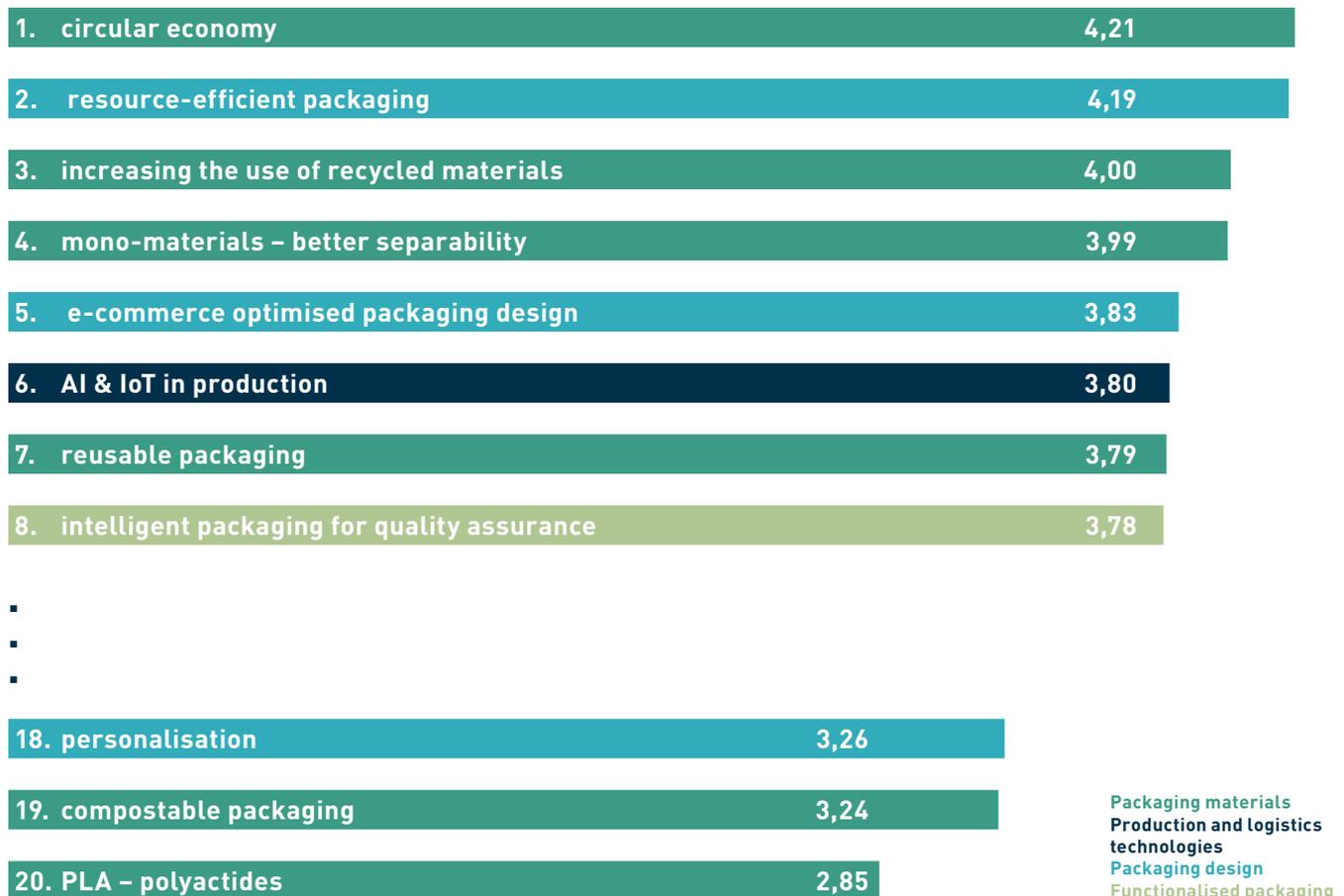
Cobotics was at the lower end of the appeal in 2019 with autonomous delivery and zero waste. None of these trends were submitted for evaluation in 2021.

The current bottom performers are made up of trends that were not yet available for assessment in

2019: **compostable packaging** (3.27), **unpackaged & refill stations** (2.70) and **PLA – polylactides** (2.69).

These classifications are also easy to understand: in an industry that is just focusing on circular economy, disposable products, even if they are made from renewable raw materials (like PLA) and are compostable, cannot score. “We have decided that sustainable packaging should be made from renewable raw materials and must be recyclable. We are convinced that this speaks against a compostable material”, Ritter Sport spokeswoman Petra Fix is quoted to have said by Packaging 360°.

THE TRENDS WITH THE GREATEST (AND LEAST) POTENTIAL FOR CHANGE FOR THE PACKAGING INDUSTRY



With these two trends, as with the topic of un-packaged, the question of business attractiveness naturally arises: How can money be made here? Of a total of about 348 million tonnes of plastic produced worldwide in 2017, only about 2.3 million tonnes were bioplastics. In Germany, the market share of bioplastics is estimated at 0.6 per cent.

This is not to say that bioplastics have no future. There are certainly promising developments here: Van Genechten Packaging (VGP), for example, has developed a clear window film that, like paper and cardboard, is made from cellulose fibres and is biodegradable. It is fully recyclable in conjunction with the solid board, so that the consumer no longer has to laboriously separate the film from the carton for correct disposal.

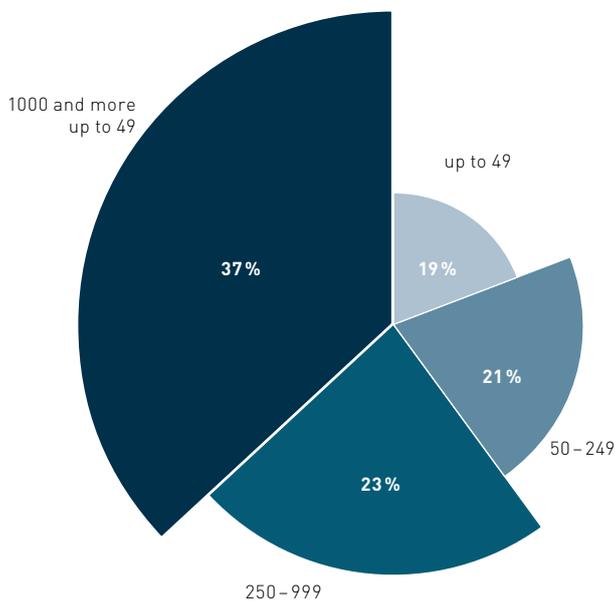
Of the three trends that were placed at the bottom of the ranking of trends with the greatest potential for change in 2019, two were no longer up for evaluation in 2021: instead of smart warehousing & autonomous vehicles in warehouse handling and autonomous deliveries, **personalisation** is now at the bottom of the ranking alongside **compostable packaging** and **PLA – polylactides**.

In 2019, **brand experience** was also not considered to have greater potential for change. What was true for the trend at the time is now true for personalisation – the industry has long since recognised that investments in personalised packaging are investments in the future of e-commerce – the best practice examples from Amazon to Zalando, from About You to Otto are impossible to overlook.

THE METHODOLOGY

For the FACHPACK Trendradar 2021, 21 trends were clustered into four categories: packaging materials, packaging design, functionalised packaging and production as well as logistics technologies. These trends were then presented to industry representatives for evaluation.

Company Size by Number of Employees



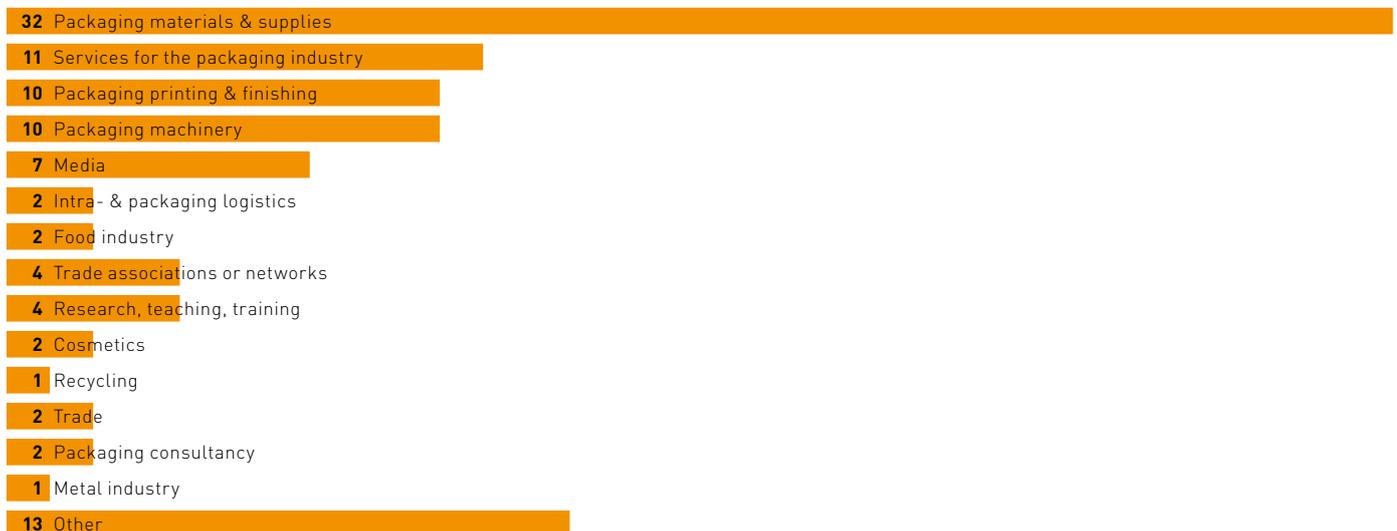
The respondents could rate on a scale between 1 and 5 how attractive a trend was for the packaging industry (1: very unattractive, 5: very attractive) and how strongly it would change the packaging industry (1: not at all, 5: very strongly).

Furthermore, an assessment was to be made as to when the trend will have fully arrived in the packaging industry [“less than 3 years”, “3 to 5 years”, “more than 5 years” and “not at all”].

A total of 108 industry experts took part in the survey.

- More than 60 percent of the participants are in leadership positions as directors, managers, department heads or team leaders.
- 30 percent of the participants work in the packaging materials and supplies sector,
- around 9 percent each come from the packaging industry services, packaging printing and converting and packaging machinery sectors.

Sectors of the organisations participating in the survey





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