



INDEX METHODOLOGY

## **NASDAQ YEWNO GLOBAL ARTIFICIAL INTELLIGENCE AND BIG DATA INDEX™**

### **NYGBIG**

#### **INDEX DESCRIPTION**

The Nasdaq Yewno Global Artificial Intelligence and Big Data Index is designed to track the performance of a selection of companies engaged in the following Yewno Sub-Themes: Deep Learning, Image Recognition, NLP, Speech Recognition & Chatbots, Big Data, Cloud Computing and Cybersecurity.

Yewno, Inc. (“Yewno”) has created a theme and sub-theme classification process to review innovative technologies by analyzing millions of approved patents on a rolling one-year basis. The Index aims to select companies that may be innovative in their space based on their rolling one-year patent data.

#### **SECURITY ELIGIBILITY CRITERIA**

##### **Security universe**

A security must be included in the Nasdaq Yewno Global Disruptive Technology Benchmark Index (NYDTB) as of the Index Reconstitution Effective Date. Please refer to NYDTB’s methodology for further information on its constituent selection.

##### **Eligible exchanges**

A security must be listed on an exchange named in Appendix A.

##### **Market capitalization eligibility**

A security’s float-adjusted company market capitalization must be at least \$500 million (USD).

##### **Liquidity eligibility**

A security must have a six-month average daily traded value of at least \$2 million (USD).

## **ESG eligibility**

A security's issuer must be positively identified by Sustainalytics as exhibiting none of the following characteristics:

- ESG Risk Score of at least 40
- Non-compliance of the United Nations Global Compact
- Involvement of certain degrees in tobacco products, thermal coal, oil sands, controversial weapons, civilian firearms, small arms and military contracting, nuclear weapons, depleted uranium, adult entertainment or gambling, as described in Appendix B

Wherein a security's data are unavailable for any field from Sustainalytics that is used to identify the aforementioned characteristics, the security is excluded from consideration for Index inclusion.

## **Other eligibility criteria**

If, at reconstitution, Nasdaq becomes aware that an issuer or security will soon undergo a fundamental change that makes it ineligible, Nasdaq will remove the security from consideration. This includes entering into a definitive merger or acquisition agreement or other pending arrangement that would make it ineligible for Index inclusion, or a filing of bankruptcy or similar protection from creditors.

## **INDEX CALENDAR**

### **Reconstitution schedule**

The Index is reconstituted semi-annually in January and July by applying the constituent selection process.

### **Reconstitution reference dates**

Unless otherwise specified, the Security Eligibility Criteria and Constituent Selection Process are applied using data as of the end of November and May, respectively.

### **Reconstitution announcement dates**

Index Reconstitutions generally are announced five (5) trading days prior to the Reconstitution Effective Date.

### **Reconstitution effective dates**

Index Reconstitutions become effective at market open on the trading day following the third Friday of January and July.

## Rebalance schedule

The Index is rebalanced semi-annually in conjunction with the Reconstitution. The Rebalance Effective and Announcement Dates are the same as those of the Reconstitution.

## Rebalance reference dates

The constituent weighting process is applied using data as of the end of December and June.

# CONSTITUENT SELECTION

## Constituent selection process

Securities meeting all applicable Security Eligibility Criteria are considered for inclusion in the Index. Index constituents are selected according to the following steps.

### I. Assignment and Calculation of Yewno Scores

Eligible securities are matched with their issuers' Yewno Scores for each Yewno Sub-Theme represented in the Index (see Appendix C for a complete list of Yewno Themes and Sub-Themes). Companies receive scores for each theme in which they're involved, and no scores for themes in which they're uninvolved.

- Pure Score – The extent to which a company is involved in a particular theme relative to all other themes in which it is involved
- Contribution Score – The extent to which a company is involved in a particular theme relative to other companies involved in that theme

For each security is calculated an Intensity Score: the number of Sub-Themes in which its issuing company is involved.

### II. Comparison Groups Ranking and Exclusion

Securities are partitioned into Comparison Groups, the cross-sections of market cap segment (large, mid and small) and Sub-Theme.

Any security is removed from consideration if its Pure Score and Comparison Score both fall below the 50<sup>th</sup> percentiles, respectively, of its Comparison Group's scores.

Any security that is not in the Index as of the Reconstitution Reference Date is removed from consideration if its Pure Score and Comparison Score both fall below the 65<sup>th</sup> percentiles, respectively, of its Comparison Group's scores.

### III. Foreign Ownership Exclusion

Any security is removed from consideration if it has a foreign ownership limit of less than 20%.

### IV. Pooling and Selection

The securities still considered for Index inclusion are partitioned into two security pools—Primary Subsector securities and Wildcard securities—that are used to determine the Index constituents. The

Index contains up to 100 securities; the Index size is dependent on the size of two security pools. Index Securities are selected according to the following steps:

#### **Primary Subsector and Wildcard security designation**

- All securities belonging to Primary ICB Subsectors, named in Appendix D, are identified as Primary Subsector securities. All other securities are identified as Wildcard securities. ICB is a product of FTSE International Limited that is used under license.

#### **Primary Subsector security pool designation**

- If fewer than 100 Primary Subsector securities exist, all are designated to the Primary Subsector security pool. Otherwise, Primary Subsector securities are ordered by Intensity Score (highest to lowest), average Contribution Score percentile (highest to lowest) and six-month average daily traded value (highest to lowest). Securities within the 100 first-ordered are designated to the Primary Subsector security pool.

#### **Wildcard security selection**

- A Wildcard security is removed from consideration if it has an Intensity Score equal to or less than the minimum Intensity Score among securities in the Primary Subsector security pool.
- Wildcard securities are ordered by Intensity Score (highest to lowest), average Contribution Score percentile (highest to lowest) and six-month average daily traded value (highest to lowest). A Wildcard security is selected for Index inclusion if it is ordered within the first five percent (rounded down to the nearest integer) of the number of securities in the Primary Subsector security pool; e.g., if the Primary Subsector security pool consists of 99 securities, the four first-ordered Wildcard securities are selected for Index inclusion.

#### **Primary Subsector security selection**

- Up to 100 Primary Subsector securities are selected based on the order determined above such that the Index does not exceed 100 total Index Securities; e.g., if the Primary Subsector security pool consists of 99 securities and four Wildcard securities are selected, the 96 first-ordered Primary Subsector securities are selected.

## **CONSTITUENT WEIGHTING**

### **Constituent weighting scheme**

The Index is a modified float-adjusted company market capitalization-weighted index.~~The Index is an equal-weighted index.~~

### **Constituent weighting process**

Index Securities' initial weights are determined by dividing each Index Security's float-adjusted company market capitalization by the aggregate float-adjusted company market capitalization of all Index Securities. Initial weights are then adjusted to meet the following constraint:

- No Index Security weight may exceed 4.5%.

The Index employs an equal weight adjustment scheme: all Index Securities have equal index market value.

For additional information about index weighting, see **Nasdaq Index Weight Calculations**.

## INDEX MAINTENANCE

### Deletion policy

If, at any time, Nasdaq determines that an Index Security has or will become ineligible for continued inclusion in the Index due to bankruptcy, delisting, or a definitive agreement that would likely result in the security no longer being Index eligible, the security is removed from the Index as soon as practicable and is not replaced. Ordinarily, a security will be removed from the Index at its Last Sale Price. If, however, at the time of its removal the Index Security is halted from trading on its primary listing market and an official closing price cannot readily be determined, the Index Security may, in Nasdaq’s discretion, be removed at a zero price. The zero price will be applied to the Index Security after the close of the market but prior to the time the official closing value of the Index is disseminated, which is ordinarily 17:16:00 ET.

### Corporate actions

In the periods between scheduled index reconstitution and rebalancing events, individual Index securities may be the subject to a variety of corporate actions and events that require maintenance and adjustments to the Index. Specific treatment of each type of corporate action or event is described in **Nasdaq Corporate Actions and Events Manual – Equities**, which is incorporated herein by reference.

In certain cases, corporate actions and events are handled according to the weighting scheme or other index construction techniques employed. Wherever alternate methods are described, the Index will follow the “Non-Market Cap Corporate Action Method.”

### Index share adjustments

Index Share changes are not made outside of the selection/weighting process; however, changes arising from stock dividends and stock splits are made to the Index on the evening prior to the effective date of such corporate actions. In the case of certain spin-offs or rights issuances, the price of the Index Security is adjusted.

## APPENDIX A: ELIGIBLE EXCHANGES

Country	Operating Exchange
AUSTRALIA	ASX - ALL MARKETS
AUSTRIA	WIENER BOERSE AG
BELGIUM	EURONEXT - EURONEXT BRUSSELS

BRAZIL	BM&FBOVESPA S.A. - BOLSA DE VALORES, MERCADORIAS E FUTUROS
CANADA	TORONTO STOCK EXCHANGE
CHINA	SHANGHAI STOCK EXCHANGE
CHINA	SHENZHEN STOCK EXCHANGE
DENMARK	NASDAQ COPENHAGEN A/S
FINLAND	NASDAQ HELSINKI LTD
FRANCE	EURONEXT - EURONEXT PARIS
GERMANY	DEUTSCHE BOERSE AG
GERMANY	XETRA
HONG KONG	HONG KONG EXCHANGES AND CLEARING LTD
IRELAND	IRISH STOCK EXCHANGE - ALL MARKET
ISRAEL	TEL AVIV STOCK EXCHANGE
ITALY	BORSA ITALIANA S.P.A.
JAPAN	JAPAN EXCHANGE GROUP
KOREA, REPUBLIC OF	KOREA EXCHANGE (STOCK MARKET)
MALAYSIA	BURSA MALAYSIA
MEXICO	BOLSA MEXICANA DE VALORES (MEXICAN STOCK EXCHANGE)
NEW ZEALAND	NEW ZEALAND EXCHANGE LTD
NORWAY	OSLO BORS ASA
PORTUGAL	EURONEXT - EURONEXT LISBON
SINGAPORE	SINGAPORE EXCHANGE
SOUTH AFRICA	JOHANNESBURG STOCK EXCHANGE
SPAIN	BME - BOLSAS Y MERCADOS ESPANOLES
SWEDEN	NASDAQ STOCKHOLM AB
SWITZERLAND	SIX SWISS EXCHANGE
TAIWAN	TAIWAN STOCK EXCHANGE
THE NETHERLANDS	EURONEXT - EURONEXT AMSTERDAM
UNITED KINGDOM	LONDON STOCK EXCHANGE
UNITED STATES OF AMERICA	CBOE GLOBAL MARKETS INC.
UNITED STATES OF AMERICA	NASDAQ - ALL MARKETS
UNITED STATES OF AMERICA	NEW YORK STOCK EXCHANGE, INC.

## **APPENDIX B: PROHIBITED AREAS OF INVOLVEMENT**

Companies positively identified by Sustainalytics as being involved in the areas described below are excluded from consideration for Index inclusion. Wherein a security's data are unavailable for any field from Sustainalytics that is used to identify such involvement, the security is likewise excluded from consideration for Index inclusion.

- Tobacco products – Significant ownership of or any involvement in production; at least five percent involvement in related products/services or in retail
- Thermal coal – Significant ownership in extraction or at least five percent involvement in extraction or in power generation
- Oil sands – Significant ownership in or at least five percent involvement in extraction
- Controversial weapons – Significant ownership in or any involvement in tailor-made and essential or non-tailor-made or non-essential weapons
- Civilian firearms – At least five percent involvement in sales of assault weapons to civilian customers or in sales of non-assault weapons to civilian customers, or at least five percent of revenue from the combined sales of assault and non-assault weapons to retail/distribution customers
- Small arms and military contracting – At least five percent of revenue from the combined sales of assault and non-assault small arms to civilian and retail/distribution customers; small arms to military/law enforcement customers; small arms key components; and weapons, weapon-related products and/or services and non-weapon-related products and/or services for military contracting
- Nuclear weapons and depleted uranium – Any involvement
- Adult Entertainment – At least five percent of revenue from the combined revenue from production and distribution
- Gambling – At least five percent of revenue from the combined revenue from operations, specialized equipment and supporting products/services

## **APPENDIX BC: YEWNO THEMES AND SUB-THEMES**

<b>Theme</b>	<b>Sub-Theme</b>
Artificial Intelligence	Deep Learning
Artificial Intelligence	Image Recognition
Artificial Intelligence	NLP
Artificial Intelligence	Speech Recognition & Chatbots
Data Computing & Processing	Big Data
Data Computing & Processing	Cloud Computing
Data Computing & Processing	Cyber Security

## APPENDIX D: PRIMARY ICB SUBSECTORS

ICB Subsector	ICB Subsector Code
Electronic Equipment: Gauges and Meters	50202025
Consumer Services: Misc.	40201070
Media Agencies	40301020
Telecommunications Services	15102015
Computer Services	10101010
Consumer Digital Services	10101020
Software	10101015
Computer Hardware	10102030
Semiconductors	10102010
Telecommunications Equipment	15101010

## APPENDIX E: METHODOLOGY CHANGE LOG

Effective Date	Methodology Section	Description or Summary of Changes
<a href="#">July 18, 2022</a>	<a href="#">Security Eligibility Criteria: ESG eligibility</a>	<a href="#">An ESG criterion was added to the Index.</a>
<a href="#">July 18, 2022</a>	<a href="#">Constituent weighting</a>	<a href="#">The Index switched from an equal weight to a modified float-adjusted market capitalization weighting scheme.</a>
March 9, 2022	Appendix A: Eligible exchanges	The Moscow Exchange was removed as an eligible exchange.

## ADDITIONAL INFORMATION

### Announcements

Nasdaq announces Index-related information via the Nasdaq Global Index Watch (GIW) website at <http://indexes.nasdaqomx.com>.

For more information on the general Index Announcement procedures, please refer to the **Nasdaq Index Methodology Guide**.

### Holiday schedules

The Index is calculated Monday through Friday and does not close for holidays, as it is a Global Index.



## **Unexpected market closures**

For information on Unexpected Market Closures, please refer to the **Nasdaq Index Methodology Guide**.

## **Calculation types**

For information on the Index calculation types as well as the mathematical approach used to calculate the Index(es), please refer to the **Calculation Manual – Equities & Commodities**.

## **Recalculation and restatement policy**

For information on the Recalculation and Restatement Policy, please refer to the **Nasdaq Index Recalculation Policy**.

## **Data sources**

For information on data sources, please refer to the **Nasdaq Index Methodology Guide**.

## **Contact information**

For any questions regarding an Index, please contact the Nasdaq Index Client Services team at [indexservices@nasdaq.com](mailto:indexservices@nasdaq.com).

## **Index dissemination**

Index values and weightings information are available through Nasdaq Global Index Watch (GIW) website at <https://indexes.nasdaqomx.com/> as well as the Nasdaq Global Index FlexFile Delivery Service (GIFFD) and Global Index Dissemination Services (GIDS). Similar to the GIDS offerings, Genium Consolidated Feed (GCF) provides real-time Index values and weightings for the Nordic Indexes.

For more detailed information regarding Index Dissemination, see the **Nasdaq Index Methodology Guide**.

## **Index calculation and dissemination schedule**

The Index Value is calculated five (5) days a week, Monday through Friday, once per second from the start of the trading day in Tokyo (09:00:01 Japan Standard Time) until the close of the trading day in New York (17:16:00 Eastern Time).

## **Website**

For further information, please refer to Nasdaq GIW website at <https://indexes.nasdaqomx.com/>.

## **FTP and dissemination service**

Index values and weightings are available via FTP on the Nasdaq Global Indexes FlexFile Delivery Service (GIFFD). Index values are available via Nasdaq's Global Index Dissemination Services (GIDS).

## **GOVERNANCE**

### **Index governance**

All Nasdaq Indexes follow the same governance structure. For a detailed list of this information, please see the **Nasdaq Index Methodology Guide**.

### **Nasdaq Index Management Committee**

The Nasdaq Index Management Committee approves all new Index Methodologies. This committee is comprised of full-time professional members of Nasdaq. The committee meets regularly, and reviews items including, but not limited to, pending corporate actions that may affect Index constituents, statistics comparing the composition of the indexes to the market, companies that are being considered as candidates for addition to an Index, and any significant market events.

For a detailed overview of the Index Management Committee, please see the **Nasdaq Index Methodology Guide**.

### **Internal reviews of methodology**

For a detailed description on internal reviews of the Methodology, please see the **Nasdaq Index Methodology Guide**.

### **Communication with stakeholders and consultations**

For a detailed description on Consultations and Communications with Stakeholders, please see the **Nasdaq Index Methodology Guide**.

### **Index cessation**

Nasdaq has a documented procedure that is followed for Index Cessation that includes termination/retirement of an Index or Index Family.

For more information, please refer to the **Nasdaq Index Cessation Policy**.

### **Discretionary adjustment**

This Index Methodology was created by Nasdaq to achieve the aforementioned objective of measuring the underlying purpose of each Index governed by this methodology document. Any deviations from this methodology are made in the sole judgment and discretion of Nasdaq so that the Index continues to achieve its objective.

For more information on potential adjustments including Calculation and Pricing Disruptions, Expert Judgment, and Unexpected Reconstitution/Rebalances, please refer to the **Nasdaq Index Methodology Guide**.

## GLOSSARY OF TERMS AS USED IN THIS DOCUMENT

For the glossary of key terms, please refer to the **Nasdaq Index Methodology Guide**.

## DISCLAIMER

Nasdaq may, from time to time, exercise reasonable discretion as it deems appropriate in order to ensure Index integrity, including but not limited to, quantitative inclusion criteria. Nasdaq may also, due to special circumstances, if deemed essential, apply discretionary adjustments to ensure and maintain the high quality of the index construction and calculation. Nasdaq does not guarantee that any Index accurately reflects future market performance.

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