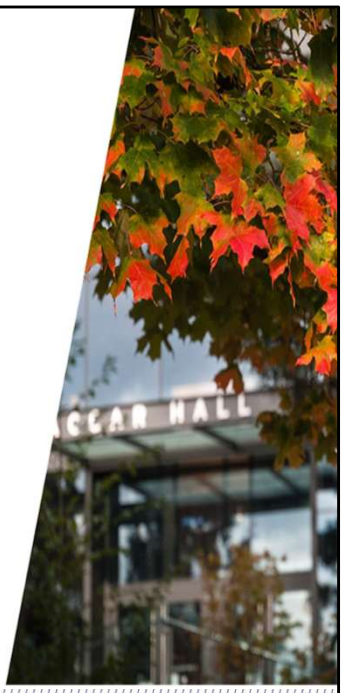
FOSTER Accounting

EDGAR EXPLORER: XBRL AND APIs 2

Data Analytics for Professional Accountants (ACCTG 522)

Class 9 | MPAcc Class of 2026



Welcome!

Class Agenda

- **Review**
  - **XBRL Filings and SEC API data**
- Catch-up Lab:
  - Examine a company XBRL filing & reconcile to API data.
- Project Pathways Overviews:
  - Possible avenues to consider
  - Alteryx (and other software) practicalities
  - Time for team work to prep for Mon Oct 27 preliminary proposal meetings.
- Conclusion and look ahead.

Review

XBRL Filings and SEC API data

1. Clarifications and documentation

Clarifications

Documentation
https://www.sec.gov/search-filings/edgar-application-programming-interfaces

Submissions API

All the submissions for a specific company:

data.sec.gov/submissions/

Each entity's current filing history is available at the following URL:

- https://data.sec.gov/submissions/CIK##########.json

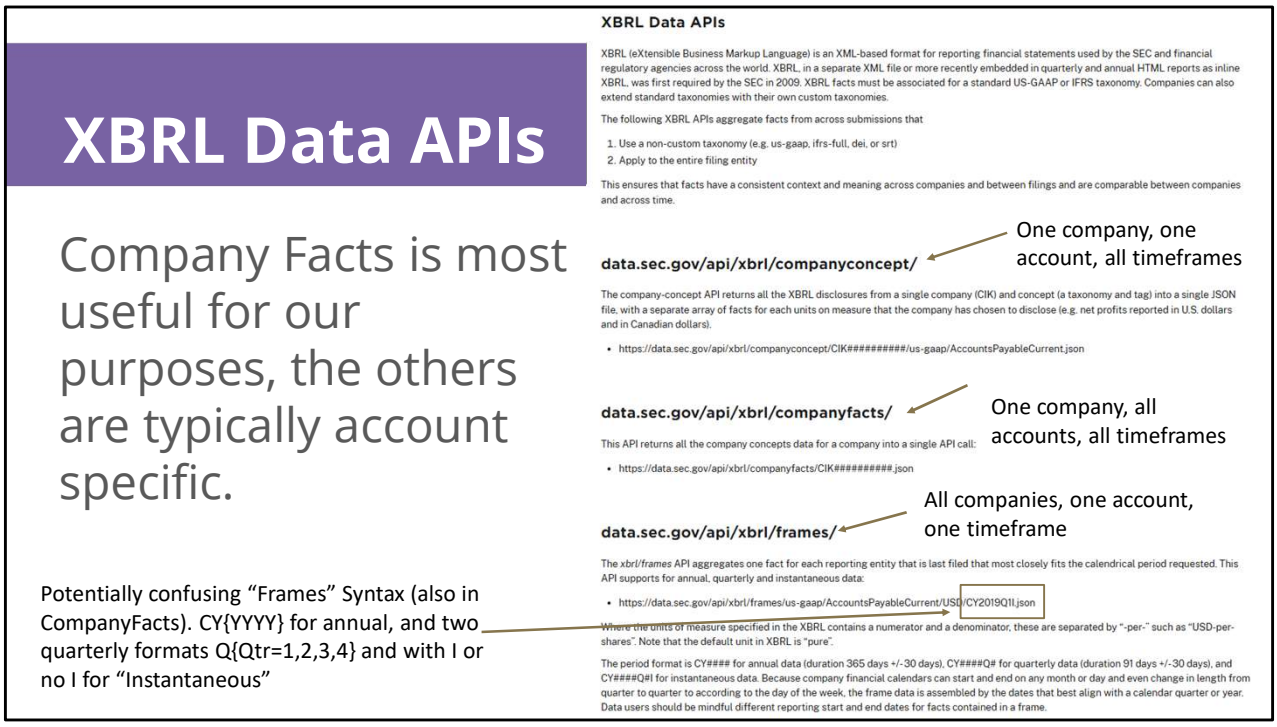
Where the ########## is the entity's 10-digit central index key (CIK), including leading zeros.

This JSON data structure contains metadata such as current name, former name, and stock exchanges and ticker symbols of publicly-traded companies. The object's property path contains at least one year's of filing or to 1,000 (whichever is more) of the most recent filings in a compact columnar data array. If the entity has additional filings, files will contain an array of additional JSON files and the date range for the filings each one contains.

XBRL Data APIs

Company Facts is most useful for our purposes, the others are typically account specific.

Potentially confusing “Frames” Syntax (also in CompanyFacts). CY{YYYY} for annual, and two quarterly formats Q{Qtr=1,2,3,4} and with I or no I for “Instantaneous”



XBRL Data APIs

XBRL (eXtensible Business Markup Language) is an XML-based format for reporting financial statements used by the SEC and financial regulatory agencies across the world. XBRL, in a separate XML file or more recently embedded in quarterly and annual HTML reports as inline XBRL, was first required by the SEC in 2009. XBRL facts must be associated for a standard US-GAAP or IFRS taxonomy. Companies can also extend standard taxonomies with their own custom taxonomies.

The following XBRL APIs aggregate facts from across submissions that

1. Use a non-custom taxonomy (e.g. us-gaap, ifrs-full, dei, or srt)
2. Apply to the entire filing entity

This ensures that facts have a consistent context and meaning across companies and between filings and are comparable between companies and across time.

data.sec.gov/api/xbrl/companyconcept/ — One company, one account, all timeframes

The company-concept API returns all the XBRL disclosures from a single company (CIK) and concept (a taxonomy and tag) into a single JSON file, with a separate array of facts for each units on measure that the company has chosen to disclose (e.g. net profits reported in U.S. dollars and in Canadian dollars).

- https://data.sec.gov/api/xbrl/companyconcept/CIK##########/us-gaap/AccountsPayableCurrent.json

data.sec.gov/api/xbrl/companyfacts/ — One company, all accounts, all timeframes

This API returns all the company concepts data for a company into a single API call:

- https://data.sec.gov/api/xbrl/companyfacts/CIK##########.json

data.sec.gov/api/xbrl/frames/ — All companies, one account, one timeframe

The *xbrl/frames* API aggregates one fact for each reporting entity that is last filed that most closely fits the calendrical period requested. This API supports for annual, quarterly and instantaneous data:

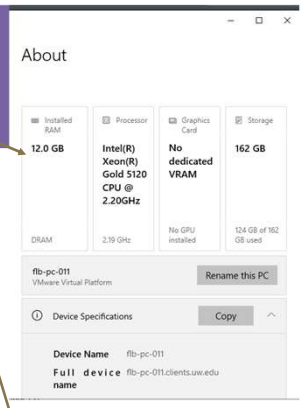
- https://data.sec.gov/api/xbrl/frames/us-gaap/AccountsPayableCurrent/USD/CY2019Q1I.json

Where the units of measure specified in the XBRL contains a numerator and a denominator, these are separated by “-per-” such as “USD-per-shares”. Note that the default unit in XBRL is “pure”.

The period format is CY#### for annual data (duration 365 days +/-30 days), CY####Q# for quarterly data (duration 91 days +/-30 days), and CY####Q#I for instantaneous data. Because company financial calendars can start and end on any month or day and even change in length from quarter to quarter to according to the day of the week, the frame data is assembled by the dates that best align with a calendar quarter or year. Data users should be mindful different reporting start and end dates for facts contained in a frame.

Bulk Data

Alteryx's AMP uses 25%-50% before hitting performance issues, remote labs RAM



Bulk Data

The most efficient means to fetch large amounts of API data is the bulk archive ZIP files, which are recompiled nightly.

- The companyfacts.zip file contains all the data from the XBRL Frame API and the XBRL Company Facts API

  https://www.sec.gov/Archives/edgar/daily-index/xbrl/companyfacts.zip

- The submission.zip file contains the public EDGAR filing history for all filers from the Submissions API

  https://www.sec.gov/Archives/edgar/daily-index/bulkdata/submissions.zip

CompanyFacts.zip = 1.2GB → 18,950 files, 16+GB
Submissions.zip = 1.4GB → too many files to unzip in windows easily…

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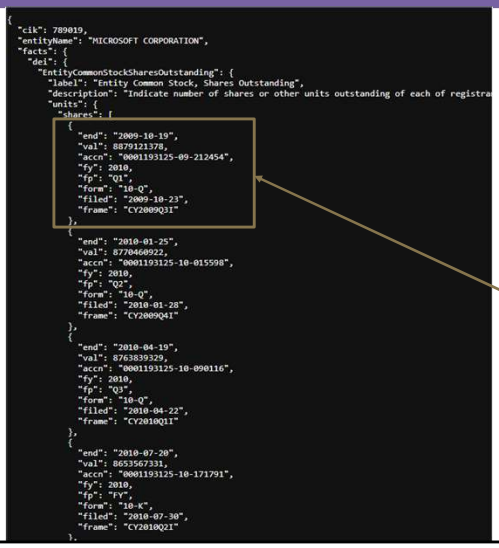
API Returned Data



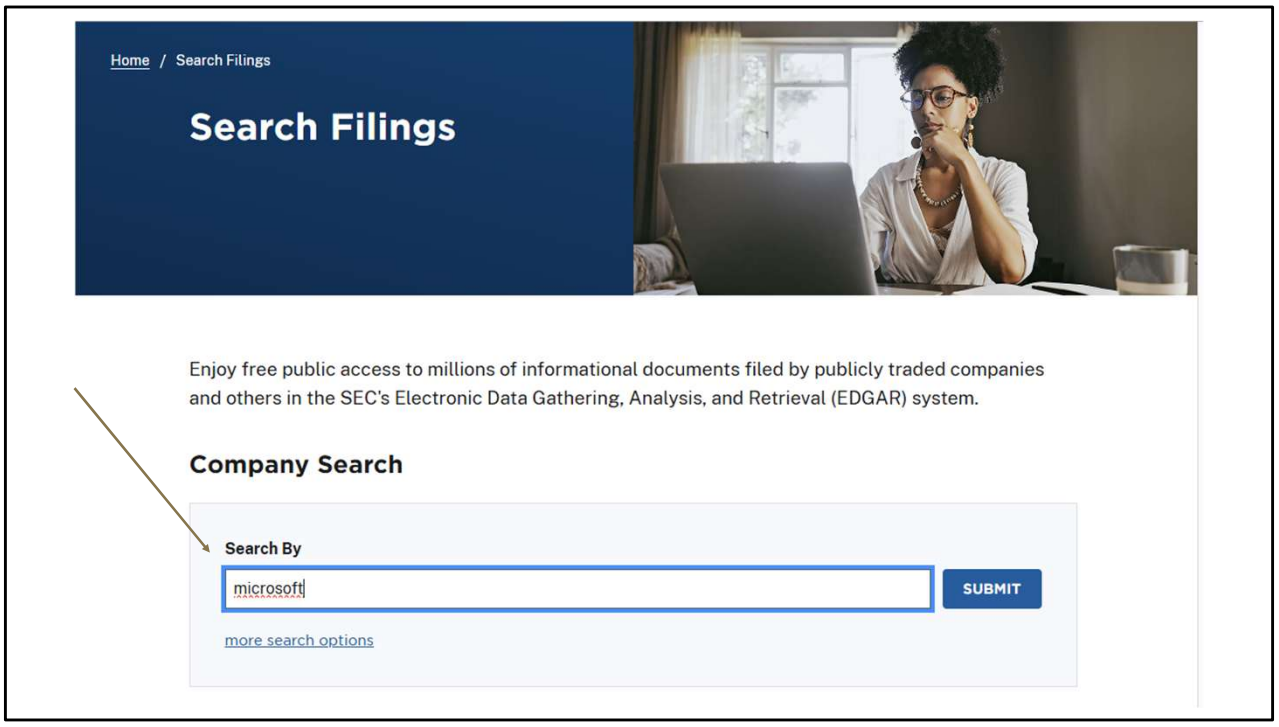
https://data.sec.gov/api/xbrl/companyfacts/CIK0000789460.json

A JSON Record for “shares” which is a list, nested within the “units” dictionary, nested within the EntityCommonSharesOutstanding dictionary, nested within the “dei” dictionary, nested within the “facts” dictionary in the JSON file returned by the API “CIK0000789460.json”

XBRL Filings

Use the EDGAR Search Tool

- SEC.gov | Search Filings (www.sec.gov/search-filings).
- Obtain the most recent 10-K of your target company.
- Access the **XBRL instance** of the 10-K.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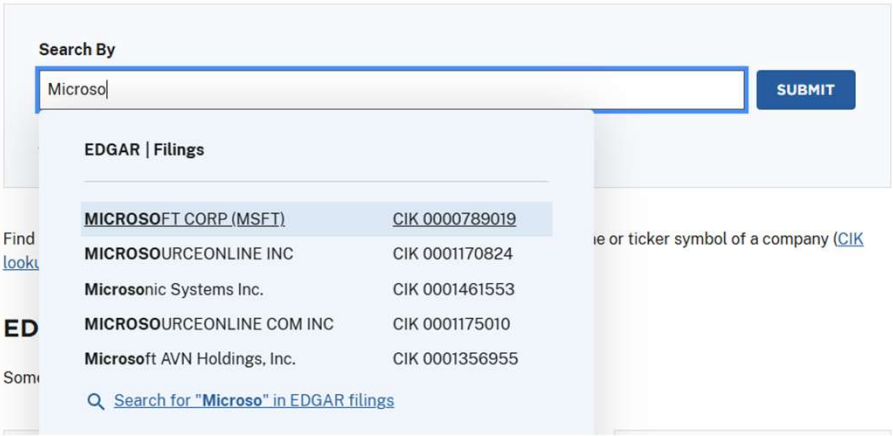
SUBMIT
more search options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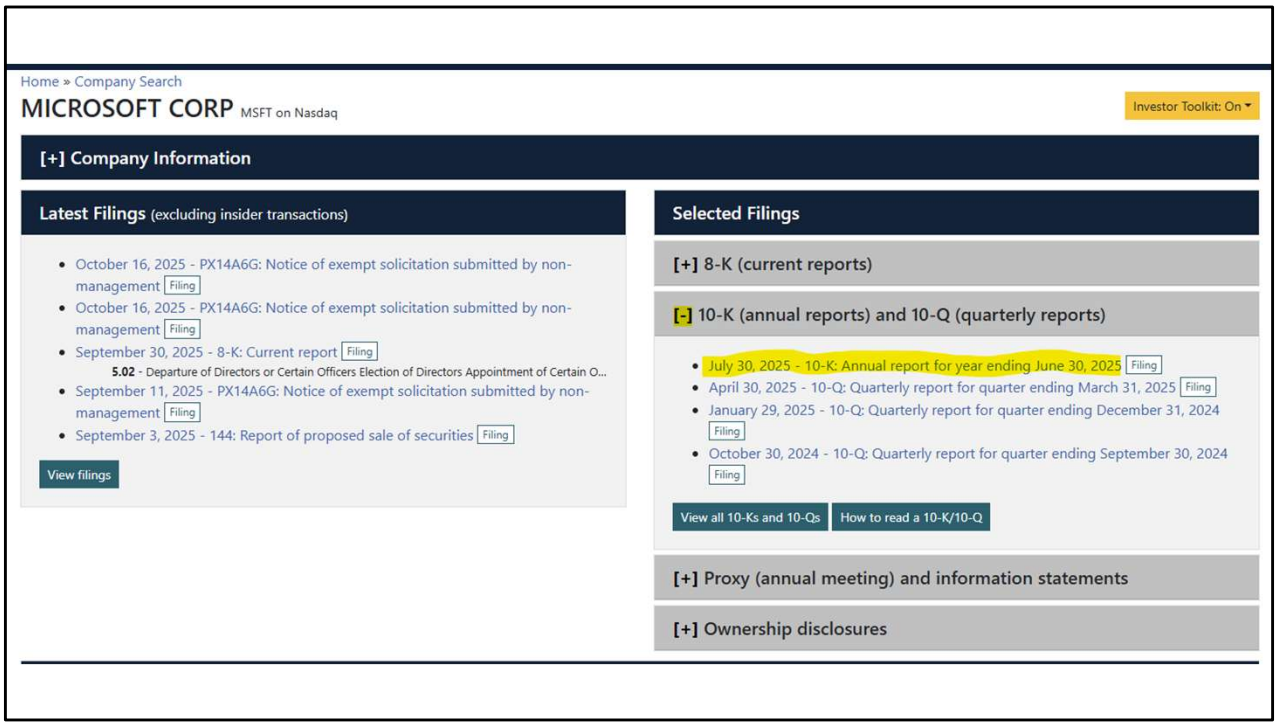
Microsonic Systems Inc. CIK 0001461553
MICROSOURCEONLINE COM INC CIK 0001175010
Microsoft AVN Holdings, Inc. CIK 0001356955
Search for "Microso" in EDGAR filings


Home » Company Search
MICROSOFT CORP MSFT on Nasdaq
Investor Toolkit: On
[+] Company Information
Latest Filings (excluding insider transactions)
October 16, 2025 - PX14A6G: Notice of exempt solicitation submitted by non-management Filing
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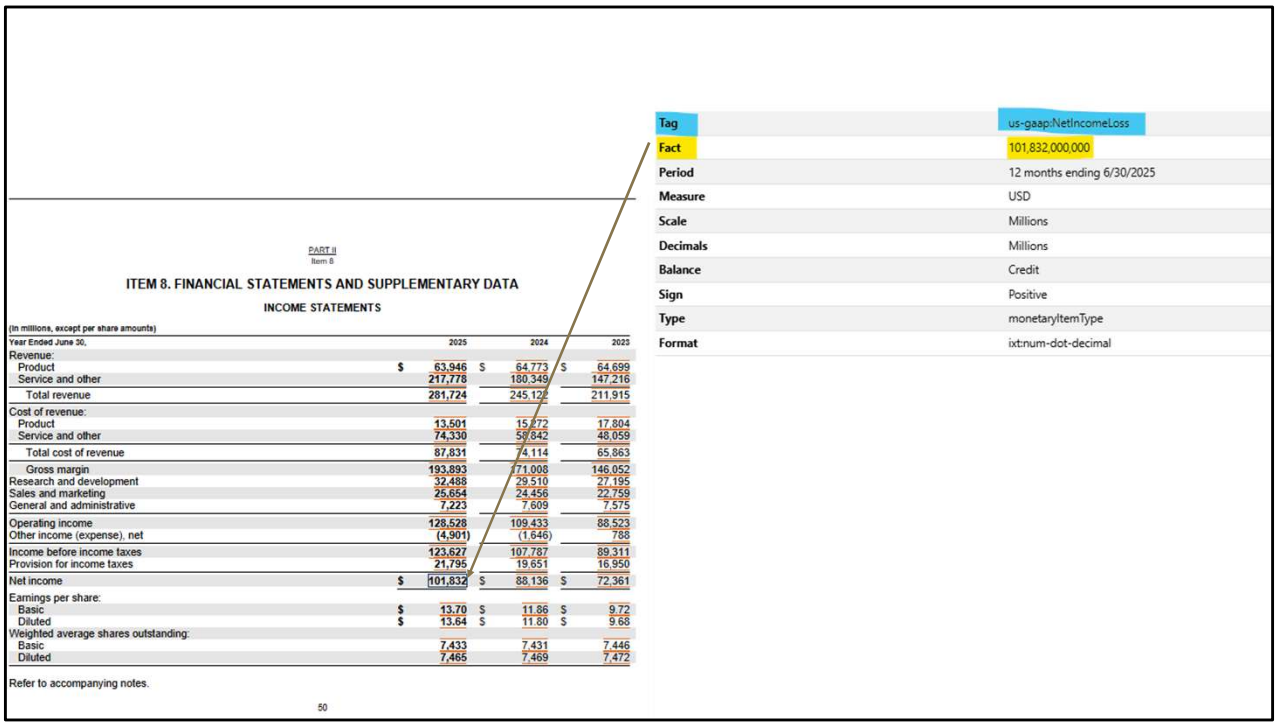
September 30, 2025 - 8-K: Current report Filing
5.02 - Departure of Directors or Certain Officers Election of Directors Appointment of Certain O...
September 11, 2025 - PX14A6G: Notice of exempt solicitation submitted by non-management Filing
September 3, 2025 - 144: Report of proposed sale of securities Filing
View filings
Selected Filings
[+] 8-K (current reports)
[-] 10-K (annual reports) and 10-Q (quarterly reports)
July 30, 2025 - 10-K: Annual report for year ending June 30, 2025 Filing
April 30, 2025 - 10-Q: Quarterly report for quarter ending March 31, 2025 Filing
January 29, 2025 - 10-Q: Quarterly report for quarter ending December 31, 2024 Filing
October 30, 2024 - 10-Q: Quarterly report for quarter ending September 30, 2024 Filing
View all 10-Ks and 10-Qs
How to read a 10-K/10-Q
[+] Proxy (annual meeting) and information statements
[+] Ownership disclosures



PART II
Item 8

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

INCOME STATEMENTS

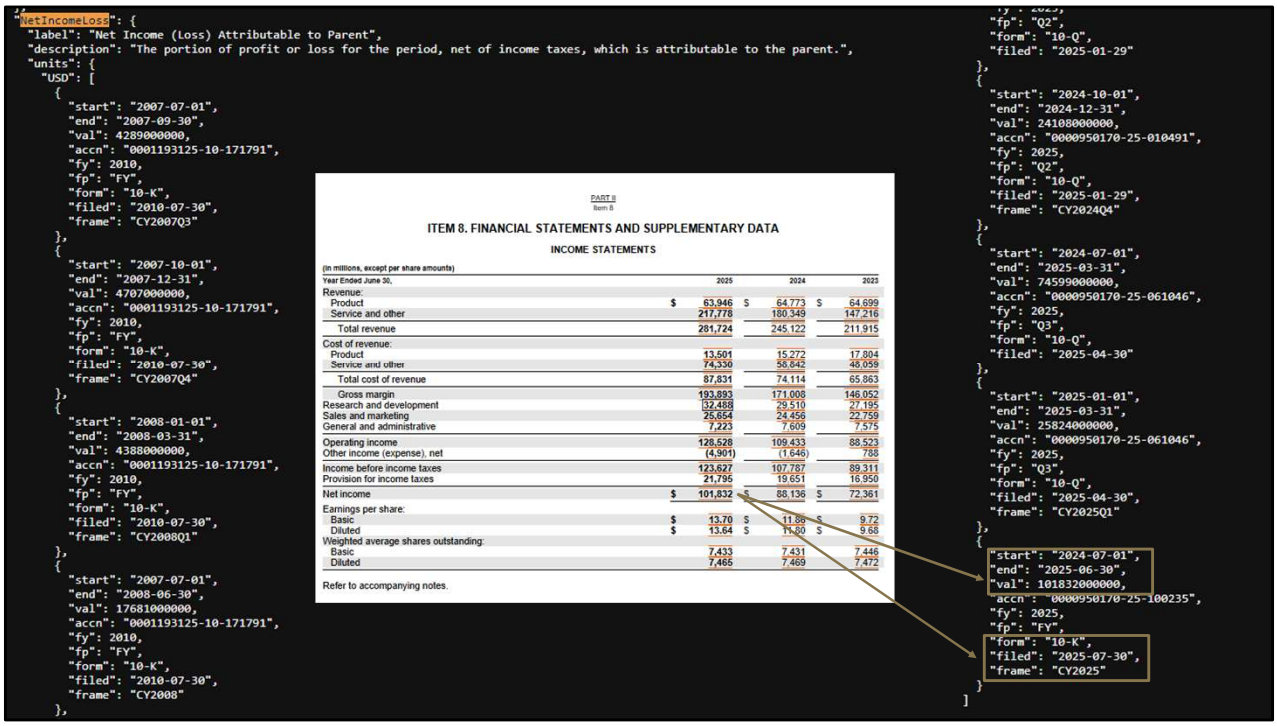
(In millions, except per share amounts)

Year Ended June 30,	2025	2024	2023
Revenue:			
Product	$ 63,946	$ 64,773	$ 64,699
Service and other	217,778	180,349	147,216
Total revenue	281,724	245,122	211,915
Cost of revenue:			
Product	13,501	15,272	17,804
Service and other	74,330	58,842	48,059
Total cost of revenue	87,831	74,114	65,863
Gross margin	193,893	171,008	146,052
Research and development	32,488	29,510	27,195
Sales and marketing	25,654	24,456	22,759
General and administrative	7,223	7,609	7,575
Operating income	128,528	109,433	88,523
Other income (expense), net	(4,901)	(1,646)	788
Income before income taxes	123,627	107,787	89,311
Provision for income taxes	21,795	19,651	16,950
Net income	$ 101,832	$ 88,136	$ 72,361
Earnings per share:			
Basic	$ 13.70	$ 11.86	$ 9.72
Diluted	$ 13.64	$ 11.80	$ 9.68
Weighted average shares outstanding:			
Basic	7,433	7,431	7,446
Diluted	7,465	7,469	7,472

Refer to accompanying notes.

50

Tag	us-gaap:NetIncomeLoss
Fact	101,832,000,000
Period	12 months ending 6/30/2025
Measure	USD
Scale	Millions
Decimals	Millions
Balance	Credit
Sign	Positive
Type	monetaryItemType
Format	ixt:num-dot-decimal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Refer to accompanying notes.
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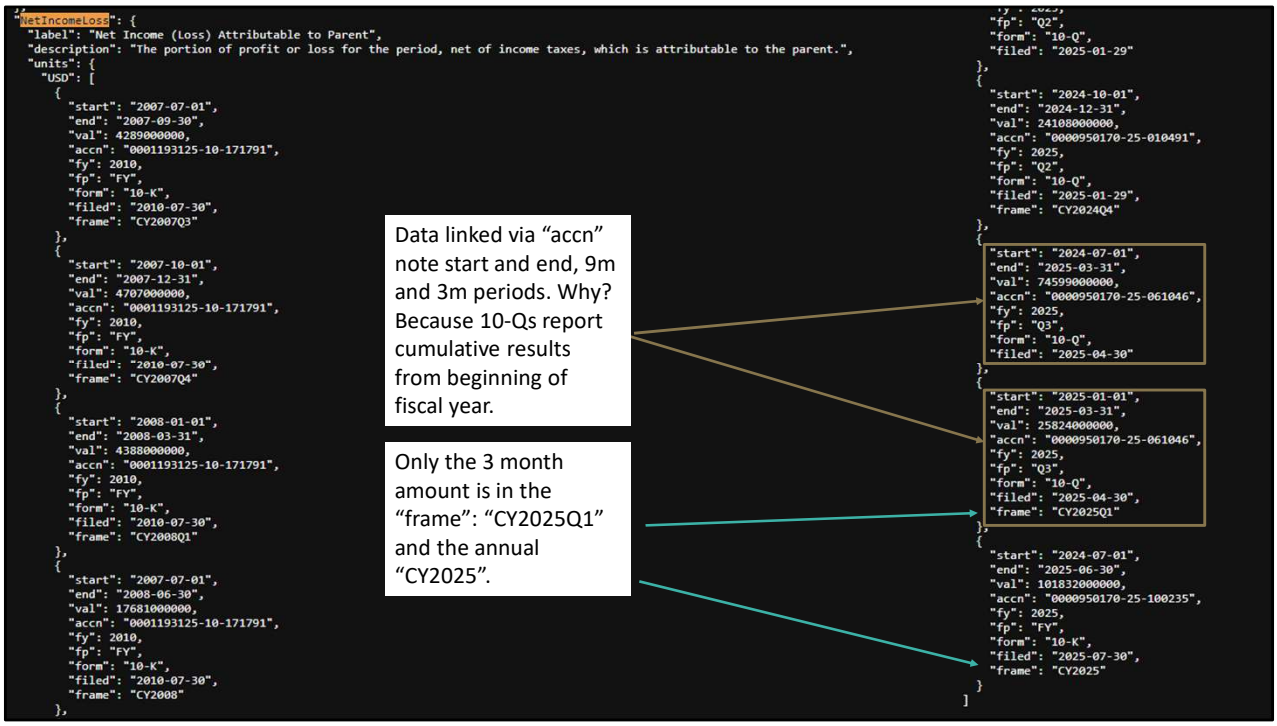
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]
Data linked via “accn” note start and end, 9m and 3m periods. Why? Because 10-Qs report cumulative results from beginning of fiscal year.
Only the 3 month amount is in the “frame”: “CY2025Q1” and the annual “CY2025”.

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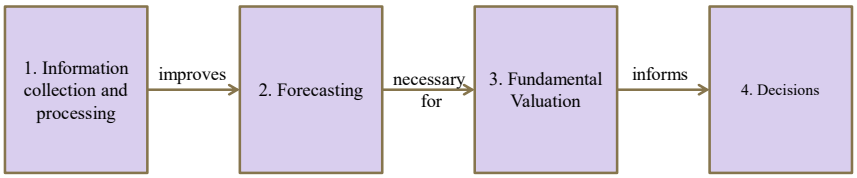
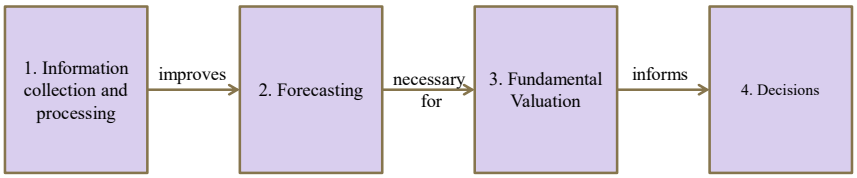
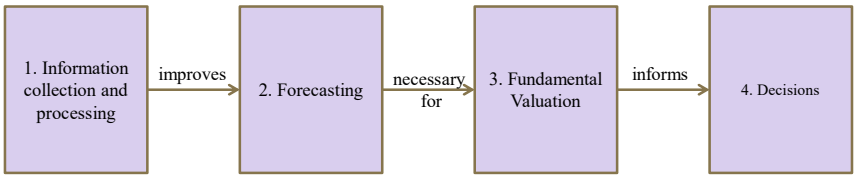


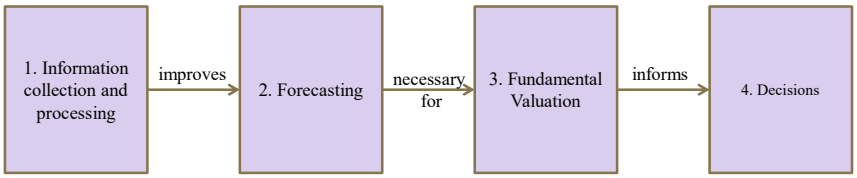
1. Information collection and processing:
    1. Screening enhancements: What are the limitations of the current screening tools? Do you want to screen on custom metrics? (e.g., accruals quality, sentiment)
    2. Account-level refinements: What are the limitations of the current data aggregators groupings? Do you want more disaggregated data for risk assessments and forecasts? (e.g., multiple revenue streams and COS aggregated into single line items)
        1. XBRL tagging often includes company specific tags referenced by the company's ticker.
        2. Footnote analysis can also be possible with XBRL tags
    3. 10-K Text Analytics:
        1. Sentiment analysis (usually MD&A)
        2. Risk section analysis
        3. Keyword searches
        4. LLM interpretations/summaries.



2. Forecasting
    1. More advanced analytics such as time-series estimates / forecasts (regression-based, ARIMA, ML models), cointegration or comovement analysis.
    2. Formal forecasting models (e.g., revenue driver models: Same store sales, revenue per sq ft etc).



3. Fundamental Valuation
    1. Advanced scenario analysis supported by macros / automation, allowing for changes in multiple forecasting dimensions used in the valuation model to estimate scenarios and sensitivity.
    2. Advanced analytics aimed at estimated risks and growth parameters.



4. Decisions / Recommendations
    1. Support recommendations with additional analytics supported risk analysis.
    2. Support decisions with beta / market comovement analysis and potential for slippage.
    3. Support decisions with other red-flag and future-looking issues that could affect short and long differently (i.e., not just the overall market changes).

Alteryx (and other software) practicalities

Advanced Alteryx functionality includes:

1. Macros
2. Python integration

Both are complex and have Alteryx specific “features” that don’t extend as well as their typical tools to other software. Don’t overspend your time – ask me for help once you have an analysis in mind.

Preliminary proposal meetings

Next Monday:

- Meet with me one-on-one at a specific time for up to 15 mins.
- Make sure you have an idea in mind as to what you want to achieve for the final project, and any other questions you have for your team's approach/understanding.


Thank you!
Burke