

# Robotics and drones

Machines that could revolutionize our everyday life.

## Open End PERLES on the Solactive Robotics and Drones NTR Index

### I. Machines that could revolutionize our everyday life

Robotic systems support physicians with minimally invasive interventions, and unmanned aircraft monitor the irrigation of farmland and protect rhinoceros from extermination by poachers. These are not scenes from a science fiction movie, but situations from our present. The enormous progress in robotics made over the last few years make all of this possible: Experts presume the robot and drone industry will significantly change our everyday lives in the future, and say it has enormous economic potential. For example, the International Federation of Robotics (IFR) is expecting global growth in the robotics area of at least 15 percent per year between 2016 and 2018. The penetration rate is still quite low in some areas, especially in the emerging markets. However, these regions are catching up. By 2018, the IFR expects 150,000 robots to be installed in China alone. This represents a global market share of 38 percent.

(Source: UBS Study "Longer Term Investments, Automation and Robotics", 01/2016). Robots are popping up in many areas, such as production facilities, the health care sector and the service sector. And they influence decisive economic factors – work costs, productivity, flexibility and safety. The robotics sector can therefore look forward to a great future, which means it will also increase in interest for investors. The reason for the rapid progress is above all the constant further development of the relevant technologies. Robots are becoming increasingly performant, due to the improvement in sensors, increased precision and through artificial intelligence. According to McKinsey, they may therefore in future particularly take on more complex and dangerous tasks for human beings.

### II. Robotics and drones in use

There are already some relevant examples of this today. Thus, the manufacturer Accuray has developed a robot-controlled radio-surgery system for treating tumors, a demanding task. In future robots will not only be more efficient, but also more adaptable, so that they can support human beings with their work even under adverse conditions. This is demonstrated by the unmanned aircraft used by the company AeroVironment, which work hand in hand with firemen. In thick smoke and darkness they found out exactly where the fire source is and whether there are buildings in the vicinity that pose a particular threat.

For marketing purposes only



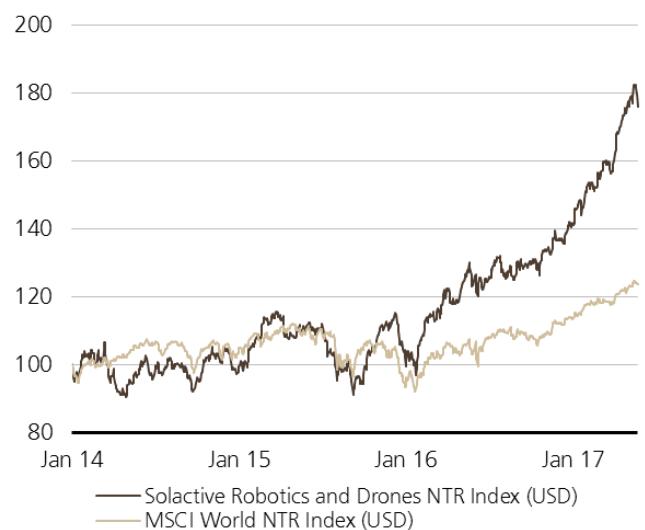
#### SSPA product type

Tracker certificates (1300)

Currency	Valor	SIX Symbol
CHF	24321702	ROBCH
EUR	24321703	ROBEU
USD	24321701	ROBUS

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#### Solactive Robotics and Drones NTR Index vs. MSCI World NTR Index



	Solactive Robotics and Drones NTR Index	MSCI World NTR Index
Rendite p.a.	17.5%	6.3%
Volatilität p.a.	16.4%	11.2%
Sharpe Ratio	1.06	0.56

Source: Bloomberg, UBS

Period: 22.01.2014 to 12.06.2017, past performance is not indicative of future performance.

Large corporations have already long since recognized the potential and benefits of robotics. Only recently the US retail giant Amazon announced that it wants to have parcels delivered by air drones in a few years' time. DHL made this intention tangible at the beginning of December and delivered medicines with what is known as the DHL parcel copter from a pharmacy in Bonn to the other side of the Rhine in a public test run. The technology giant Google also believes in the future of robotics. In recent months the corporation has bought eight start-ups from this sector. Moreover, Google has already been working on autonomous vehicles since 2010. According to the project team, the fleet of what is known as "Google Cars" had already clocked up more than 800,000 km without any accidents by the end of 2013.

### **III. Progress means independence**

Progress means independence in the robotics industry. According to McKinsey, robots will in eleven years' time already be capable of producing high-quality goods and noticing and improving errors- not only their own, but also the errors of other robots and human beings. Despite constant further developments, the acquisition costs for many robots are getting lower and lower, so that gradually they may also be attractive to consumers. One of the first robots to make the transition into private households is the fully automatic vacuum cleaner. The company iRobot has now developed many other household helpers, such as pool and guttering cleaners. At the moment it is not yet possible to estimate conclusively the areas where robots will be actively supporting human beings in their everyday lives by 2025, but there are likely to be many. The economic importance of robots and drones should be correspondingly high in future.

### **IV. Transparent index process**

Based on the specifications of the index provider Solactive AG, the Solactive Robotics and Drones indices target the pioneers in the robotics and drones industry. Only companies that meet several quality standards are included on the shortlist. Every index member needs to demonstrate that a significant share of its business is focused on the robotics and drones sector, or that the company is currently developing its own robotics and drones division with the potential to bring in a major share of overall revenue. The concept of the indices also takes account of the dynamic environment of this highly innovative business segment, as at present no-one knows what direction the developments of robotics and drones will take and which companies will ultimately dominate. The respective index concept therefore provides for a "fast entry" rule alongside the twice-yearly index adjustments, which take place in March and September: This ensures that stock companies can be incorporated in the index at any time, e.g. immediately after an initial public offering, provided they meet the quality standards.

This also means that the equities of each company have to be listed with an exchange that grants trading access to foreign investors without restrictions. Furthermore, to be included in the index, market capitalization must amount to at least 100 million US dollars and the average daily trading volume for the past three months must amount to at least 600,000 US dollars for reasons of liquidity. When the index is adjusted, all index members are weighted equally, whereas companies with a market capitalization below 1 billion US-Dollar are capped at 5.0%.

### **V. Members of the Solactive Robotics and Drones Indices**

<b>Company</b>	<b>Country</b>	<b>Market capitalization (in USD)</b>	<b>Weighting</b>
ABB Ltd	Switzerland	56.24 bn	9.66%
Accuray Inc	United States	0.34 bn	3.56%
Aerovironment Inc	United States	0.73 bn	4.89%
Cognex Corp	United States	7.82 bn	9.77%
CYBERDYNE Inc	Japan	2.89 bn	7.93%
FANUC Corp	Japan	40.03 bn	8.80%
Intuitive Surgical Inc	United States	33.46 bn	10.70%
iRobot Corp	United States	2.75 bn	14.96%
Mazor Robotics Ltd	Israel	0.83 bn	5.77%
Nachi-Fujikoshi Corp	Japan	1.29 bn	8.52%
Parrot SA	France	0.35 bn	5.58%
Yaskawa Electric Corp	Japan	5.85 bn	9.86%

Source: 12.06.2017  
As of: Solactive (the current index composition and weighting is published daily on [www.solactive.com](http://www.solactive.com))

## VI. The product solutions

The UBS Open End PERLES on the Solactive Robotics and Drones indices track the performance of the underlying index, which reinvests any net dividends from index members after deducting the management fee of 0.75 percent without limited maturity.

	<b>CHF-Tranche</b>	<b>EUR-Tranche</b>	<b>USD-Tranche</b>
<b>Issuer</b>	UBS AG, London Branch	UBS AG, London Branch	UBS AG, London Branch
<b>SSPA product type</b>	Tracker certificates (1300)	Tracker certificates (1300)	Tracker certificates (1300)
<b>Conversion ratio</b>	1:1	1:1	1:1
<b>Management fee</b>	0.75% p.a.	0.75% p.a.	0.75% p.a.
<b>Expiry</b>	Open End	Open End	Open End
<b>Underlying (Currency)</b>	Solactive Robotics & Drones NTR Index (CHF)	Solactive Robotics & Drones NTR Index (EUR)	Solactive Robotics & Drones NTR Index (USD)
<b>Issue price</b>	CHF 93.38	EUR 94.39	USD 94.87
<b>Listing date</b>	30 May 2014	30 May 2014	30 May 2014
<b>ISIN / SIX Symbol</b>	CH0243217020 / ROBCH	CH0243217038 / ROBEU	CH0243217012 / ROBUS

## VII. Opportunities

- Equity-linked participation in the growth potentials of the robotics and drones industry.
- Transparent and targeted index structure that can also add new index members at any time ("Fast Entry" rule) in order to react quickly to the development dynamics in the robotics and drones sector.
- The selection of index members from the robotics and drones sector, to which special growth potential can be assigned is carried out by the index provider Solactive AG.
- Diversification within the robotics and drones sector through several equities with a regular index review twice a year.
- Tradable every trading day under normal trading conditions.
- No fixed term restriction.

## VIII. Risks

- No capital protection: investors run the risk of losing their investment if the price of the underlying index worsens.
- The robotics and drones sector is a relatively young economic sector and it is not yet certain whether it will fulfil its expectations and which companies will actually succeed.
- Investors bear the issuer risk and could lose their investment if the issuer files for bankruptcy.
- The issuer intends to ensure liquidity in normal market phases on trading days. However, investors should realize that they may not be able to buy/sell the product at any point in time.
- As the stocks included in the index may be listed in different currencies and the product does not have any currency hedges, the investor may also be exposed to an exchange rate risk, which may adversely affect the value of the product.
- The issuer has the right to terminate the product if certain conditions are met.

## Investor profile

Solutions for investors with experience in stock market topics and structured products and with a medium to increased risk tolerance who would like to participate in the performance of the equities included in the index at little capital and administrative expense.

For other products and information on opportunities and risks visit: [ubs.com/keyinvest](http://ubs.com/keyinvest)

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