

The future of home appliances in a fast changing world

*COMMISSIONED FOR BEKO
IN SUPPORT OF IFA 2018*

SEPT 2018

Lead Author: Dr I D Pearson BSc DSc(hc)
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A man with dark, curly hair is looking into an open refrigerator. The refrigerator is filled with various items: a large red pot on the top shelf, a bowl of strawberries, a pineapple, several jars of green juice, and a drawer filled with fresh vegetables like broccoli, cauliflower, and tomatoes. The man is wearing a light-colored t-shirt. The background is dark, and the refrigerator's interior is brightly lit.

Introduction From The Lead Author

This report has been commissioned by leading home appliances brand Beko and explores the future of consumer living. It explores some likely trends affecting the future of white goods and consequential lifestyle impacts, including technological advancements in the home, family living and approaches to food preparation/healthy eating.

Several trends over the decades have contributed to a global obesity crisis, but growing awareness is bringing together governments, health authorities, NGOs and industry to work together to help encourage and enable healthier lifestyles and healthier diets. Rising populations mean more people have to share the same space, resulting in smaller homes and closer neighbours, while busier lives mean less time to shop well and prepare healthy meals. These pressures have driven markets for fast food and ready meals, which are often lower in nutrients but higher in calories than fresh home cooked foods. Through a process of continuous innovation, home appliances manufacturers can make a valuable contribution by responding with compact, multi-functional appliances that are easier to use, and contribute to quicker and more efficient preparation and cleaning, enhancing peoples' lives by freeing up time and aiding better food consumption. New technologies such as smart packaging, Artificial Intelligence (AI), image recognition and augmented reality (AR) can also be harnessed to provide supporting information throughout the day to match nutritional needs to consumption, a key part of healthy living. If they can also add fun and excitement to make healthier living more appealing, while keeping costs suited to young families, then their contribution to tackling childhood obesity could be doubly significant. This report looks at some major trends in everyday family life and how home appliance manufacturers can use these trends in innovation to enable and encourage healthy eating and lifestyles, and especially to empower parents to help their children live healthier lives.

Technology innovations mostly become available globally simultaneously, but market take-up is often affected by local cultural, political and economic differences. This paper focuses mainly on the potential effects of upcoming technologies, recognising and acknowledging that these will not happen equally or at the same rates in all domains.

Foreword From Hakan Bulgurlu CEO

When people think of the technology of the future, the technology that will be commonplace in 2025 and 2050 people tend to think of virtual reality, 3D printing, Artificial Intelligence, quantum computing and nanotechnology. All of these things are well within our reach and I don't doubt they will play an important part in the future but I think it's important not to forget how the world is changing more broadly, how people's day-to-day lives are changing and how technology fits in this context. Beko doesn't make products for the few, we make products for millions of consumers globally. In particular, we're focused on the new generation of families from across the world who are tech savvy and health conscious.

There has been significant growth in the health and wellness sector; sustainability has entered into the common language of consumers; the sharing economy has become the norm and as the demographics of whole nations shift, space is at a premium and smart homes are on the rise. There are wide-reaching societal changes happening: the growth of the middle classes; rapid urbanisation; and the expansion of the Asian markets, all of which have an impact on the consumer goods industry.

By 2030 two thirds of the global middle class will be living in Asia and as people's income increases they buy their first washing machine or refrigerator. These technologies are a game-changer in people's lives.

Why? Because they free up time, especially the time of those traditionally restricted to domestic work, to do more productive work.

Now, people expect not just great products that do the washing or preserve food for longer, but digital and connected solutions and by 2050 people's expectations will be even higher. At Beko we strive to democratize technology by making it affordable and accessible to the masses. As product innovation continues and future technologies are developed the impact on people's lives will be even greater.

Home appliances are part of the innovation industry now, the pace of change and demand from consumers has never been greater. The market for smart appliances will grow steadily thanks to the increasing demand from China, US and Western Europe. But at the same time, in this age of hyper-connectivity, we understand that consumers want products which make their lives easier and more convenient. Consumer insight shows us the common theme across all groups is time whether to spend with loved ones or to do more productive work. There is a demand for products which make consumers lives simpler, deliver seamless and convenient integration of products and services, for example products that can self-diagnose any issues and or appliances that can be managed remotely.

Where time is the common theme for consumers, the common thread across the technological advances we're seeing is data. Beko is moving to a more data based business model which we are seeing as a driver for innovation in the future helping us to deliver more time back to consumers.

We know that the consumer landscape is transforming and as a business we are at a pivotal point, we see the coming decades as an opportunity to embrace change and be an agile innovator. Through sustainably producing high-quality, smart and connected home products we can democratise technology, create value and play our part in society.

Compact Living

Shrinking home size is a major current trend. Home sizes vary tremendously (up to a factor of two) even throughout Europe, but a recent survey by LABC Warranty based on thousands of UK homes for sale shows that home size has been in decline since the 1980s. Every room is typically smaller, with food preparation space 13% lower and living rooms 32% smaller. The average UK one-bedroom home is now only 49 m² (similar to Romania), while micro-flats from developers U+I range from 19m² to 24m². With people having to live so compactly, appliances must offer the highest utility to justify space. With close neighbours, appliances must also be quiet, while still being good value for money, a huge challenge for appliance manufacturers.

As well as compact living, a key generational difference we are seeing is that young people spend more on experiences and less on ownership than their parents and grandparents. Trying to cram more 'life' into every day, the rise of the 'experience economy' over the last two decades has meant more holidays, more eating out and takeaways, more ready meals and less cooking from scratch, all of which contribute to the rising obesity levels across the globe. In spite of intense lifestyles and smaller homes, there is growing interest in healthy eating and keeping fit according to Deloitte's Global Health and Wellness Report. Sadly, that doesn't apply to everyone and alongside healthy people, others are becoming more sedentary, eating unhealthy diets, becoming overweight, and childhood obesity is a particularly worrying problem. UNICEF figures show 6% of pre-school and 14% of primary school aged children are overweight or obese, and that alarmingly rises to 33% by adolescence. If current trends persist, by the year 2025, there will be over 70 million children in the world suffering from obesity or being overweight. While there will be many actors tackling this issue, manufacturers can play a key role in addressing the problem. It is already possible to see many trends that will change homes and lifestyles and hence the white goods markets in coming years.



2025

By 2025, small rented homes will still dominate, but they will be richer in technology, with space and timesaving appliances, robotics, and smart packaging linking to appliances and apps via the Internet of Things (IoT), often monitored and controlled via an augmented reality interface.

- We will see further reduction in home ownership, with smaller apartments and starter homes driving a need for compact utility. People will buy less equipment and demand more from the products they do buy, driving the market for multi-functional products.
- Much space-saving compared to older homes has already been achieved by improving information technology (IT), which has already replaced bulky historic gadgets such as HiFi stacks, bulky TVs, videotape recorders, CD and DVD players, and associated cassette and disk storage. Landline phones and bulky radios have also declined, along with bookcases and photo albums. Instead, we see wall-hanging screens, smartphones and tablets, freeing space and allowing better quality of life with less clutter in smaller homes. Soon augmented reality will offer virtual overlays, replacing some interfaces and adding functions such as virtual windows and electronically changeable décor. Space saving in living areas means more can be allocated to kitchens, but pressure on space there remains high. Here also, people will expect ongoing improvements on utility from each device, and will expect augmented reality interfaces to overlay instructions, guidance, controls and information.
- Connected homes will become commonplace. IoT lets devices talk to each other and to the net, enabling easier maintenance, remote control and supervision of white goods. Users will also expect ongoing integration with voice interfaces via home AI, with some households potentially using gesture or facial expression interfaces too. Instead of electronic panels and dials, people may simply tell a washing machine if they want a fast cycle, letting its own sensors work out what sort of cycle is needed for the clothes inside. Machines will work out lots of things for themselves, even to the extent of ordering their own supplies, allowing simple voice control via home AI to become commonplace.
- There will also be broader use of robots and drones by 2025, but this will mostly be higher market penetration of existing robots already used by a few 'early adopter' households, such as smart vacuum cleaners, security monitoring drones, and various entertainment or toy robots. Of course, there will still be many conventional appliances that are technically robots such as dishwashers and washing machines.

- Smart food packaging will be introduced, with safety and nutrition alerts, often integrated with phones and fitness devices for easy tracking of movement so that diet can be coordinated with personal activity.
- Development of timesaving, more efficient products will follow consumer demands to free up time while making more sustainable purchases. Many customers will want multi-functional gadgets but visual minimalism, using interfaces via smartphone apps instead of complex panels. There will be strong demand for faster cooking and washing even as the experience economy demands more diverse clothing and food types. Using IoT capabilities will be central to achieving this.

2050

Looking ahead to 2050, these emerging trends will have matured, so robots, drones and augmented reality will be ubiquitous along with smarter surfaces and recycling capabilities.

- White goods with AR interfaces may use minimalist designs with only essential controls physically present for emergencies, just as TV controls have vanished to the side or rear as remote controls have made them less important.
- Gadgets will have evolved to become faster and more sustainable. Washing cycle times will continue to fall, while using less energy. Robots will often take over many household chores, so depending on what human residents need, they could guide a washing machine through a fast cycle, or if there is less rush, use a more energy-saving routine, but in both cases they could use their own advanced sensing and AI to make sure the job is done thoroughly. A person will just tell the robot to wash something and it will appear laundered in their wardrobe before they next need it.
- There will be more home robots, including some androids. Cheaper robots with less adaptability and capability may be used in homes with more modest budgets. Robots can remember where things are and be able to retrieve them even if that means unpacking and re-packing cupboards, and so they will reduce demand for storage space by using it more efficiently. Robots will probably be the main users of white goods by 2050.
- Androids may do most housework such as cooking and laundry and will talk to appliances electronically. This will allow a broader range of functions to be provided, since some of the complex programs could be downloaded by robots, allowing higher functionality at lower cost while coping with changing fashions. Similarly, robots and smart fridges will together know what shopping is needed and could even arrange it to be delivered on a just-in-time basis, allowing a very healthy fresh food diet with a sophisticated menu, which the robot can prepare using other appliances.

As demand for faster, more efficient, and easy-to-use devices continues to rise, brands are under pressure to innovate in order to remain ahead of the curve. Beko's latest addition to its laundry line, the AquaTech™ technology washing machine, is a good example of how home appliance brands are adapting and responding to ever-evolving consumer needs. The new AquaTech™ washing machine harnesses the natural power of water to create a gentle yet effective cycle, replacing standard tumble moves with more movement of water inside the drum. Featuring up to a 50% faster washing cycle time with perfect cleaning results, the AquaTech™ technology washing machine is set to give back precious hours to anyone who does laundry at home by offering smarter, shorter programs for greater convenience.

The product was developed after consumer insight revealed a preference for delicate washing as well as the majority of individuals opting for faster cycles to save time. While this approach with standard washing machines can compromise the cleaning efficacy required, thanks to AquaTech™, Beko is able to offer washing cycles that work both quickly and effectively, whilst preventing any damage to textiles. Providing a faster and more convenient washing cycle, speed is delivered in its most gentle and effective form.

In brief

Future homes will still be compact but specially designed devices and space saving from IT will make this easy to cope with, while other technologies such as augmented reality will add visual excitement and variation to décor to keep the home stimulating and comfortable as well as information-rich. Robots will soon join households and take over various jobs to ease time for people, and together with time saving machine routines and easy-cleaning surfaces will significantly reduce time needed for housework and daily chores, freeing up time for consumers to indulge in activities for personal enjoyment or which contribute to overall wellness. Technologies such as smart packaging and multifunction cooking devices will empower parents to live happier and healthier lifestyles and to help and encourage their children to do the same.





Smarter Living

Compact living doesn't have to mean boring living. Technologies such as robots and augmented reality can save space and free up time, but they can also add fun and excitement. Robots have featured among favourite toys since the 1960s, but robots with sophisticated sensors, dexterity and AI make much better companions and provide more opportunities for interaction than in previous decades. People are more likely to form emotional connections with robots that they can talk to, and consequently, robots are even *being designed to read human emotions*. Augmented reality potentially links the full creative capability of the games and entertainment industries into every aspect of everyday life, whether it is making public spaces into virtual art galleries, providing virtual companions to make running more fun, or adding superhero housemates to play with children or help persuade them to eat their greens. However, the evolution of both robotics and augmented reality will be a long and gradual process, achieving enormous impact but over an extended period, just like the world-wide-web. Today, AR visors are just emerging and very expensive, such as *Magic Leap*.

2025

By 2025, AR visors will be common but not yet ubiquitous, so not all homes will make use of them, but AR will have great appeal to young families, so it is reasonable to expect it to have a high priority in their budgets.

- With the first augmented reality visors just appearing today, costs will fall rapidly while quality improves, so AR overlays will be commonplace in many 2025 kitchens, adding personalised décor, exciting views through windows, and adding useful information onto gadgets, foods, even crockery. AR can also make exercise fun, adding virtual companions or linking to friends doing the same. Instead of watching workout videos, people could see their sports heroes, celebrities or even computer game or cartoon characters exercising right beside them in AR, encouraging them to push harder and achieve their fitness goals. Each person's visor can show different overlays, so every member of a young family could see different exercise companions, making it fun for everyone. Superheroes would add easily into AR and VR layers, and smartphones can make a seamless transition as people leave the home.
- This technology allows for easy parental supervision. Overlays can show how many calories each child is using, how much their fitness is improved compared to last week, how much they have eaten and any nutrition they may be lacking. This will make meal preparation easier and better suited to individual needs.
- The entertainment industry could play an important role in this, by enabling AR use of superheroes and gaming characters. Game developers are perfectly positioned with the right combination of graphics and 3D interfacing skills to produce AR apps that overlay any kind of character onto a field of view and would make good partners in designing interfaces for the white goods industry. In fact, *augmented reality labelling* can already link a barcode scan to playing games.

2050

- In the home, better appliances that save time and are easy to use mean less distraction from activities that matter. Appliances like smart fridges and multifunction cookers with their IoT enhancements will be able to keep track of ingredients to support personalised menus and meals for each family member without unduly increasing parental workload. This won't be an overnight development. Kitchen devices will gradually evolve over generations to have personal profiles for each household member, with AI and robotics developing over similar timescales to make fully personalised nutrition feasible.

The further future of 2050 will introduce interfaces such as thought recognition and sophisticated AI as well as better robots and AR. AI will act as an extra virtual guardian for children, giving parents more information and alerts about their children's activities and food consumption, while smart materials will reduce cleaning time, even without a robot to help.

- Augmented reality (AR) will be fully mature, and interior décor and interfaces will mostly rely on AR overlays, so that each person living in a home might see different décor. People will be accustomed to seeing context-appropriate information in their field of view, such as progress on a meal cooking or laundry being washed. An important AR use will be displaying food information such as whether it is still safe to eat, nutritional composition, menu suggestions and recipes. People will expect to see menu suggestions appropriate to their recent physical activity, assuming that this will take full account of their body's medical needs, epigenetics and so on. As their home AI gets to know what sorts of information they want, and how they want to see it, it can arrange to overlay extra information or graphics onto absolutely anything. The only real limit is how much extra stimulation the person wants.

- AR will allow people to be effectively present in a kitchen from anywhere. Having a friend alongside while preparing a meal could make it more enjoyable, but equally, an AI chef companion could act as a cooking guide when trying something new. Extending Boko's healthy eating initiative, 'Eat Like a Pro' into 2050, it might be fun, having exercised alongside a pro, to have them stand alongside while cooking too and then accompany the family for the meal itself. Of course, each family member might see different pros in line with their personal sporting hero preference.

- Smart cooking will evolve enormously by 2050. For example, kitchen AI will liaise with smart packaging for cooking instructions, nutritional and calorific content to allow for easy tracking and nutritional content and then prepare it accordingly. Smart packaging will contain links to all the data required for every appliance or AR overlays. Even washing machines could be informed on meal contents in case of spillages and stains so they can clean clothes appropriately. Even if unpacked, AI will recognise foods, whether raw ingredients or mixed in salads or on a pizza, so that nutrition can be tracked fully.

- As AI technology involves, it will be treated as just another family member. It might appear in many forms to different people in different roles. It could be a voice assistant one minute, an exercise companion or chef the next, and then a robot butler or cleaner personality.

- By 2050, thought and emotion recognition may be common. They already exist in simple form today and should have developed enormously by then. They will allow foods to be integrated into a holistic lifestyle approach, tapping in to the growing desire for health and wellness, and providing foods appropriate to how a person is feeling, while helping and encouraging them towards their goals.


- Smart alerts will inform parents on any areas of their children's health, diet or exercise that need attention. With wearable devices monitoring both health and activity, mobile apps and AR providing fun in exercise environments and home appliances providing cooking and cleaning support, enabling truly smart parenting.

- Microwaves are still likely to be around in some form, but as well as grills or infrared add-ons, might even contain 3D food printing or fast chilling devices by 2050. They will certainly be multipurpose devices.

- Cleaning will also be far easier thanks to advanced material coatings, and worktops, appliance surfaces, packing and packaging might use electronically controllable nanostructures for self-sterilising, that could be controlled by voice command, or by touching mobiles or other devices while in many homes, robots or drones will do much of the kitchen work in any case. Worktops and fridge liners may well clean themselves, repelling dirt and resisting bacteria.

- Drones might also be used for cleaning and even for tidying, and some might use mobile UV sterilisation on kitchen surfaces when there are no people in the room. Future homes may well have a range of drones for various purposes as well as androids in some homes.

- With all this timesaving, and all the extra encouragement and support, families will be empowered to live much healthier lives.

A photograph of children in a kitchen. A child in a purple long-sleeved shirt and a white apron with black polka dots is grating a piece of white cheese on a wooden cutting board. Another child in a pink shirt is visible in the background, and a third child in an orange shirt is in the foreground. A metal whisk is visible on the right side of the frame. The image is overlaid with several blue geometric shapes, including triangles and polygons, which frame the text blocks.

With a heightened focus on nutrition predicted for the future and rumours of 'smarter' kitchen gadgets set to take precedence in the home, there is a growing need for the development of home appliances which support and promote healthy eating, making it as easy as possible for consumers to cook nutritious meals from scratch.

Ideal for busy families that enjoy living a healthy lifestyle, Beko's **EverFresh+**® fridge allows for fruit and vegetables to be kept fresher for longer, preserving produce for up to 30 days. That's three times longer than average.

A special compartment creates the optimum environment for increasing the longevity of plant foods, thus diminishing the chances of food waste, minimising the stress of food deterioration and eliminating the need to frequently pop to the shops to replenish ingredients.

In brief

Augmented reality will have huge impacts on family life, including making it easier to persuade children to eat healthy foods by making them visually exciting, and allowing them to have their heroes involved directly with them. Smart appliances that are easier to use will work directly with AI to suggest healthy activities and meals and make them more enjoyable. In AR overlays, parents will see exactly what nutrition their children are getting and how much exercise, taking away the guesswork and tedious calculations needed today. As other industries such as entertainment and gaming start playing their part in tackling obesity, Eat Like a Pro could evolve to be Cook with a Pro and Eat with a Pro, and children could even Exercise With a Pro. Families will find it much easier to eat healthily and do sufficient exercise, and have the free time to do so.

A man with curly hair, wearing a teal shirt and a striped apron, is operating a green and silver Beko juicer in a kitchen. He is holding the top of the juicer. In the background, a woman is partially visible. The kitchen has a rustic feel with a stone wall and a window with multiple panes. The image is framed by blue geometric shapes.

Healthy Living

A key part of smarter living is using technology to ensure that each member of the family has all the information and technology-enabled mechanisms to support a healthy lifestyle and diet. Growing awareness of obesity, especially in children, is motivating many people to move towards healthier diets and lifestyles. Organisations such as Euromonitor have listed *a range of healthy living sub-trends*, with food industry reports such as a *CBI report on fresh fruit and vegetables* identifying more specific and encouraging food consumption patterns. Governments and bodies such as the World Health Organisation (WHO) are encouraging industry to do what it can to help, involving food producers, health providers and insurers, entertainment and gaming manufacturers. The WHO set up a *Commission on Ending Childhood Obesity* in 2014 and the EU has produced a six year *Action Plan on Childhood Obesity* 2014-2020.

Healthy eating fits well into an overall lifestyle trend that includes focusing on fitness, environmental stewardship, and better foods, supported by technology such as fitness bands and health monitoring equipment.

To tackle the growing obesity problem, influential brands in every sector must do what they can to make 'being healthy' more appealing to those not already converted, by making it more fun, lower cost, with higher rewards, better knowledge and support, and better visualisation of progress towards goals to increase motivation and encouragement.

2025

By 2025, some trends already coming over the horizon will have made valuable progress. Food production is quickly becoming smarter, as is packaging, while AI and IoT devices couple with image recognition and augmented reality to coordinate healthier eating with a generally healthier lifestyle, with smarter kitchen appliances helping in its preparation.

- Sports-foods and supplements are a growing market, and the rich data available for these links easily into smart nutrition. With this, *nutraceuticals are a growing trend along with nutrigenomics*, linking nutrition to medical advances such as genetic testing.
- Food production may involve smart farms growing food to personal specification. Already GPS-enabled tractors and drones routinely apply fertiliser to each part of a field according to what it needs, and this could as easily be in response to requests by individual consumers, effectively outsourcing a vegetable plot.
- Food packaging and presentation can be made smarter, with information on packs presented via augmented reality overlays, with home AI (artificial intelligence) interaction. AI voice assistants will tell you what to eat and what you have eaten, how much exercise you've done and suggest what you might do next.
- Fitness and sports activity and nutrition can be better linked to food intake. Linking smart packaging to smart kitchen appliances, with games and activity monitoring, can enable smart nutrition that is both fun and easy, especially for children.

2050

- Fitness and food intake can also be closely coordinated via apps in an AR overlay driven by improving AI and IoT. IoT in packaging and appliances can measure intake with the help of AI image recognition, while augmented reality overlays can inform people about what they are eating and what they are burning off via activity, while making it all more fun. IoT enables integration with cookers, fitness bands, app-based image recognition and home AI assistants. AI image analysis will allow plate-level food recognition of meal composition, rather than relying on parents calculating how much of a package has been given to each child. Apps could easily keep track of calorific and nutritional consumption for each family member.
- AR overlays and games will be especially suited to engaging children and younger people who will quickly become adept at using AR in every area of their lives. AR is also useful for active real-time recipes and cooking guidance, even overlaying 3D images of an assistant chef friend or AI. Apps can show in detail what is happening to food during prep for more scientifically inclined children, or simply adding cartoon or sport heroes into the kitchen to add novelty.
- Most children respond to targets and rewards and these can be linked to calorie intake, vitamins, sugars and so on. Having a personal hero praise them or give them awards is a well-founded part of Eat Like a Pro.
- Advanced multi-function blenders can make numerous varieties of smoothies and nutritious soups, but could soon also be linked to kitchen 3D-printers to make novelty-shaped foods that will make healthy lunches more fun for children. Vegetables could be made more enticing to some children when reworked into novel shapes. Visual appearance has a huge psychological effect on perceived taste, so while it is optimistic to expect broccoli paste to taste like chocolate, vegetable paste novelties can certainly help to get children to eat them. So packed lunches can be fun but still be healthy. A band of heroes battling with dinosaurs while riding a veg-paste spaceship would be much more fun for a young child to eat than a packet of crisps and a cheese sandwich.
- If this is successful, with the introduction of new gadgets and product solutions that make healthy eating simple, affordable and fun, then even by 2025 we could see childhood obesity reaching a plateau and then soon afterwards start declining.

By 2050, further convergence of the pharmaceutical, biotech and food production industries should be expected, producing smarter, more nutritious and lower calorie foods that link more closely to personal genetics and health needs, while robots and AI will do much of the hard work and AR will make the whole healthy living experience even more fun.

- Understanding of genetics and epigenetics will be far more advanced and will lead to smarter personal nutrition and dietary advice, driven in part by health insurance and health care providers, who will also cooperate with food producers and entertainment providers as well as appliance manufacturers to deliver smarter more personalised foods that support healthier lifestyles. Much of the impetus might be provided by government intervention and regulation, to avert the alternative of enormous health costs to taxpayers resulting from obesity.
- Smart foods will be developed that combine reduced calories with higher nutritional value and better taste. A wider range of 'nutraceuticals' will combine everyday food with nutritional supplements and medication, a trend evolving naturally from today's enthusiasm for extra vitamins and sports supplements. Current controversial efforts to produce 'vaccines' against obesity may also prove successful but taking pills will be no substitute for a healthy diet. Obesity will be more treatable and preventable, but healthy lifestyle will remain a key contributor.
- Augmented reality overlays will add to physical appearance of foods to make them more visually appealing. A child's 3D-printed T Rex could use AR to roam around in a jungle and roar, maybe attacking others in the lunchbox, while an intervening superhero's spaceship might fire laser cannons at it. Fun has no bounds when a child has access to powerful AI that can create any video overlay a child can imagine. Virtual overlays will also make food more understandable. Non-scientists often struggle to understand the various kinds of nutritional components and their effects in the body, but appropriate visualisation can circumvent that problem.
- Robots will be abundant then too, and robot sports assistants and companions will help prevent boredom in children while they exercise, again using augmented reality effects to keep stimulation level high. 2050 exercise could be just another exciting computer game, with the player helped through missions by vegetable paste health packs. As a child eats a healthy snack, AI using image recognition could identify it and the game character's health score could also be simultaneously increased. Surviving a challenging mission in a game might require not just pushing buttons but also eating some healthy food. AI and IoT offers easy integration of encouragement, gaming, socialisation, and entertainment into exercise and sports, linking to smart appliances wherever appropriate, to make healthy eating more enjoyable for children with continuous rewards and encouragement.

Awareness of obesity and nutrition is slowly growing in line with an increased focus on the importance of health and wellness, but more needs to be done to help tackle the problem. With government and industry bodies driving change, now is the time for brands to take action and show their commitment to supporting the cause.

Every year, statistics show children's eating habits are getting worse: less fresh vegetables, fruits and fish, and more fat and sugar. However feeding our children healthy food can prove a tough challenge.

Which is why, last year, Beko launched Eat Like a Pro, a global initiative to help parents around the world feed their children nutritious and nourishing meals. As premium partner of FC Barcelona, Beko knows exactly what the top players in the world eat every day in order to perform at their best.

By showing children what their heroes eat, Beko, through Eat Like a Pro, aims to make healthy food exciting. And through providing a wide range of appliances featuring smart and helpful technologies to deliver healthy food at its best, Beko is proud to support families all around the world.

To date, the initiative has been a huge success and earlier this year, Beko raised 1 million euros for UNICEF to help combat the growing childhood obesity problem in partnership with FCB.

The aim is simple: to help prevent childhood obesity through awareness raising and education. The funds raised to date will be used by UNICEF to implement a programme designed to improve the eating habits of 600,000 primary school-age children in Latin America. The initiative is designed to provide the necessary education and support about the importance of healthy eating at home and in schools for children's healthy growth and development.

For more information about the cause, visit <http://www.eatlikeaprobybeko.com>



In brief

Innovations in the food production industry such as smart farming and nutraceuticals will make food better suited to each person's biological needs. In the home, food preparation technology will make it easier to make better meals that help prevent childhood obesity. Some of the work will be done by robots, but even human input will be more enjoyable and satisfying. Children could go to school with boxes of augmented-reality-animated dinosaurs instead of boring sandwiches and crisps, while parents will know exactly how their intake matches their needs. It will be far easier to avoid obesity and to ensure that every family member is happier, better fed, more active slimmer, and healthier.



Summary

Future lifestyle will change markedly in coming years. Young families will mostly have to live in smaller accommodation than their predecessors, but this is made tolerable by advanced technology. Smart solutions will enhance home living in all aspects. For example, in living rooms IT such as smartphones have already removed the need for much of the space previously needed for gadgets and media storage. In kitchens, families will also expect devices that save space by being multifunctional. They'll also expect them to save time and be easier to use, not only by being faster and easier to clean, but also by integrating with smartphone apps via IoT. Many users will rely on voice control interfaces and in some cases, this could even extend to using gestures or facial expressions, but soon, some will use augmented reality, which will start appearing in homes over the next few years. Over past decades, a growing problem has been obesity, especially childhood obesity, and changing technology will also provide support for parents who want to encourage children into healthier lifestyles. Again, augmented reality will play a major role, adding a virtual layer that makes food more exciting, while providing opportunities to link with celebrities, game characters, or other heroes to give children extra support and encouragement throughout their day. Kitchen gadgets can link to this capability, with blenders and 3D printers able to make shaped snacks that can be animated in augmented reality. Parents will use AR to get a continuous information feed on what their children are doing in terms of exercises and what they are consuming nutrient-wise. Smart packaging will provide much of this information, but AI using image recognition will do much of it. Robotics and smart appliances will connect to packaging via IoT to make sure that the kitchen is well-stocked with healthy foods, that parents have all the information needed to prepare healthy meals, and make sure children enjoy eating them. By working in synergy with food, packaging, entertainment and games industry, appliance manufacturers can play an important role in reversing the obesity trend and ensure that future children can lead healthier and happier lives.

This report has been commissioned by Beko as promotional material in support of their presence at IFA 2018 and produced by Dr I D Pearson, Beko and MSL Group.

About The Author

Dr I D Pearson BSc DSc(hc) CITP FBCS FWAAS FWIF

Dr Ian Pearson is a full-time futurologist, tracking and predicting developments across a wide range of technology, business, society, politics and the environment. He is a Maths and Physics graduate, a Doctor of Science, and has worked in numerous branches of engineering, from aeronautics to cybernetics, sustainable transport to electronic cosmetics. His 1850+ inventions include text messaging and the active contact lens. He was BT's full-time futurologist from 1991 to 2007 and now runs Futurizon, a small futures institute. He writes, lectures and consults globally on all aspects of the technology-driven future. He has written eight books and made over 750 TV and radio appearances. He is a Chartered Fellow of the British Computer Society and a Fellow of the World Academy of Art and Science and the World Innovation Foundation.

About Beko

Beko is the number 1 brand in the European free-standing white goods market and the second largest home appliances brand in Europe (Dec, 2017). It has been the fastest growing brand in the overall European market in since 2000. Beko branded products have now become an integral part of more than 400 million of consumers' lives in more than 140 countries. Beko is the international home appliance brand of Arçelik and a Global Premium Partner of FC Barcelona.





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