



The *Futuremover*

4th quarter 2019

HOW DO WE MEASURE OUR PROSPERITY?



GROSS DOMESTIC PRODUCT THE GIANT TOTTERS

The total of the gross domestic products (GDP) for all the countries in the world amounted to USD 84.74 billion last year.

This figure includes every tomato that is sold, every visit to the beautician, and every flight that people take. GDP as the sum total of a country's economic performance was developed in 1930 by Simon Smith Kuznets and was used by US President Franklin D. Roosevelt to implement his „New Deal“ (1933–1938).

But even then Kuznets, who was an economist and statistician, warned that GDP didn't really reflect a nation's prosperity. Politicians and society at large cling to a calculation system which with its regular GDP forecasts creates a positive or negative public mood. However, in the light of climate change, finite resources and the gap between the rich and poor the question of whether growth can be used as the only indicator of prosperity is now being asked more frequently. Or to put it another way:

if you do voluntary work that doesn't have any impact on GDP. But if you write your car off in an accident, you help to increase GDP. Isn't that bit of a paradox? So do we need a new measure for modern times?

„Gross domestic product measures everything – apart from what really makes life worth living.“

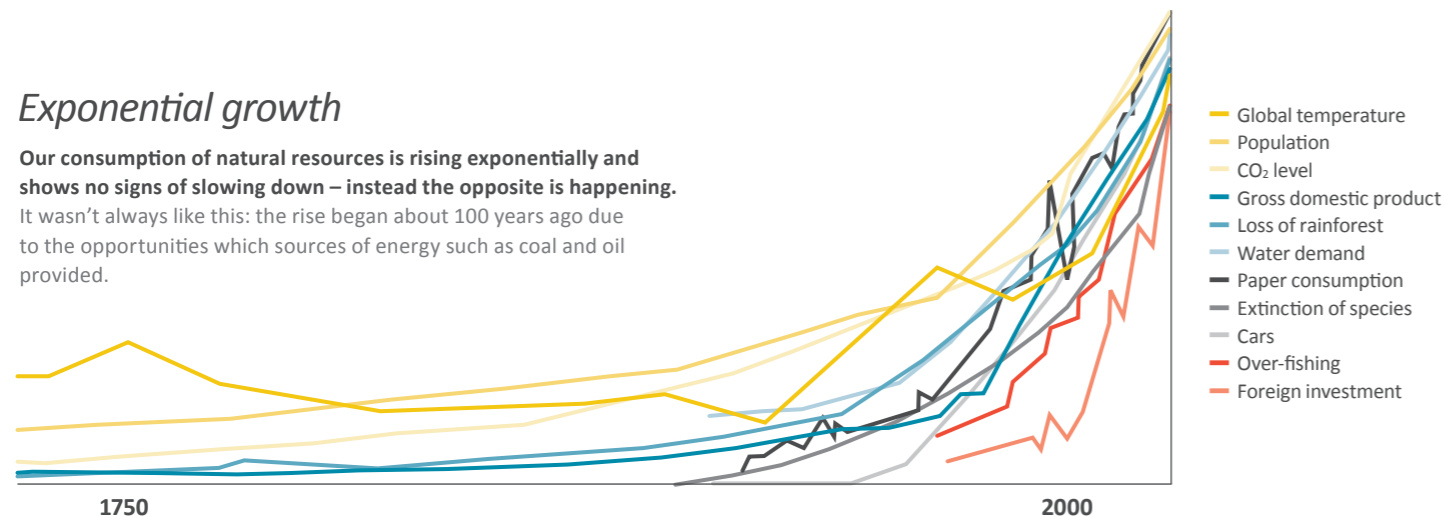
Robert F. Kennedy (1925–1968)

Has the „be all and end it all“ of indicators had its day?

WELL-BEING INSTEAD OF WEALTH

Exponential growth

Our consumption of natural resources is rising exponentially and shows no signs of slowing down – instead the opposite is happening. It wasn't always like this: the rise began about 100 years ago due to the opportunities which sources of energy such as coal and oil provided.



Source: New Scientist, October 2008

Just imagine appearing before a jury which was going to judge your life. You proudly set out your record: you've reduced your waste by 50%, you've learnt a new foreign language, and you've spent a lot of time with your grandmother. The jury dismisses all this and would rather see your bank statements. If your earnings have increased, you get a nod of approval. If they've fallen, you have to go to the back of the queue. That's more or less how GDP works. Spot the error.

GDP provides a value for all the goods and services that are produced in an economy.

Companies which contaminate a river with chemicals contribute just as much to GDP as a company which uses „good bacteria“ to reduce the use of pesticides. So GDP puts a value on all the goods and services that are produced in an economy. By doing so it acts, for instance, as a basis for economic forecasts or for setting the level of contributions to the EU.

GDP SEEMS TO HAVE BECOME AN ANACHRONISM

There was a time when GDP clearly made sense. During the worldwide economic crisis of the 1930s there was no national calculation system in the countries

Critics, including renowned economists, politicians and even Nobel Prize winners don't pay attention to GDP.

concerned which could provide a picture of how the economy was performing. Only after the Second World War did all the countries jointly introduce a system for measuring production levels. The leading indicator was gross domestic product.

But it grew up in the analogue era, and it ignores future indicators of how a country is developing. The internet for example. How do you value an online encyclopaedia like Wikipedia which provides knowledge that you can download for free at any time? And what's the appropriate value for sharing platforms or YouTube? Critics, including renowned economists, politicians and even Nobel Prize winners, don't think much of GDP as a guide value. That's why a year ago Joseph Stiglitz, the Nobel Prize winner in Economic Sciences and the French economist, Jean-Paul Fitoussi, presented a thought-provoking book with the forward-looking title of „Mis-Measuring Our Lives: Why GDP Doesn't Add Up“. The book provides grounds for optimism, and the academics' summing up of the issues is as simple as it is revealing: „If we measure the wrong thing, we will do the wrong thing.“

THE UN ESTABLISHES „THE INTERNATIONAL DAY OF HAPPINESS“

The fact that the most respected accounting indicator used for national economies was not an adequate way of measuring a people's well-being was already understood by the UN in 2012. Since then the „International Day of Happiness“ has been celebrated on the 20th of March every year. The aim of this is to express the UN's recognition of countries which measure well-being in a way that goes beyond material prosperity. It's also intended to make politicians and economists take a new approach to the issue of the search for happiness.

And things are beginning to change. Economists and even politicians recognise that important factors such as diversification, education, environmental protection, digitalisation, equal rights and health need to be factored in.

„We need a new economic paradigm that recognizes the parity between the three pillars of sustainable development. Social, economic and environmental well-being are indivisible. Together they define gross global happiness.“

Ban Ki-moon, UN Secretary-General (2007-2016)



„From now on we're measuring our country's success differently. We're no longer considering just the gross domestic product, we're also looking at how we can improve the well-being of our citizens, how we protect the environment, and how we can strengthen our communities.“

Grant Robertson, New Zealand Minister of Finance

A change of attitudes in politics

In Germany the Greens are making careful preparations for being in (coalition) government. Of course this also involves coming up with an economic programme.

„Gross domestic product takes no account of ecological and social issues“, says the party Chairwoman, Annalena Baerbock. She is demanding a „new“ definition of prosperity – and doing away with gross domestic product (GDP) as the sole indicator of the performance and prosperity of national economies.

A woman incorporates the Wellbeing Index into government policies

A similar thing has actually happened recently in New Zealand.

In the light of one of the highest suicide rates in the world, Prime Minister Jacinda Ardern has prioritised well-being rather than just growth. For the first time ever, a „Wellbeing Budget“ of almost USD 2.5 bn. has been passed as part of the national budget.



Investments are being made in health services for the mentally ill and in modernising hospitals. The expansion of the state railway system, KiwiRail, is being fast-tracked as well as innovations which will lead to a low-CO₂ future.

Drinking water quality has to be improved, and agriculture will be made fit for the challenges of climate change.

A kingdom of well-being

As long ago as 1972 the King of Bhutan declared happiness to be the nation's aim.

There are a total of nine categories in the „Happiness Index“. Ranging from psychological well-being to ecological resilience and education. „Gross National Happiness“ (GNH) is measured by using 33 indicators and it gives politicians a better understanding of the well-being of their country's people than growth alone does.

A change of attitudes in the economy

Every year the „Global 100 Most Sustainable Corporations in the World“ index provides a worldwide ranking of 7,500 companies which have an annual turnover of over one billion US dollars. The key: CO₂ emissions, waste reduction, age diversity of management, „clean“ products and general sustainability are incorporated into the assessment.

The top spot this year went to Chr. Hansen Holding, a relatively unknown biotechnology company from Denmark. Chr. Hansen develops „good bacteria“ for preserving foodstuffs, for crop protection, and as a replacement for antibiotics in livestock farming.



„Working for a better world is deeply engrained in our product range and our business. This gives us as a company a convincing objective which is closely connected with sustainability, and which our employees can fully identify with. They're proud of working for an important cause and making a contribution to a higher goal on a daily basis“, says CEO Mauricio Graber.

„The better world“ of Chr. Hansen also happens to produce an improved financial performance. So the share price has outperformed the Dow Jones EURO STOXX index over the last three to five years.

Interview with entrepreneur Christina Kehl

TECHNOLOGY WITH A HUMAN TOUCH

Christina Kehl, fintech entrepreneur and Managing Director of “Swiss Finance Startups”, on tomorrow’s world of work.



Areas of activity involving creativity, innovation, feedback, human interactions and technology are gaining in importance.

“New job profiles and entire sectors are being created at an astonishing pace.”

The world is changing fast and in fundamental ways. What does this mean for the world of work?

The world of work is necessarily adapting to the needs of the economy. New job profiles, careers and entire sectors which can service customers’ technological and digital needs are being created at an astonishing pace. However, due to the pressure of global competition as well as cost pressures automation is increasingly coming to the fore in the world of work.

Human work is being replaced by algorithms and robotisation in the drive towards efficiency and increased gains in economic value, which is making many employees worried about their future.

In future there will have to be a much greater degree of flexibility and adaptability in schools, study opportunities and further education.

What can society do in order to alleviate these fears about the future and to facilitate the transition to a digital world?

Numerous studies show that technological change is fundamentally altering the world of work. However, this process is creating at least as many jobs in new, fields of work that are “fit for the future”. The big challenge now is how to manage this shift or “reskilling” process as a society. This will involve much greater flexibility and adaptability in relation to schools, study opportunities, further education and educational issues, goals and structures as well as mindset, entrepreneurial spirit and risk appetite.

So what are the skills that will be more (or less) in demand in future?

In principle, it can be said that technological change will lead to the economic devaluation of any repetitive activities which can be automated. Any activity that can be carried out by means of an algorithm will in future be done without human intervention. According to studies this affects areas of work across all levels of qualifications: from the people who work at the supermarket till through to lawyers, doctors or accountants. On the other hand, areas of activity involving creativity, innovation, feedback, human interactions and technology are gaining in importance.

What jobs will digitalisation produce in the next 10 years?

Christina Kehl

is one of Switzerland’s leading digital entrepreneurs and is at the intellectual cutting edge of the digital transformation.

She is a co-founder and partner at Pix Politico – a Zurich-based digital strategic consultancy for institutions. Christina is also a board member and a Managing Partner of Swiss Finance Startups, the foundation for fintech start-ups in Switzerland which she co-founded, as well as the youngest member of the Constituent meeting of the EAER and DETEC Advisory Council on Digital Transformation.

The job descriptions of the future could, for instance, include: Chief Trust Officer, Augmented Reality Journey Builder, Personal Memory Curator, Personal Data Broker. There’s no doubt that technologies will have a big influence on the jobs of the future. We increasingly live and work in a “technosphere” - a digital level which overlies our analogue world. Many of the activities that will have to be done will be at the digital level, and consequently driven by technology. But it will also be necessary to regulate the “technosphere” through social policies in order for society to retain the benefits that have been achieved in the analogue world (of work).

Are specific industries particularly affected by the changes that are under way?

In a globalised world every country, every region and every industry is affected – both positively and negatively – in very similar ways by the exponential growth of the technological transformation. Due to global networking it has never been as easy as it is right now to start a business, to contact billions of customers, and to achieve one’s potential and turn one’s entrepreneurial ideas into reality. People are often worried about the speed and intensity of technological change, but on the other hand it provides a huge opportunity to make the world better, more sustainable, fairer and more just. In this sense technology is neutral: it’s up to us what we do with it.

of tomorrow Futuremovers



The Ava start-up team: Philipp Tholen, Peter Stein, Lea von Bidder and Pascal König

Ava has helped over 30,000 women around the world to become pregnant.



USING ALGORITHMS TO GET A BABY

Ava – the Swiss start-up for smart family planning

Contraception is an important issue for younger people in particular. But when a couple wants to have children, the woman often finds out that becoming pregnant isn’t as easy as all that. The Swiss digital health start-up, Ava, provides a tracking service for successful family planning.

Of course we know the “usual suspects” when it comes to determining a woman’s “fertile window” – the basal body temperature method and various providers of urine tests. Nevertheless, according to the founders of Ava – most of whom have a background in sensor systems and medical technology – these procedures are not very precise, and they’re also difficult. If you wanted to be really thorough you’d have to measure the temperature every night at 3 a.m. says Ava CEO, Lea von Bidder.

FERTILITY WITH 89% ACCURACY

The femtech company has set itself the objective of promoting women’s reproductive health with a combination of artificial intelligence and clinical research. And it’s about time too, because research into ovulatory cycles has not produced any groundbreaking innovations for decades now. The Ava armband is only worn at night, and it measures several physiological parameters, such as resting heart rate, the respiration rate, or skin temperature. So it detects the five most fertile days per cycle in real time. And it does so with an accuracy of 89 percent, as was recently confirmed by a study carried out by the University Hospital of Zürich. The results are so interesting that the renowned academic publication the “Journal of Internet Medical Research” has published the study in April 2019.

The smart armband has now made a name for itself in the research world. Following its launch in the USA in 2016 it’s now sold in 36 countries. Ava has helped over 30,000 women to become pregnant. A figure that’s growing by 50 a day.

The firm’s 100 employees in Zurich, San Francisco, Belgrade and Makati in the Philippines can’t complain about not getting their due recognition. For instance, in the US economics magazine Forbes 2017 Lea von Bidder was rated as one of the “30 most successful business founders in the last 30 years”, and the Swiss “Handelszeitung” newspaper placed the firm in the top 3 of its “Company of the Year” competition. Ava won the “Swiss Start-up of the Year” twice in a row, and last year the femtech company scooped the “Swiss Medtech Award”.

FACTS AND FIGURES

Founded: 2014 **Employees:** 100+
Locations: Zurich, San Francisco, Makati and Belgrade
Website: www.avawomen.com

Ava milestones:

August 2017

Birth of the first Ava baby in the USA

June 2018

1st Prize – Swiss Medtech Award & Swiss Startup Award

November 2019

30’000 pregnancies – with 50 more every day

Megatrends and Futuremovers change the world

OUR WORLD OF THE FUTURE



What is a Futuremover?

Futuremovers are companies which respond successfully to worldwide megatrends and develop solutions to global challenges.

They replace outdated business models with future-fit concepts while leaving a positive footprint. They build smart megacities, facilitate turnarounds in energy policy, back the circular economy or develop sustainable mobility platforms.

Consumption

Companies which drive forward the change to a sustainable consumer society in the fields of lifestyle, leisure, luxury goods and older consumers. Sprouts Farmers is, for instance, a supermarket chain focussing on fresh and healthy foods.

Climate & Energy

Companies which develop innovative products and services in the field of renewable energy, such as energy-efficient storage and distribution systems.

Health

Companies which develop efficient medical innovations for an ageing and often overweight society.



Align Technology

Align Technology is revolutionising orthodontic and restorative dental treatments.

Digitisation and 3D printing enables the company to mass-produce tailored orthodontic devices for clients at extremely low prices. Align Technology's products have a positive effect on people's self-esteem.

Globalance Footprint 63



Equinix

The amount of online data doubles every 2 years, and it's driving up electricity.

Equinix operates data centres and internet nodes around the world. Its customers are cloud services, network operators, and content providers. Equinix helps them to save lots of electricity, and it guarantees service reliability and security.

Globalance Footprint 84



First Solar

The US-based company, First Solar, develops and markets solar panels, and it's one of the top 10 producers in the world.

First Solar's photovoltaic equipment has particularly good manufacturing statistics. Its carbon footprint is just one sixth of that produced by average solar power equipment. What's more, about 90 percent of the raw materials within its equipment can be reused.

Globalance Footprint 76



Valeo

The company is a driving force behind future mobility trends such as autonomous driving and vehicle connectivity.

Valeo provides sensors and software specifically for driverless and networked vehicles. Over the last 3 years its investment in (and turnover derived from) research and development has been 90% higher than for the sector as a whole. One in three cars sold worldwide is fitted with a Valeo electrical system.

Globalance Footprint 68



Huaneng Renewables

The company is benefitting from the opportunities in the field of renewable energy.

The Chinese government's ambitious Five-Year Plan includes the installation of 200 GW of wind energy and 100 GW of solar power by 2020. Huaneng has built Asia's largest offshore wind farm, the Rudong Baxianjiao wind farm. Our footprint evaluation of Huaneng is only impaired due to a lack of transparency in relation to management quality system.

Globalance Footprint 66



Nidec Corporation

Nidec a major beneficiary of the clean-tech boom.

The company develops energy-saving electric motors for households and industrial clients. Near Shanghai Nidec is constructing a factory for the production of motors for electric and hybrid vehicles and for cars powered by fuel cells. Nidec's motors are more compact and weigh less than conventional engines.

Globalance Footprint 69

Urbanization

Companies which use intelligent, digital and sustainable innovations to make the cities of tomorrow highly efficient – and great places to live in. For instance, the Belgian firm, Warehouses De Pauw, hires out intelligent logistics centres in the Benelux countries.

Resource Scarcity

Companies whose products and services make a contribution to resource efficiency, the circular economy and sustainability in the field of agriculture and biodiversity.

Digitalisation

Companies which drive forward the digital, automated and data-driven revolution that is changing the economy and society. Examples include TravelSky Technology, a leading provider of IT solutions for the aviation and tourism sector.

Belgium

France

USA

China

Japan

Automation

Companies which develop and market efficient production technologies which save resources, such as 3D printing, robotics, sensor technology or intelligent software for automated manufacturing.

Knowledge-based Society

Companies which use new media to develop effective learning technologies, provide access to education via open-source solutions even for marginalised groups in society, tailor education to individual needs, and promote education for people of all ages. For instance, IDP Education provides student placements in Australia, the USA, New Zealand, the UK and Canada.

Australia

Black sheep in a green fleece

FOUR DILIGENT GREENWASHERS



1. The fashion colour of the season: green

Since the 2013 Rana Plaza tragedy in Bangladesh we know what the costs associated with clothing are. In the worst case the cost of human lives.

If we also take account of the pollutants, the supply chains, the consumption of water and energy as well as the agricultural land that's involved, the overall impact is even more devastating.

So it's hardly surprising that green is becoming the „in“ colour. With T-shirts made of organic cotton, own ranges made of recycled materials, and recycling containers for used clothing. Chic with hip labels. Recycled fashion sounds good, as long as the manufacturer isn't caught burning excess new products or as long as you overlook just how complicated it really is to mix different fibres. And the organic cotton T-shirt? Just see whether you've got a fake organic product in your wardrobe and where the lion's share of the manufacturer's clothing comes from. Or just follow the advice of fashion queen Vivienne Westwood:

„Buy less, make a good choice, and actually wear it for as long as possible.“

2. Is commerce changing?

What are we buying nowadays? The range of goods is enormous and there are several providers for every product.

As a visually-oriented species we feel automatically attracted to things which make us feel good. So we grab the milk carton with the picture of an Alpine landscape, the „natural tasting“ yoghurt, the „sustainable lifestyle muesli“, and the HCFC-free deodorant. Hang on a minute, haven't HCFCs been banned anyway since the 1990s? Welcome to the „greenwashing“ unit. Companies use greenwashing to give their products or services the greenest image possible. It's an extremely tempting thing to do – a study by Roland Berger forecasts a global green market share of 6.9 percent between 2016 and 2025. For anyone who's lost track of the range of everyday sustainable products that is available, WWF Switzerland provides invaluable advice at <https://www.wwf.ch/de/lebensmittel-label-ratgeber>.



3. The modern selling of indulgencies

A big oil multinational is launching a tree planting project in the Netherlands. The customer can voluntarily pay a cent per litre to help finance the project.

A sheep in wolf's clothing – a forest manager has totted up the figures for the „Handelsblatt“: in order to absorb the CO₂ involved in driving 10,000 kilometres you would need 192 beech trees to grow for eighty years. Environmental associations are criticising the approach as the modern

GLOBALANCE FOOTPRINT

How to recognise greenwashing by banks?

Greenwashing happens if ...

1. Banks can't explain what they are doing differently to how they did it before, and which sectors and projects they will never provide finance for in any field of business.
2. The providers of financial services stress sustainability in their marketing activities, but generally offer funds which don't apply a sustainability filter, or only a weak one.
3. The providers of sustainable products market them as such without clearly proving that they have a positive effect, or by just offering technical and incomprehensible reports about them.
4. Banks themselves regularly hit the headlines due to controversies which have a negative impact on their image.
5. The people in charge of businesses extol the importance of sustainability in the media, but don't say a word about it to their investors.



„selling of indulgencies“, and saying that CO₂ emissions have to be prevented, not compensated for. What's more, reforestation projects are often just additional areas of monoculture crops with no sustainability impact. Tree planting schemes or media-friendly involvement in alternative energy start-ups are climate-friendly initiatives – but only for marketing departments.

4. Never have financial investments been as green as they are now

Finance companies too are assiduous greenwashers. This is because the interest in „sustainable investments“ is growing, and consequently also opportunism.

Suddenly glossy brochures sprout delicate plants in order to highlight green credentials. Smiling happy children from all around the world are used to represent social concerns. And managers never tire of trotting out the mantra of their ecological responsibility in the media. But only rarely in business reports or in analyst meetings.

Many financial services companies are striving to meet ESG (Environmental, Social and Governance) criteria. That initially sounds good, but unfortunately it still has little to do with really sustainable financial



investments. The criteria mostly focus on business processes, and less on results or on sustainability and national economic and social aspects. So there's a big gap between expectations and reality in the eyes of customers and other bank stakeholders.

At the core of this a widespread misunderstanding: „sustainable investment“ makes customers expect a positive impact. Banks usually just regard it as a process (incorporated into the investment process) which at best identifies risks and may lead to a positive effect, but often doesn't do so.

Ask your bank a few awkward questions:

- Is my portfolio mainly invested in the industrial sectors of energy (oil & coal), primary commodities (mining) and utilities?
- What is the approach that is taken? Does „best in class“ mean the best of the worst?
- Is there a specialist within your bank who will be willing to have a discussion with you about greenwashing vs. genuine sustainability?
- Do you get a response when you ask your adviser about the climate-change profile of your investment?
- Do I get regular reports which also show me the effect of my investments?



GLOBALANCE
**FUTURE-
MOVERS**

DAVID HERTIG
Founding Partner & Head of Investments

Successful companies don't have to hide behind a green facade. They think and act innovatively and use fundamental trends as a unique growth opportunity.

Digital Fashion: Platforms like Instagram are virtual catwalks for millions of people. Fashion influencers make a living from their outfit posts. Often what matters is using flashy, striking clothing to cause a stir. Buy clothes, photograph them and then throw them away. That's the motto. This is the attitude that the Norwegian retailer „Carlings“ has declared war on with its market launch of a range of „digital clothing“ – a world first. These clothes are only worn digitally, and the user can post them cheaply and virtually to his/her user photos account. Without any negative ecological footprint.

Green Foods: there's currently a major trend towards using meat substitute products. According to a current study, by 2040 they could achieve a market share equal to 60% of that of conventional meat products. The players are jockeying for position: Impossible Foods and Beyond Meat which specialise in vegetarian mince are growing at a phenomenal rate. But the big players are by no means inactive: McDonald's is launching the vegan veggie burger, using imitation meat supplied by Nestlé. 99% less water, 93% less land and 90% less greenhouse gas emissions. That's the comparison between Beyond Burger and a genuine beef burger.

In future virtual reality could also play an important role in the case of pain management or anxiety disorders.



Virtual reality (VR) in medicine REALLY HEALTHY: ARTIFICIAL WORLDS

Virtual reality is just part of everyday life for gamers – but in medicine it's opening up new possibilities. Artificial worlds could alleviate real illnesses, and studies are already under way to see what might be done. But where do the opportunities and risks lie? – A view through VR glasses.

There – it's a massive, black spider! Most of us initially take fright, keep our distance and then slowly re-engage our minds. It's not like that for people who have phobias: their heart pounds in response and they feel dizzy and may even have a panic attack. Making people with anxiety disorders confront the cause of their anxiety, e.g. the spider, the confined space or the height, is often the therapist's chosen method of treatment, and with the aid of VR it's proving to be very successful.

A study has shown that the fear of heights has been reduced by almost half after just six sessions of VR therapy.

Patients find it easier to confront their fears using VR glasses. They are aware that the situation isn't real. However, the fear centre reacts in the customary way, and the fear can therefore be gradually reduced. A study by the NHS (National Health Service,

England) showed that the fear of heights has, for instance, been reduced by almost half after just six sessions of VR therapy.

There are also exciting diagnoses in relation to pain management. A study carried out by the University of California which involved 120 patients suffering from pain used conventional methods to treat half of them while the other half were given 'diversionary' tasks to do in 'VR worlds'. Pain levels in the first group were reduced by 33 percent, but in the VR group the average level of pain fell by as much as 60 percent.

Virtual worlds can significantly reduce people's perception of pain.

As society ages efforts are also under way to delay the onset of dementia. VR glasses can be used to transport dementia patients back to their (virtual) past. The simulating of a familiar environment has a calming effect. But neurologists and medical ethicists are also adopting a critical approach to this method. For example, the Swiss dementia expert, Michael Schmieder, points out that people who suffer from dementia don't just live in their memories but still live in the "here and now". So finding out what will really be possible is still going to take some time.



GLOBALANCE FOOTPRINT

Virtual Reality – more than just games

Virtual reality technology will improve the footprint of many applications

The megatrend of digitalisation is also revolutionising the fields of medicine and education – virtual reality is likely to be a key driver of their development. Doctors can get "hands-on" experience without causing any risk to patients, and students can learn using "real emotions". Thanks to virtual reality people and machines no longer have to be moved around – for instance in order to provide demonstrations. The vision of digital meetings which limit time-wasting activities such as travelling is finally becoming a reality. Great hopes are being placed in the conveying of complicated data, which visualisation techniques and VR animations will make simpler and more direct. A more careful eye will have to be kept on issues such as data protection and the use of data as well of course as the overall energy footprint of the reality systems.

Holograms instead of animals

ROLL UP FOR THE WORLD'S MOST INNOVATIVE CIRCUS

In the old days when only limited forms of entertainment were available, many people dreamt of going on tour with a circus, training tigers, or doing juggling tricks while riding around on an elephant.

Nowadays we look behind the scenes and have long since recognised that for wild animals this is anything but fun.

Giant elephants stomped around the circus ring, and horses made of glitter and flying goldfish enchanted the audience.

Bernhard Paul, the enterprising and creative director of the legendary Circus Roncalli launched a spectacular, animal-free show

in March 2019. But it didn't mean that anybody had to make do without animals. Giant elephants stomped around the circus ring, and horses made of glitter and flying goldfish enchanted the audience.

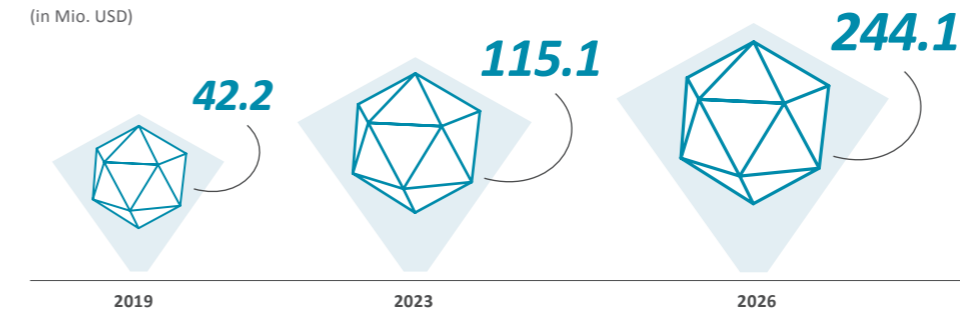
Audiences, the press and animal welfare organisations are delighted.

This magic is made possible by state-of-the-art holographics technology which projects the lifelike animals onto wafer-thin netting. Audiences, the world's press and animal welfare organisations are delighted with the resulting spectacle – which is really authentic, and it's accompanied by vegetarian and vegan snacks, as well as being completely plastic-free of course.



Animals in the form of holograms have been appearing at Circus Roncalli since March 2019. A laser projector produces lifelike images of elephants which are five metres tall. Picture: www.freizeit-tirol.at | Bernhard Schösser

HOLOGRAM MARKET GROWING BY 27% A YEAR
(in Mio. USD)



Source: ResearchAndMarkets.com, Hologram – Global Market Outlook (2017-2026)

A bus made with a 3D printer

NEXT STOP: THE FUTURE



Hospitals, universities, firms and public authorities – places that many people have to go to every day – and which must provide efficient and congestion-free open access while being environmentally friendly and safe.

This is where Olli comes into its own. The US firm, Local Motors, created the self-driving small bus in cooperation with an online community of 10,000 people who contributed technical suggestions, designs and other ideas. The key: Olli's entire bodywork comes from a 3D printer and can be assembled in just a few hours. The twelve-seater vehicle doesn't go particularly fast, it has other strengths: Local Motors – the name says it all – can produce Olli in on-site local print workshops and micro-factories. This means that the mini-buses can be adapted to the requirements in Germany, Sweden or any other country, making use of local know-how in each case.

Currently Olli is picking up important tips on the "GoMentum" autonomous mobility test track so that it will be able to transport people into the future in Contra Costa County, California. Other towns and local authorities have already expressed an interest.


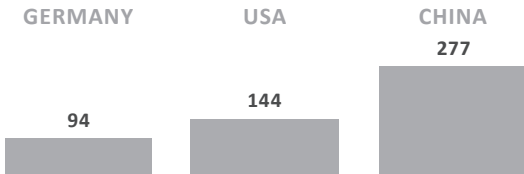

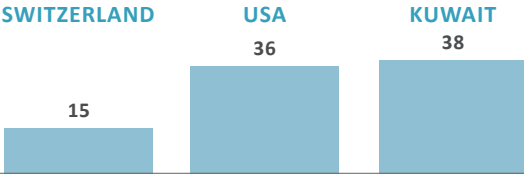



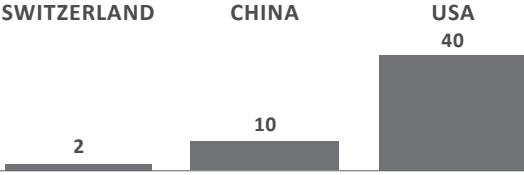

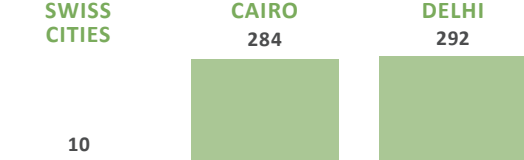
Picture: ©Localmotors

GlobalanceCockpit

120,000,000 TIMES AS FAST

The 1.6 billion transistors in the iPhone 6 would have been able to guide 120,000,000 Apollo 11s to the moon all at the same time.

Source: ZME Science

	<p>Economy</p> <p>Tourism: Which countries spend the most on travel? (bn. USD)</p> <p>Source: Worldinfigures</p>	 <table border="1"> <thead> <tr> <th>Country</th> <th>Spending (bn. USD)</th> </tr> </thead> <tbody> <tr> <td>GERMANY</td> <td>94</td> </tr> <tr> <td>USA</td> <td>144</td> </tr> <tr> <td>CHINA</td> <td>277</td> </tr> </tbody> </table>	Country	Spending (bn. USD)	GERMANY	94	USA	144	CHINA	277
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