

Tenoris³ ie-Pulse Index Methodology

Index Objective

Provide daily insights on economic activity across various industrial sectors by analyzing private company financial and operational data gathered directly from the companies' accounting software systems.

Types of Indexes

Balance Sheet Indexes

Balance Sheet Indexes are indexes composed of data typically found on a company's balance sheet. More specifically, these indexes provide insights on Accounts Payable, Accounts Receivable, Cash Balances and Inventory.

Income Statement Indexes

Income Statement Indexes are indexes composed of data typically found on a company's income statement. More specifically, these indexes provide insights on Total Sales, Total Expenses and Cost of Goods Sold.

Company Eligibility, Selection Criteria and Index Composition

In order to provide relevant insights into the industrial sectors for which they are created, the indexes must be comprised of companies operating in these sectors. To be eligible for inclusion in an index, a company must derive at least 50% of its total revenue from operations in the industrial sector for which the index is created. Every company available in the index selection pool is therefore identified as belonging to a specific industrial sector based on what sector of activity accounts for most of the company's revenue. The index selection pool is therefore separated by industrial sector. The companies in each industrial sector are further separated by geographic location based on the location of the head office of the companies, and by company size into micro, small or medium sized companies. Given the index objective of providing daily economic activity insights, only companies whose accounting records are updated daily, whether through automated bookkeeping or other means, are eligible for index selection and inclusion.

Each industrial index is composed of at least 500 eligible companies. The selection of the eligible companies that make up each index depends on the nature of the index. For example, the "Canadian Retail Inventory Index", which provides daily insights into the fluctuation of inventory levels in the retail sector across Canada, includes eligible companies from every Canadian province and a representative proportion of micro, small and medium sized eligible companies. On the other hand, the 500 or more eligible companies of which the "Ontario Retail Inventory Index" is composed, are all Ontario based companies. The Canadian series of indexes covers 18 industrial sectors, an average of 7 sub-sector, 12 Canadian provinces and regions and 7 different accounting

categories for a total of more than 10,000 available indexes to chose from. Figure 1 below illustrates the possible variable selection permutations for the Canadian series of indexes:

Figure 1

Select Indexes

Plan Name
My Canadian Plan 1

Indexes

#	Location	Sector	Subsector	Financial Account
1	Canada	31-Manufacturing	315-Apparel Manufacturing	Cost Of Goods Sold

Location dropdown menu options: Select, Canada, British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Newfoundland and Labrador, Atlantic Canada, Western Canada.

Definitions

Daily Delta:

The Daily Delta (DD) is the amount by which the value of the index has changed when compared to the previous day.

$$DD_n = (RDA_n - RDA_{n-1}) / RDA_{n-1}$$

Where:

n = the day of the month

RDA = Rolling Daily Average value of the index, which represents the Daily Value (DV) of the index for Income Statement based indexes.

Daily Value:

The Daily Value (DV) is the value of the index on a specific day. It is the aggregate dollar value of the Financial Account of the index divided by 1,000 times the number of companies in the index.

$$DV_n = \text{sum}(X_{11}, X_{12}, \dots, X_{nm}) / (1,000 \times m)$$

Where:

m = number of companies in the index

n = the day of the month

Financial Account:

The specific income statement or balance sheet variable being measured and analyzed by the index.

Financial Account Code:

A two-letter code used to identify the specific income statement or balance sheet variable being measured and analyzed by the index. Table 1 below displays the Financial Account names and codes used to create the indexes.

Table 1

Financial Account	
Accounts Payable	AP
Accounts Receivable	AR
Cash Balances	CB
Cost of Goods Sold	CG
Inventory	IN
Total Expenses	TE
Total Sales	TS

Index Name:

A unique identifier for each index composed of the index's location, sector or subsector and financial account.

Index Code:

A unique alphanumerical identifier for each index composed of the index location code, sector or subsector code and financial account code.

Location:

The geographical region from which the data of the index originates.

Location Code:

A two-letter code used to identify the geographical region from which the data of the index originates. Table 2 below displays the Location names and codes used to create the indexes for Canada.

Table 2

Location	
Canada	CA
Western Canada	WC
Atlantic Canada	AC
British Columbia	BC
Alberta	AB
Saskatchewan	SK
Manitoba	MB
Ontario	ON
Quebec	QC
New Brunswick	NB
Nova Scotia	NS
P.E.I.	PE
Newfoundland and Labrador	NL

Pace:

The measurement indicating what percentage of the previous value of an index the present value of the index is on pace to reach.

Rolling Daily Average:

The Rolling Daily Average (RDA) is the value of the index for Income Statement based indexes on a specific day. It is calculated by dividing the aggregate Daily Value of the index by the day of the month on which the calculation is made. For the first day of each month, the RDA is equal to the DV.

$$RDA_n = \text{sum}(DV_1, \dots, DV_n) / n$$

Where:

n = the day of the month

Subsector:

The industrial subsector from which the data of the index originates.

Subsector Code:

A four-digit number based on the North American Industry Classification System (NAICS) used to identify the industrial subsector from which the data of the index originates.

Sector:

The industrial sector from which the data of the index originates.

Sector Code:

A four-digit number based on the North American Industry Classification System (NAICS) used to identify the industrial sector from which the data of the index originates. Table 3 below for example provides the names and codes for the Manufacturing Sector and Subsector.

Table 3

Sector and Subsector	
Manufacturing	3100
Food manufacturing	3110
Beverage and tobacco product manufacturing	3120
Textile mills	3130
Textile product mills	3140
Apparel manufacturing	3150
Leather and allied product manufacturing	3160
Wood product manufacturing	3210
Paper manufacturing	3220
Printing and related support activities	3230
Petroleum and coal product manufacturing	3240
Chemical manufacturing	3250
Plastics and rubber products manufacturing	3260
Non-metallic mineral product manufacturing	3270
Primary metal manufacturing	3310
Fabricated metal product manufacturing	3320
Machinery manufacturing	3330
Computer and electronic product manufacturing	3340
Electrical equipment, appliance and component manufacturing	3350
Transportation equipment manufacturing	3360
Furniture and related product manufacturing	3370
Miscellaneous manufacturing	3390

Index Value and Calculations

Balance Sheet Indexes

To calculate each Balance Sheet based index, the aggregate daily value of the variable is divided by 1,000 and then by the number of companies in the index to obtain the Daily Value (DV) for the index.

$$DV_n = \text{sum}(X_{11}, X_{12}, \dots, X_{nm}) / (1,000 \times m)$$

Where:

m = number of companies in the index

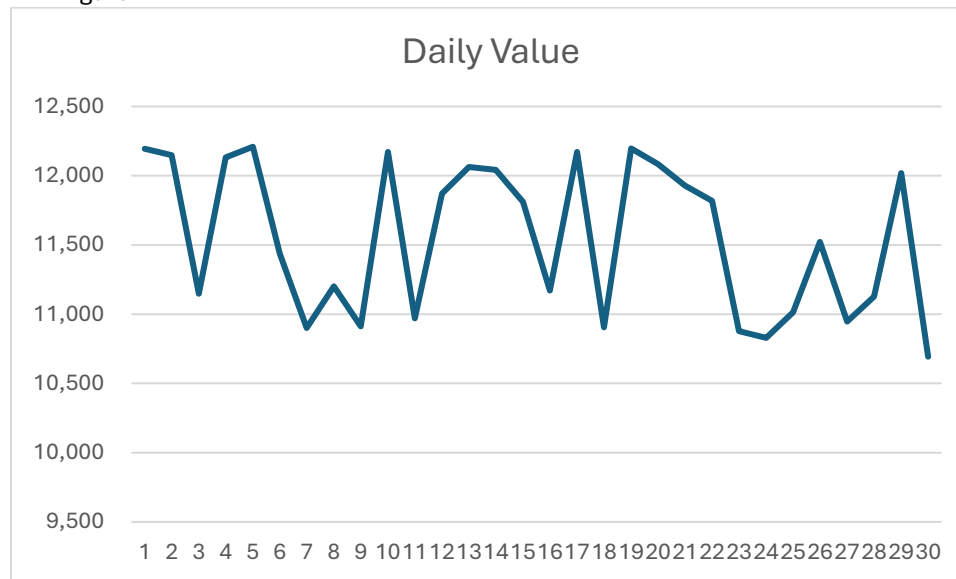
n = the day of the month

Table 4 and Figure 2 below provide an example of the calculation of the DV and DD of a Balance Sheet based index created from random generated Microsoft Excel data:

Table 4

Day	Daily Value	Daily Delta %
1	12,194	10.85%
2	12,148	-0.38%
3	11,148	-8.23%
4	12,132	8.83%
5	12,209	0.63%
6	11,437	-6.32%
7	10,901	-4.69%
8	11,201	2.75%
9	10,912	-2.58%
10	12,171	11.54%
11	10,970	-9.87%
12	11,870	8.20%
13	12,063	1.63%
14	12,043	-0.17%
15	11,811	-1.93%
16	11,172	-5.41%
17	12,171	8.94%
18	10,906	-10.39%
19	12,196	11.83%
20	12,084	-0.92%
21	11,929	-1.28%
22	11,817	-0.94%
23	10,877	-7.95%
24	10,829	-0.44%
25	11,014	1.71%
26	11,521	4.60%
27	10,946	-4.99%
28	11,126	1.64%
29	12,020	8.04%
30	10,693	-11.04%

Figure 2



For Balance Sheet based indexes, the Daily Delta of the indexes and the Daily Value of the indexes are the same.

Income Statement Indexes

To calculate each Income Statement based index, the aggregate Daily Value of the Financial Account variable is divided by 1,000 and then by the number of companies in the index to obtain the Daily Delta for the index. The Daily Delta is therefore the average amount by which the variable fluctuates every day.

$$DD_n = (RDA_n - RDA_{n-1}) / RDA_{n-1}$$

Where:

n = the day of the month

On the first day of each month, the initial value of the index is the index's first calculated Daily Delta.

As of the second day of the month, and for each day following, each calculated Daily Delta is aggregated. The resulting number is then divided by the corresponding number of days into the month as of the date of calculation to obtain the Daily Value of the index. The Daily Value of an index for a specific day is therefore the average Daily Deltas of the variable on that specific day. For example, on the 3rd day of the month, the aggregate Daily Deltas of day 1, day 2 and day 3 are divided by 3 to obtain the Daily Value of the index as of the 3rd day of the month.

The value of every index for a specific day is made available through the ie-Pulse platform at 8am ET on the following day.

Each index aims to show how the value of the selected variable compares with the value of the variable for the previous month.

The reference value for each index is the value of the index at the end of the previous month.

Table 5 and Figures 3 and 4 below provide an example of the calculation of the DV and DD of an Income Statement based index created from random generated Microsoft Excel data:

Table 5

Day	Daily Delta	Daily Delta %	Daily Value	Daily Value %
1	14,259	1.85%	14,259	1.85%
2	14,053	-1.44%	14,156	-0.72%
3	15,117	7.57%	14,476	2.26%
4	14,654	-3.06%	14,521	0.31%
5	15,096	3.02%	14,636	0.79%
6	14,338	-5.02%	14,586	-0.34%
7	13,700	-4.45%	14,460	-0.87%
8	14,057	2.61%	14,409	-0.35%
9	15,073	7.23%	14,483	0.51%
10	13,930	-7.58%	14,428	-0.38%
11	14,844	6.56%	14,466	0.26%
12	15,141	2.00%	14,522	0.39%
13	13,230	-12.62%	14,422	-0.68%
14	13,560	2.49%	14,361	-0.43%
15	14,302	5.47%	14,357	-0.03%
16	15,226	6.46%	14,411	0.38%
17	14,377	-5.58%	14,409	-0.01%
18	13,699	-4.72%	14,370	-0.27%
19	13,813	0.83%	14,340	-0.20%
20	13,664	-1.08%	14,307	-0.24%
21	15,060	10.22%	14,343	0.25%
22	15,197	0.91%	14,381	0.27%
23	13,820	-9.06%	14,357	-0.17%
24	13,853	0.24%	14,336	-0.15%
25	14,478	4.51%	14,342	0.04%
26	15,165	4.75%	14,373	0.22%
27	15,227	0.41%	14,405	0.22%
28	15,130	-0.64%	14,431	0.18%
29	14,110	-6.74%	14,420	-0.08%
30	13,933	-1.25%	14,404	-0.11%

Figure 3

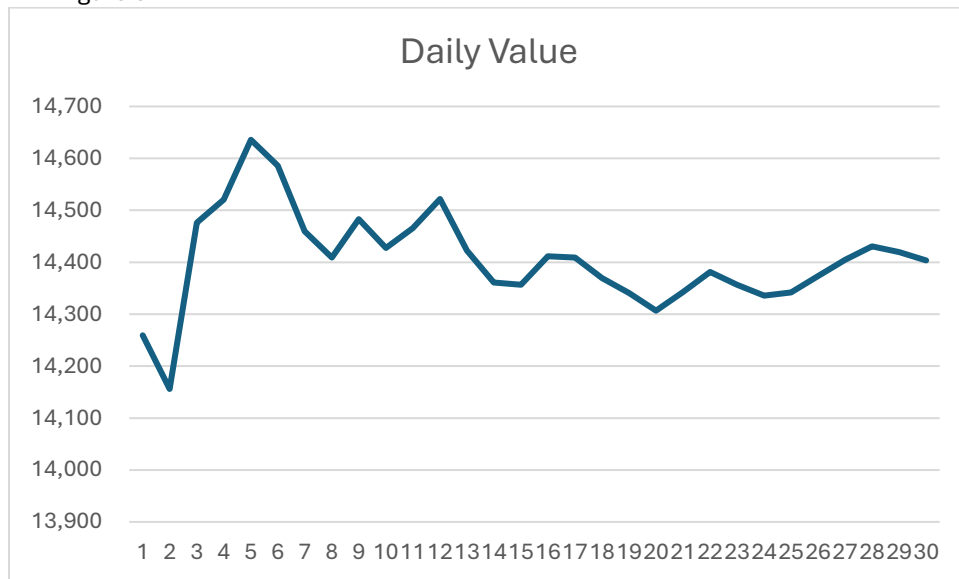
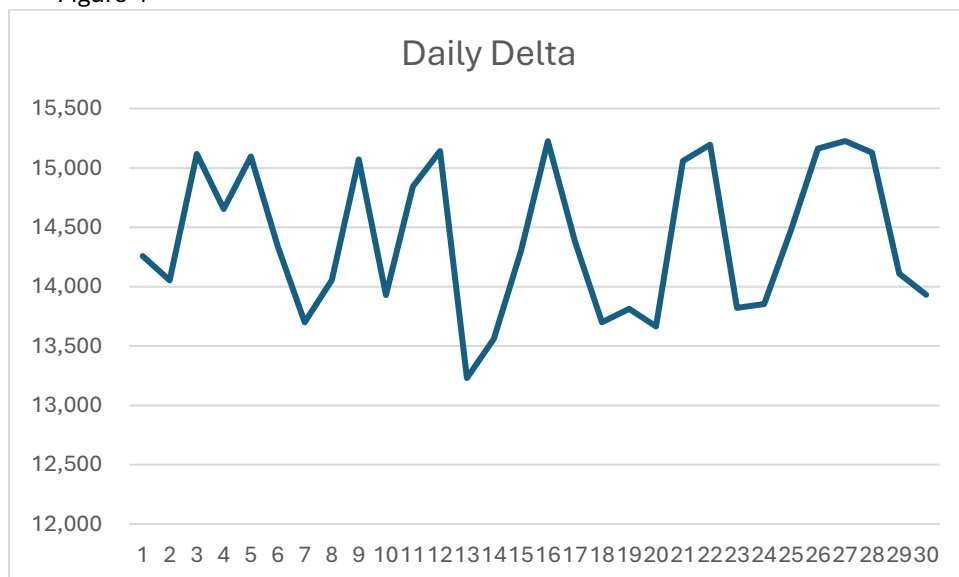


Figure 4



Index Naming Convention and Codes

Every index is represented by a unique alpha numerical code (the “**Index Code**”) comprised of the indexes' location, sector or subsector and financial account codes. For example, based on this naming convention, the Index Code for the Atlantic Canada Fabricated Metal Product Manufacturing Cash Balance Index is: AC3320CB.

Index Maintenance and Recalibration

To be determined.

Appendix – ie-Pulse Application Dashboard Sections

Scrolling Ticker

- The Scrolling Ticker in Figure 5 below shows the % change in the Daily Delta of each index in the selected plan represented by the Index Codes.

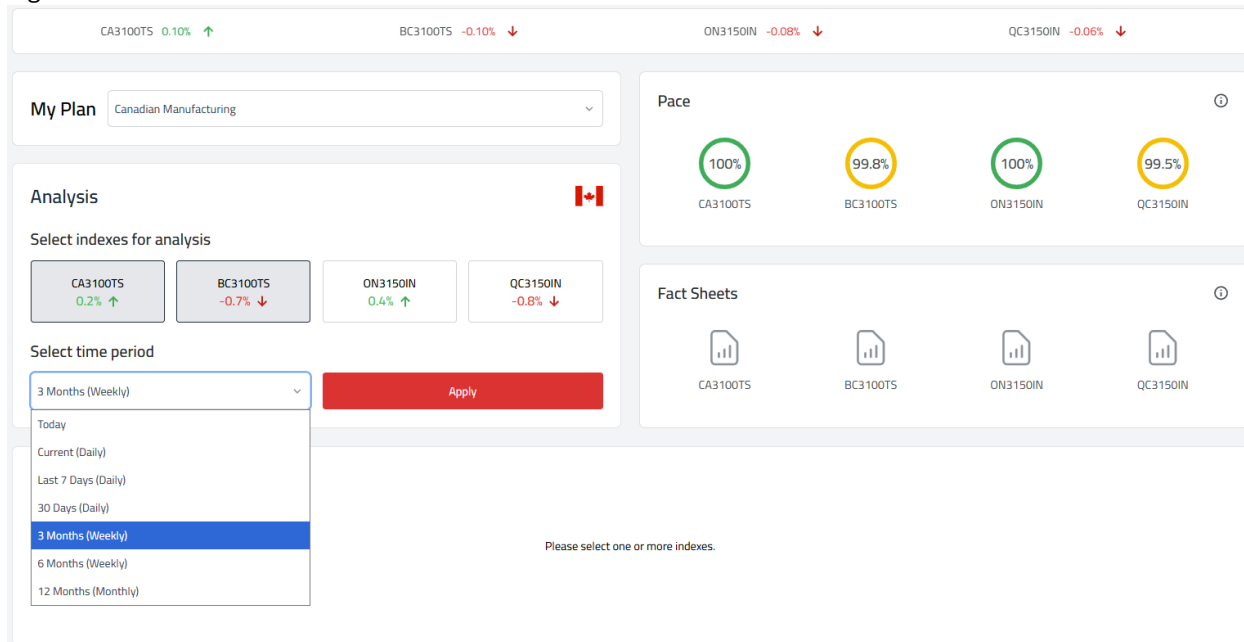
Analysis Box

- The Analysis Box in Figure 5 below shows the % change in the value of the index for the selected period, calculated as the value of the last day of the period, minus the value of the first day of the period, divided by the value of the first day of the period.
- The Analysis Box also allows user to select indexes and time periods for analysis. Once selected, each selected index changes color and the result of the analysis is displayed in the Trend Box section of the dashboard (see Figure 6).

Data Analysis options are available for the following periods:

- Current (Daily) (will show index value from the first day of the month up to the current date regardless of whether it's the 2nd day of the month or the 18th day of the month)
- Last 7 Days (Daily)
- 30 Days (Daily)
- 3 Months (Weekly)
- 6 Months (Weekly)
- 12 Months (Monthly)

Figure 5



Pace Box

- The purpose of the Pace section of the ie-Pulse dashboard is to show if the indexes in the selected data plan are on pace to exceed, equal or fall short of the index values of the previous month. The Pace of an index is calculated by extrapolating the current average Daily Value of the index to the end of the month and calculating what % of the value of the index for the previous month the extrapolated value would represent.
- Green means that the index will either equal or exceed the value of the previous month.
- Yellow means that the index will fall short of the value of the previous month by 2% or less.
- Red means that the index will fall short of the value of the previous month by more than 2%.
- The Pace of each index is calculated daily and presented as a percentage of the previous month's value of the index.
- The Pace of an index is the average Rolling Daily Average (RD) as of that day, multiplied by 1 plus the average Daily Delta (DD) as of that day multiplied by the number of days remaining in the month, all of that divided by the Rolling Daily Average (RD) of the index on the last day of the previous month.
- In the example of the calculation of the Pace in Tables 6 and 7 (see Figures 5 and 6), it is assumed that the Pace for the index is being calculated on the 8th day of a month with 31 days, and LDPM stands for Last Day of Previous Month.

Table 6

	RDA	DD
LDPM	1017	
Day1	1028	1.82%
Day2	1007	0.23%
Day3	1029	0.09%

Table 7

Avg. Rolling Daily Average	1022.5
Avg. Daily Delta	0.85%
Days into the month	8
Days remaining in month	23
LDPM RDA	1017

Day4	1031	1.02%
Day5	1034	0.74%
Day6	1001	0.62%
Day7	1010	1.17%
Day8	1040	1.08%

Pace: 120.11%

Pace: 120.11%

Fact Sheet Box

- The Fact Sheet Box shows thumbnails of the fact sheets for each index in the associated plan. Mousing over the fact sheet thumbnails displays the full names of the indexes, serving as the legend for each index. Clicking on a fact sheet thumbnail opens a PDF of the fact sheet, which the user may download.

Trend Box

- The top section of the Trend Box shows a graphical representation of the analysis for the selected indexes and time periods selected in the Analysis Box of the dashboard (please see Figure 6 below).
- The middle section provides a table containing the resulting values for the indexes and time periods selected in the Upper Left Box of the dashboard. Please note that the most recent values show appear on the right side of the table, with the oldest values appearing on the left side of the table.
- The bottom section provides a table with the correlations of the selected indexes for the selected time periods.

Figure 6

