



IFRC·NXW IMS

INDEXES MANAGEMENT SYSTEM

The engine behind every index
from idea to publication

One cloud system to design, back-test, calculate, adjust and publish indexes. It is the engine behind the NXW Global Indexes family and the CCPI platform.

100,000+

indexes and indicators managed

97

countries in the index universe

95%

automation target of the daily process
(KPI)

01

WHAT IS IMS

SINCE 2010

22,000

indexes managed by the first
IFRC Indexes Management
System

100,000+

indexes and indicators today in
the NXW Global Indexes family,
in 97 countries

*“The index level
moves only with
the market,
nothing else.”*

INDEXES MANAGEMENT SYSTEM

One system for the whole life of an index.

IMS is the index engine of the IFRC and NXW ecosystem. It takes data from vendors and exchanges, applies each index's specifications, calculates price, total-return and net-return levels in several currencies, and handles corporate actions. It then publishes the results to websites, FTP, web services and data vendors.

OBJECTIVES

Strategy formulation

Turn an investment idea into an index with clear rules: target, formula, weighting and currency.

Efficiency & scalability

One engine for thousands of indexes, with each instrument set up separately for each index.

USERS & STAKEHOLDERS

Corporates

Strategy teams, banks, asset managers and issuers of index products.

Institutions & academics

Research indexes, long histories and reproducible methodologies.

Real-time analytics

Index levels during the trading session and at the end of the day, for timely decisions.

Less cost and complexity

Cloud-based: scalable, flexible and cost-efficient. No in-house calculation team needed.

Investors & analysts

Benchmarks, screeners, comparisons and custom indexes.

Governments & policy makers

Market monitoring, sector and thematic indicators.

Research feeds the engine; the engine powers every platform.

CCPR provides the data and the research. IMS turns it into indexes. CCPI, CCPS and CCPE then use these indexes for investment, strategies and education. About 80% of the work is done online and 20% offline.



POWERED BY IMS · NXW GLOBAL INDEXES FAMILY

52,248

Vietnam indexes

19,002

global indexes

23,074

Vietnam sentiment indicators

4,717

global sentiment indicators

TEN LEVELS OF INDEXES

01 **Market benchmarks** · All-share measures

03 **Sector** · Real estate, banks, logistics ...

05 **Thematic** · Women CEOs, ownership, ESG

07 **Smart beta & custom** · Low volatility, value, tailored rules

09 **AI & alternative data** · ESG Vietnam, sentiment

02 **Size** · Large 50, Mid 100, Small 150

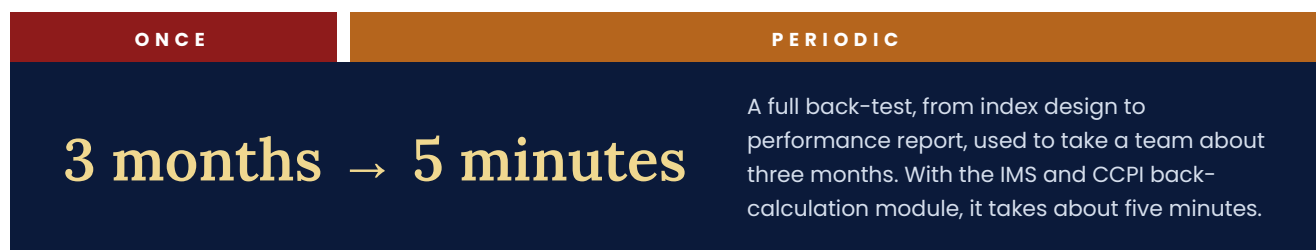
04 **Style** · Growth versus value

06 **Geographic** · ASEAN, Asia, BRICS, global

08 **Factor** · Dividend, momentum, volatility

10 **Multi-asset & active** · Global multi-asset, risk models

Design once, then calculate and publish every day.



CUSTOMISED INDEXES

From the client's idea to the client's index.

1 MY IDEA

The client brings an idea, or picks one from the NXW catalogue. IMS designs and back-tests it.

IMS STEP

Design & back-testing

2 YOUR INDEX

The index is calculated by IMS, in real time or at the end of the day, with its own rules and reviews.

IMS STEP

Calculation & adjustment

3 MY INDEX

The client publishes it under its own name: website, data vendors, products such as ETFs, notes or funds.

IMS STEP

Publication & dissemination

One formula, every index, every currency.

$$PI_t = \text{BASE} \times \frac{\text{CAPI}_t}{\text{DIVISOR}_t} \quad \text{CAPI}_t = \sum_{i=1}^n N_{it} F_{it} k_{it} M_i X_{it} P_{it} \quad \text{DIVISOR}_t = \text{CAPI}_0 \times K_t$$

FACTORS ON THE INDEX LEVEL

Static data that set the start.

BASE	Starting value of the index: 1,000 for blue chips or benchmarks, 100 for sectors.
CAPI₀	Base capitalisation: the starting point used to track the index over time.
K_t	Index adjustment factor. It corrects the effect of corporate events, so the level moves only with trading.

RETURN INDEXES

Same composition as the price index (the "mother" index). Dividends are reinvested: gross dividends GD for total return, net dividends ND for net return.

$$TRI_t = \frac{TRI_{d-1}}{PI_{d-1}} \times \left(PI_t + \text{BASE} \frac{GD_t}{\text{DIVISOR}_t} \right)$$

$$GD_t = \sum_{i=1}^n N_{it} F_{it} k_{it} M_i X_{it} D_{it}$$

FACTORS ON THE SAMPLE LEVEL

Set for each instrument, in each index.

N_{it}	Number of shares in the sample: all shares for all-share indexes, a representative number for baskets.
F_{it}	Free-float factor: only the shares really available on the market.
k_{it}	Capping or adjustment factor: no single weight above a threshold (10% or 15%).
M_i	Price multiplication, e.g. 1/100 for prices quoted in pence.
X_{it}	Currency rate into the index currency (Reuters / Bloomberg reference rates).
P_{it}	Price of the instrument.

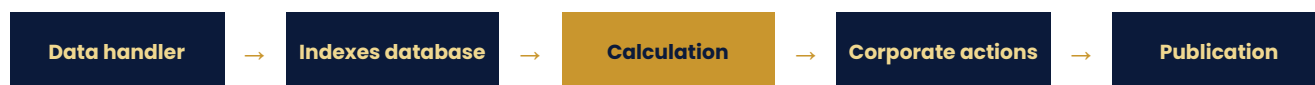
CURRENCY VERSIONS

Direct: local prices are converted at the real-time rate X_{it}.

Indirect: the domestic mother index is converted using the change in the exchange rate, which also works for back-history.

$$I_t^{fc} = I_{t-1}^{fc} \times \frac{I_t^{dc}}{I_{t-1}^{dc}} \times \frac{CX_t^{fc/dc}}{CX_{t-1}^{fc/dc}}$$

INDEXES APPLICATION · DATA VENDORS & EXCHANGES IN, WEBSITES, FTP & VENDORS OUT



Every event treated, so that only the market moves the index.

The new number of shares and the adjusted price give a new market capitalisation. The divisor is then adjusted. Shareholders receive B new shares for every A shares held.

$$DIVISOR_{t+1} = DIVISOR_t \times \frac{\text{adjusted } CAPI_t}{CAPI_t}$$

EVENT	DIVISOR	ADJUSTED PRICE	NEW NUMBER OF SHARES
Split / reverse split	= unchanged	Close × A / B	Old × B / A
Ordinary cash dividend	= unchanged	Return indexes only (TRI / NRI)	—
Special cash dividend	▼ decreases	Close – dividend	—
Stock dividend	= unchanged	Close × A / (A + B)	Old × (A + B) / A
Stock dividend of another company	▼ decreases	(Close × A – other price × B) / A	—
Stock cancellation	▼ decreases	—	Old – cancelled shares
Return of capital & consolidation	▼ decreases	(Close – capital returned) × A / B	Old × B / A
Repurchase / self tender	▼ decreases	(Price × old – tender price × tendered) / (old – tendered)	Old – tendered
Spin-off	▼ decreases	(Close × A – spin-off price × B) / A	—
Rights offering, in the money	▲ increases	(Close × A + subscription × B) / (A + B)	Old × (A + B) / A
Rights offering, out of the money	= unchanged	No adjustment	No adjustment
Convertible bond	▲ increases	Close – right fair value	Old + exercised shares
Entry / removal, shares & free float	adjusted	New market capitalisation	New shares / free float

PROCESSING RULES

Manual first

Corporate actions are first entered by hand (IDX_CA table) and processed at the end of the day.

Automatic next

Automatic processing for the real-time stage is planned 3 to 6 months later, from files or the user interface.

After the close

A treatment can be prepared during the session but is applied only after the market close.

No jump overnight

The divisor ensures no change in the level between the evening close and the next opening.

Six data families, one source of truth.

References	Prices	Composition	Calculation	History	Corporate actions
MAR_REF	STK_PRICES	IDX_COMPO	IDX_SPECS	IDX_HISTODAY	STK_DIV
SEC_REF	CUR_RATES	IDX_COMPOSITION	IDX_INTRADAY	STK_HISTODAY	IDX_CA
STK_REF	Stock prices, currency rates	Samples and their factors	IDX_DAY	CMP_DAY	Dividends, adjustments
IDX_REF			CMP_INTRADAY	Daily history	
Markets, sectors, stocks, indexes			Specifications, levels		

STATISTICS BEFORE PUBLICATION

Complete files for downloads and websites.

- Day**
Open, high, low and close, with the time of the high and the low; change and variation vs the previous day.
- Year to date**
The same statistics compared with the end of last year.
- Life**
The same statistics since the start of the index.

PUBLICATION

Wherever investors look.

- FTP & web services**
Index files for clients and information providers.
- Data vendors**
Reuters, Bloomberg and others.
- Websites**
NXW websites, the Monitor app and index pages.
- Information services**
Licences, custom indexes, data subscriptions.

“From big data to the published index: *one system, fully traceable.*”

A worked example of the calculation in Excel, covering the sample, the divisor, a corporate action and the currency versions, will be published in a separate document.



PROJECT INITIATOR & LEADER - IFRC

Dr MAI Huu Minh

Double academic and professional skills, from financial mathematics to big data, to build indexes that investors can trust.

2010

IFRC founded: data, indexing, research

25+

years in index and derivative markets

100,000+

indexes and indicators managed

FINANCE & MATHEMATICS

Financial mathematics, derivatives, indexes, volatility, portfolio management, exchanges, econometrics and market efficiency.

BIG DATA

Data science, data mining and integration, R / Python, artificial intelligence, machine learning and business intelligence.

APPS DEVELOPMENT

Financial web apps and cloud computing: from the first IFRC index platform to the IMS and CCPX platforms.

INDEXES & DERIVATIVES

More than 25 years in index and derivative markets: many indexes and products developed and managed, including derivatives and ETFs.

PHD & AWARDS

PhD in Finance, Université Paris Dauphine / ENSAE. 1993 Société des Bourses Françaises Award and Jean-Bertrand Nogaro Award.

POSITIONS

Co-Founder, Head of R&D / Indexes · NXW Holdings · 2023

Executive Director · VIDE — Vietnam Institute of Digital Economy Development · 2026

Deputy Director · IREEDS — Institute of Research in Economics, Environment and Data Science · 2018

CEO & Founder · IFRC — Intelligent Financial Research & Consulting · 2010

General Director · CRQFT — Center of Research on Quantum Finance and Technologies · 2026

Editorial Board Member · Bloomberg Businessweek Vietnam · 2023

CONTACT US

Your idea today, your index tomorrow.

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