

## **GUIDELINE**

# **Solactive Digital Economy Index**

Version 1.0 dated March 14th, 2019



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This document contains the underlying principles and regulations regarding the structure and the operating of the Solactive Digital Economy Index. Solactive AG shall make every effort to implement regulations. Solactive AG does not offer any explicit or tacit guarantee or assurance, neither pertaining to the results from the use of the Index nor the Index value at any certain point in time nor in any other respect. The Index is merely calculated and published by Solactive AG and it strives to the best of its ability to ensure the correctness of the calculation. There is no obligation for Solactive AG – irrespective of possible obligations to issuers – to advise third parties, including investors and/or financial intermediaries, of any errors in the Index. The publication of the Index by Solactive AG is no recommendation for capital investment and does not contain any assurance or opinion of Solactive AG regarding a possible investment in a financial instrument based on this Index.

# Introduction

This document is to be used as a guideline with regard to the composition, calculation and management of the Index. Any changes made to the guideline are initiated by the Committee specified in section 1.6. The Index is calculated and published by Solactive AG. The name “Solactive” is copyrighted.

## 1 Index specifications

The Solactive Digital Economy Index (“Solactive Digital Economy Index”, the “Index”) is an Index of Solactive AG and is calculated and distributed by Solactive AG.

The Index intends to track the price movements in shares of companies likely to be impacted by the digitalization of their respective business.

The Index is calculated as a Price Return [PR], Net Total Return [NTR], and Total Return [TR] Index.

The Index is published in Euro [EUR].

### 1.1 Short name and ISIN

The Index is distributed under the following identifiers:

Index Name	Characteristic	ISIN	WKN	RIC	Ticker
Solactive Digital Economy Index	Price Return	DE000SLA23N9	SLA23N	.SOLDIGIT	SOLDIGIT Index
Solactive Digital Economy Index NTR	Net Total Return	DE000SLA7W34	SLA7W3	.SOLDIGITN	SOLDIGIN Index
Solactive Digital Economy Index TR	Total Return	DE000SLA7W42	SLA7W4	.SOLDIGITT	-

### 1.2 Initial value

The Index is based on 100 at the close of trading on the start date, June 7th, 2006.

### 1.3 Distribution

The Index is published via the price marketing services of Boerse Stuttgart GmbH and is distributed to all affiliated vendors. Each vendor decides on an individual basis as to whether he will distribute/display the Index via his information systems.

## 1.4 Prices and calculation frequency

The price of the Index is calculated on each Business Day based on the prices on the respective Exchanges on which the Index Components are listed. The most recent prices of all Index Components are used. Prices of Index Components not listed in the Index Currency are translated using spot foreign exchange rates quoted by Reuters. Should there be no current price available on Reuters, the most recent price or the Trading Price on Reuters for the preceding Trading Day is used in the calculation. The daily Index Closing Level is calculated using Reuters/WMCO closing spot rates as at 4pm London time.

The Index is calculated every Business Day from 9:00am to 10:30pm, CET. In the event that data cannot be provided to Reuters or to the pricing services of Boerse Stuttgart AG the Index cannot be distributed.

## 1.5 Weighting

On each Adjustment Day each Index Component of the Index is weighted according to its inverse of the 12 Month Historical Volatility. The Target Weight is determined by the following formula:

$$Target\_Weight_{i,t} = \frac{1/Histo\_Vol_{i,t}}{\sum_{i=1}^n 1/Histo\_Vol_{i,t}}$$

where:

$Target\_Weight_{i,t}$  = Target Weight of Company i on Selection Date t  
 $Histo\_Vol_{i,t}$  = 12 Month Historical Volatility of Company i on Selection Date t  
 $n$  = Number of Index Members, i.e. 50.

## 1.6 Decision-making bodies

A Committee composed of staff from Solactive AG is responsible for decisions regarding the composition of the Index as well as any amendments to the rules (in this document referred to as the "Committee" or the "Index Committee"). The future composition of the Index is determined by the Committee on the Selection Days according to the procedure outlined in 2.1 of this document. The Committee shall also decide about the future composition of the Index, if any Extraordinary Events should occur and the implementation of any necessary adjustments.

Members of the Committee can recommend changes to the guideline and submit them to the Committee for approval.

## 1.7 Publication

All specifications and information relevant for calculating the Index are made available on the <http://www.solactive.de> web page and sub-pages.

## 1.8 Historical data

For the Solactive Digital Economy Index, historical data will be maintained from the launch of the Index on June 7th, 2006. For the Solactive Digital Economy Index NTR/TR, historical data will be maintained from the launch of the Index on March 14th, 2019.

## 1.9 Licensing

Licences to use the Index as the underlying value for derivative instruments are issued to stock exchanges, banks, financial services providers and investment houses by Solactive AG.

## 2 Composition of the Index

### 2.1 Selection of the Index Components

The initial composition of the Index as well as any ongoing adjustment is based on the following rules:

On the Selection Days, Solactive AG defines the Index Universe according to the rules outlined in Section 4.

The selection of the final Index Components from the Index Universe proceeds in the exact order of the steps outlined in the following:

1. Based on its Industry Classification, each security is assigned to one of 7 Themes, based on the following table:

Industry Classification	Theme
Alternative Power Generation, Electric Utilities, Electrical Products, Electronics/Appliances, Engineering & Construction, Homebuilding	Electricity, Alternative Energy & Home Construction
Major Telecommunications, Wireless Telecommunications, Internet Software/Services, Specialty Telecommunications, Packaged Software, Internet Retail, Information Technology Services	Mobile phone, Internet & Computer Services
Electronic Equipment/Instruments, Electronic Production Equipment, Industrial Machinery, Semiconductors, Computer Peripherals, Telecommunications Equipment, Tools & Hardware	Hardware & Electrical Equipment
Biotechnology, Pharmaceuticals: Generic, Pharmaceuticals: Major, Pharmaceuticals: Other, Chemicals: Specialty, Medical Specialties, Medical Distributors, Food Retail, Department Stores, Wholesale Distributors	Biotechnology, Drugs and Food Retailers
Casinos/Gaming, Apparel/Footwear Retail, Auto Parts: OEM, Air Freight/Couriers, Airlines, Automotive Aftermarket, Marine Shipping, Hotels/Resorts/Cruiselines, Household/Personal Care, Restaurants, Miscellaneous Commercial Services, Motor Vehicles, Specialty Stores, Other Transportation, Other Consumer Specialties	Leisure, Transport & Luxury

Advertising/Marketing Services, Aerospace & Defense, Broadcasting, Cable/Satellite TV, Movies/Entertainment, Publishing: Books/Magazines, Publishing: Newspapers

Media & Aerospace

Real Estate Development, Data Processing Services, Finance/Rental/Leasing, Financial Conglomerates, Insurance Brokers/Services, Investment Banks/Brokers, Investment Managers, Investment Trusts/Mutual Funds, Life/Health Insurance, Major Banks, Multi-Line Insurance, Office Equipment/Supplies, Personnel Services, Property/Casualty Insurance, Regional Banks, Specialty Insurance

Finance & Support Services

2. Within each of the 7 Themes as outlined in step 1. above, the remaining securities are ranked based on their Realized Dividend Yield in descending order. For the avoidance of doubt, the securities with rank 1 have the highest Realized Dividend Yield within their respective Theme.

Then, within each Theme only those securities whose rank is above  $CUTOFF Rank^{Theme}$  – as defined in the formula below – are selected and are subsequently still eligible to become final Index Components:

$$CUTOFF Rank^{Theme} = Round\left(\sqrt{\frac{50}{N}} \times N^{Theme}\right)$$

where:

$N$  = Total Number of Securities in the Index Universe as defined in Section 4.

$N^{Theme}$  = Total Number of Securities in the respective Theme

$Round$  = Indicates that the resulting number will be rounded to the nearest integer value.

3. Within each of the 7 Themes as outlined in Section 4 the remaining securities are ranked based on their 12 Month Historical Volatility in ascending order. For the avoidance of doubt, the securities with rank 1 have the lowest 12 Month Historical Volatility within their respective Theme.

Then, within each Theme the top 10 ranking securities are selected and subsequently still eligible to become final Index Components. If there are less than 10 remaining securities within a Theme, all of them are selected.

If this step should result in less than 50 securities still eligible to become final Index Components then within each Theme the top 15 ranking securities are selected instead of the top 10 ranking securities and are subsequently still eligible to become final Index Components. If this should again result in less than 50 securities still eligible to become final Index Components, then step 3 is skipped and step 4 is applied to all the shares still eligible to become final Index Components after step 2.

4. All remaining securities are ranked based on their 12 Month Historical Volatility in ascending order. For the avoidance of doubt, the securities with rank 1 have the lowest 12 Month Historical Volatility of all remaining securities.

The 50 highest ranking securities are selected and constitute the Index.

## 2.2 Ordinary adjustment

The composition of the Index is adjusted quarterly at the close of the 1st Wednesday in March, June, September, and December. The composition of the Index is reviewed on the Selection Day and necessary changes are announced.

The first adjustment will be made in March 2017 based on the Trading Prices of the Index Components on the Adjustment Day.

Solactive AG shall publish any changes made to the Index composition on the Selection Day and consequently with sufficient notice before the Adjustment Day.

### **2.3 Extraordinary adjustment**

The Committee may, but is under no obligation to, substitute an Index Component with a successor Index Component upon the occurrence of an Extraordinary Event as determined by Solactive AG. Any such successor Index Component shall be included in the Index after the close of business on the day when an Extraordinary Event has been determined by Solactive AG.

## **3 Calculation of the Index**

### **3.1 Index formula**

The Index is an index whose value on a Business Day is equivalent to the sum over all Index Components of the products of (a) the Number of Shares of the Index Component and (b) the price of the Index Component at the respective Exchange.

As a formula:

$$Index_t = \sum_{i=1}^n x_{i,t} * p_{i,t}$$

With:

$x_{i,t}$  = Number of Shares of the Index Component i on Trading Day t

$p_{i,t}$  = Price of Index Component i on Trading Day t in Index Currency

### **3.2 Accuracy**

The value of the Index will be rounded to two decimal places.

Trading Prices will be rounded to six decimal places.

### **3.3 Adjustments**

Indices need to be adjusted for systematic changes in prices once these become effective. This requires the new Number of Shares of the affected Index Component to be calculated on an ex-ante basis.

The Index is adjusted for distributions, capital increases, rights issues, splits, par value conversions and capital reductions.

This procedure ensures that the first ex quote can be properly reflected in the calculation of the Index. This ex-ante procedure assumes the general acceptance of the Index calculation formula as well as open access to the parameter values used. The calculation parameters are provided by Solactive AG.

Any delay in calculating the new Number of Shares of an Index Component would create problems. Therefore the procedure described above is the most appropriate.

### 3.4 Dividends and other distributions

The Index is not adjusted for Cash Dividends while Special Cash Dividend payments and other distributions are included in the Index. They cause an adjustment of the Number of Shares of the corresponding Index Component. The new Number of Shares is calculated as follows:

$$x_{i,t} = x_{i,t-1} * \frac{p_{i,t-1}}{p_{i,t-1} - D_{i,t}}$$

With:

$x_{i,t}$  = Number of Shares of the Index Component i on Trading Day t

$D_{i,t}$  = Payment on Trading Day t multiplied by the Dividend Correction Factor of the respective country

### 3.5 Corporate actions

#### 3.5.1 Principles

Following the announcement by a company included in the Index of the terms and conditions of a corporate action the Index Calculator determines whether such corporate action has a dilution, concentration or other effect on the price of the Index Component.

If this should be the case the Index Calculator shall make the necessary adjustments to the affected Index Component and/or the formula for calculating the Index and/or to other terms and conditions of this document that he deems appropriate in order to take into account the dilution, concentration or other effect and shall determine the date on which this adjustment shall come into effect.

Amongst other things the Index Calculator can take into account the adjustment made by an Affiliated Exchange as a result of the corporate action with regard to option and futures contracts on the respective share traded on this Affiliated Exchange.



### 3.5.2 Capital increases

In the case of capital increases (from the company's own resources or through cash contributions) the new Numbers of Shares are calculated as follows:

$$x_{i,t} = x_{i,t-1} * \frac{p_{i,t-1}}{p_{i,t-1} - rB_{i,t-1}} \quad \text{with:} \quad rB_{i,t-1} = \frac{p_{i,t-1} - B - N}{BV + 1}$$

With:

$x_{i,t}$	= Number of Shares of Index Component i on the day of the distribution
$x_{i,t-1}$	= Number of Shares of Index Component i on the day prior to the distribution
$p_{i,t-1}$	= Closing price on the day prior to ex date
$rB_{i,t-1}$	= Calculated value of rights issue
$B$	= Price of rights issue
$N$	= Dividend disadvantage
$BV$	= Subscription ratio

$B = 0$  if capital is increased from the company's own resources.

The last dividend paid or the announced dividend proposal is applied as the dividend disadvantage.

### 3.5.3 Capital reductions

In the case of capital reductions the new Number of Shares is determined as follows:

$$x_{i,t} = x_{i,t-1} * \frac{1}{H_{i,t}}$$

With:

$H_{i,t}$	= Reduction ratio of the company on day t
$x_{i,t}$	= Number of Shares of the affected Index Component on the day of the distribution
$x_{i,t-1}$	= Number of Shares of the affected Index Component on the day prior to the distribution

### 3.5.4 Share splits and par value conversions

In the case of share splits and par value conversions it is assumed that the prices change in ratio to the number of shares or to the par values. The new Number of Shares is calculated as follows:

$$x_{i,t} = x_{i,t-1} * \frac{N_{i,t-1}}{N_{i,t}}$$

With:

$N_{i,t-1}$  = Former par value of security class i (or new number of shares)

$N_{i,t}$  = New par value of security class i (or former number of shares)

$x_{i,t}$  = Number of Shares of the affected Index Component on the day of the distribution

$x_{i,t-1}$  = Number of Shares of the affected Index Component on the day prior to the distribution

## 3.6 Miscellaneous

### 3.6.1 Recalculation

Solactive AG makes the greatest possible efforts to accurately calculate and maintain its indices. However, the occurrence of errors in the index determination process cannot be ruled out. In such cases Solactive AG adheres to its publicly available [Correction Policy](#).

### 3.6.2 Market Disruption

In periods of market stress Solactive AG calculates its indices following predefined and exhaustive arrangements set out in its publicly available [Disruption Policy](#).

## 4. Definitions

“**Index Universe**” in respect of a Selection Day are companies that fulfill the following criteria:

1. Must be a member of the Solactive Europe Total Market 675 Index (PR).
2. Realized Dividend Yield and 12 Month Historical Volatility data must be available/non-missing.
3. Must be assigned to one of the following Industry Classifications:

▪ Advertising/Marketing Services	▪ Financial Conglomerates	▪ Office Equipment/Supplies
▪ Aerospace & Defense	▪ Food Retail	▪ Other Consumer Specialties
▪ Air Freight/Couriers	▪ Homebuilding	▪ Other Transportation
▪ Airlines	▪ Hotels/Resorts/Cruiselines	▪ Packaged Software
▪ Alternative Power Generation	▪ Household/Personal Care	▪ Personnel Services
▪ Apparel/Footwear Retail	▪ Industrial Machinery	▪ Pharmaceuticals: Generic
▪ Auto Parts: OEM	▪ Information Technology Services	▪ Pharmaceuticals: Major
▪ Automotive Aftermarket	▪ Insurance Brokers/Services	▪ Pharmaceuticals: Other
▪ Biotechnology	▪ Internet Retail	▪ Property/Casualty Insurance
▪ Broadcasting	▪ Internet Software/Services	▪ Publishing: Books/Magazines
▪ Cable/Satellite TV	▪ Investment Banks/Brokers	▪ Publishing: Newspapers
▪ Casinos/Gaming	▪ Investment Managers	▪ Real Estate Development
▪ Chemicals: Specialty	▪ Investment Trusts/Mutual Funds	▪ Regional Banks
▪ Computer Peripherals	▪ Life/Health Insurance	▪ Restaurants
▪ Data Processing Services	▪ Major Banks	▪ Semiconductors
▪ Department Stores	▪ Major Telecommunications	▪ Specialty Insurance
▪ Electric Utilities	▪ Marine Shipping	▪ Specialty Stores
▪ Electrical Products	▪ Medical Distributors	▪ Specialty Telecommunications
▪ Electronic Equipment/Instruments	▪ Medical Specialties	▪ Telecommunications Equipment
▪ Electronic Production Equipment	▪ Miscellaneous Commercial Services	▪ Tools & Hardware
▪ Electronics/Appliances	▪ Motor Vehicles	▪ Wholesale Distributors
▪ Engineering & Construction	▪ Movies/Entertainment	▪ Wireless Telecommunications
▪ Finance/Rental/Leasing	▪ Multi-Line Insurance	

“**Index Component**” is each share currently included in the Index.

“**Number of Shares**” is in respect of an Index Component and any given Business Day the number or fraction of shares included in the Index. It is calculated for any Index Component as the ratio of (A) the Percentage Weight of an Index Component multiplied by the Index value and (B) its Trading Price.

“**Percentage Weight**” of an Index Component is the ratio of its Trading Price multiplied by its Number of Shares divided by the Index value.

**“Dividend Correction Factor”** is calculated as 1 minus the applicable withholding tax rate and/or other applicable tax rate currently prevalent in the respective country.

In particular an **“Extraordinary Event”** is

- a Merger
- a Takeover bid
- a delisting
- the Nationalisation of a company
- Insolvency.

The Trading Price for this Index Component on the day the event came into effect is the last available market price for this Index Component quoted on the Exchange on the day the event came into effect (or, if a market price is not available for the day the event came into effect, the last available market price quoted on the Exchange on a day specified as appropriate by the Index Calculator), as determined by the Index Calculator, and this price is used as the Trading Price of the particular Index Component until the end of the day on which the composition of the Index is next set.

In the event of the Insolvency of an issuer of an Index Component the Index Component shall remain in the Index until the next Adjustment Day. As long as a market price for the affected Index Component is available on a Business Day, this shall be applied as the Trading Price for this Index Component on the relevant Business Day, as determined in each case by the Index Calculator. If a market price is not available on a Business Day the Trading Price for this Index Component is set to zero. The Committee may also decide to eliminate the respective Index Component at an earlier point in time prior to the next Adjustment Day. The procedure in this case is identical to an elimination due to and Extraordinary Event.

An Index Component is **“delisted”** if the Exchange announces pursuant to the Exchange regulations that the listing of, the trading in or the issuing of public quotes on the Index Component at the Exchange has ceased immediately or will cease at a later date, for whatever reason (provided delisting is not because of a Merger or a Takeover bid), and the Index Component is not immediately listed, traded or quoted again on an exchange, trading or listing system, acceptable to the Index Calculator,

**“Insolvency”** occurs with regard to an Index Component if (A) all shares of the respective issuer must be transferred to a trustee, liquidator, insolvency administrator or a similar public officer as result of a voluntary or compulsory liquidation, insolvency or winding-up proceedings or comparable proceedings affecting the issuer of the Index Components or (B) the holders of the shares of this issuer are legally enjoined from transferring the shares.

A **“Takeover bid”** is a bid to acquire, an exchange offer or any other offer or act of a legal person that results in the related legal person acquiring as part of an exchange or otherwise more than 10% and less than 100% of the voting shares in circulation from the issuer of the Index Component or the right to acquire these shares, as determined by the Index Calculator based on notices submitted to public or self-regulatory authorities or other information considered by the Index Calculator to be relevant.

With regard to an Index Component a **“Merger”** is

- (i) a change in the security class or a conversion of this share class that results in a transfer or an ultimate definite obligation to transfer all the shares in circulation to another legal person,
- (ii) a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer to exchange shares with another legal person (except in a merger or share exchange under which the issuer of this Index Component is the acquiring or remaining company and which does not involve a change in security class or a conversion of all the shares in circulation),
- (iii) a takeover offer, exchange offer, other offer or another act of a legal person for the purposes of acquiring or otherwise obtaining from the issuer 100% of the shares issued that entails a transfer or the irrevocable obligation to transfer all shares (with the exception of shares which are held and controlled by the legal person), or
- (iv) a merger (either by acquisition or through forming a new structure) or a binding obligation on the part of the issuer of the share or its subsidiaries to exchange shares with another legal person, whereby the issuer of the share is the acquiring or remaining company and it does not involve a change in the class or a conversion of the all shares issued, but the shares in circulation directly prior to such an event (except for shares held and

controlled by the legal person) represent in total less than 50% of the shares in circulation directly subsequent to such an event.

The **“Merger Date”** is the date on which a Merger is concluded or the date specified by the Index Calculator if such a date cannot be determined under the law applicable to the Merger.

**“Nationalisation”** is a process whereby all shares or the majority of the assets of the issuer of the shares are nationalised or are expropriated or otherwise must be transferred to public bodies, authorities or institutions.

**“Exchange”** is, in respect of Index and every Index Component, the respective primary exchange where the Index Component has its primary listing. The Committee may decide to declare a different stock exchange the **“Exchange”** for trading reasons, even if the company is only listed there via a Stock Substitute.

**“Stock Substitute”** includes in particular American Depository Receipts (ADR) and Global Depository Receipts (GDR).

With regard to an Index component (subject to the provisions given above under **“Extraordinary Events”**) the **“Trading Price”** in respect of a Trading Day is the closing price on this Trading Day determined in accordance with the Exchange regulations. If the Exchange has no closing price for an Index Component, the Index Calculator shall determine the Trading Price and the time of the quote for the share in question in a manner that appears reasonable to him.

A **“Trading Day”** is in relation to the Index or an Index Component a Trading Day on the Exchange (or a day that would have been such a day if a market disruption had not occurred), excluding days on which trading may be ceased prior to the normal Exchange closing time. The Index Calculator is ultimately responsible as to whether a certain day is a Trading Day with regard to the Index or an Index Component or in any other connection relating to this document.

A **“Business Day”** is any weekday of the year except Saturdays and Sundays.

The **“Index Calculator”** is Solactive AG or any other appropriately appointed successor in this function.

The **“Index Currency”** is EUR.

**“Market Capitalization”** is with regard to each of the shares in the Index Universe on a Selection Day or Adjustment Day the value published as the Market Capitalization for this day.

As at the date of this document Market Capitalization is defined as the value of a company calculated by multiplying the number of shares outstanding of the company by its share price.

**“Industry Classification”** means the industry classification as provided by FactSet.

**“Realized Dividend Yield”** of an index component is the annual dividend paid divided by the price on the Selection Day and is sourced from FactSet.

**“12 Month Historical Volatility”** is the historical EUR-return volatility over the past 12 months prior to but including the Selection Day and is sourced from FactSet.

**“Adjustment Day”** is the first Wednesday in March, June, September and December.

**“Selection Day”** is the Business Day 5 Business Days before the Adjustment Day.

An “**Affiliated Exchange**” is with regard to an Index Component an exchange, a trading or quotation system on which options and futures contracts on the Index Component in question are traded, as specified by the Index Calculator.

## **5 Appendix**

### **5.1 Contact data**

#### **Information regarding the Index concept**

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### **5.2 Calculation of the Index – change in calculation method**

The application by the Index Calculator of the method described in this document is final and binding. The Index Calculator shall apply the method described above for the composition and calculation of the Index. However it cannot be excluded that the market environment, supervisory, legal, financial or tax reasons may require changes to be made to this method. The Index Calculator may also make changes to the terms and conditions of the Index and the method applied to calculate the Index, which he deems to be necessary and desirable in order to prevent obvious or demonstrable error or to remedy, correct or supplement incorrect terms and conditions. The Index Calculator is not obliged to provide information on any such modifications or changes. Despite the modifications and changes the Index Calculator will take the appropriate steps to ensure a calculation method is applied that is consistent with the method described above.