

Pesseract

Knowledge Graph of Microsoft 10-K Demonstration

For more information and details see: <http://xbrl.squarespace.com/journal/2021/7/12/knowledge-graph-of-microsoft-10-k-financial-report.html>

To understand this, it is helpful to understand the METHOD that is applied so that financial report quality can be controlled and therefore guaranteed. The method helps you understand WHY you see the things you see:

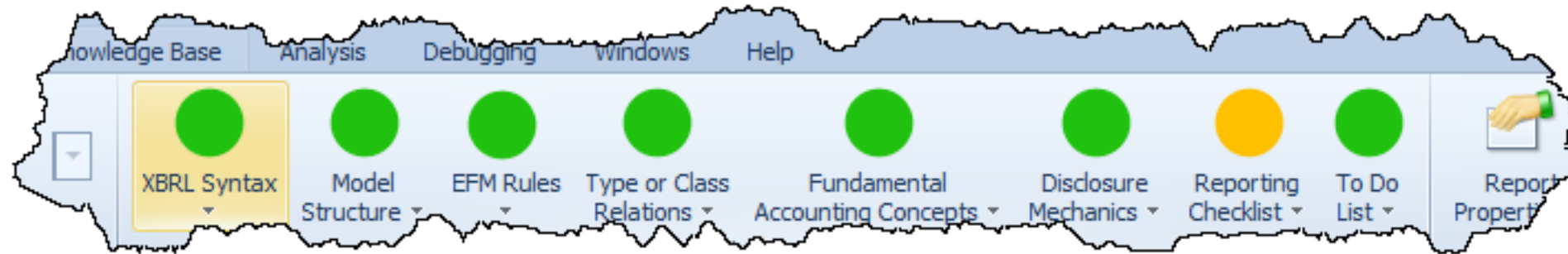
Method Overview: <http://accounting.auditchain.finance/framework/MethodOverview.pdf>

Pesseract is a locally installable application that has a logic/rules/reasoning engine:

C:\Users\Charlie\Documents\CurrentVersions\MASTER-1111-Microsoft\reference-implementation\msft-20170630.xml

Pesseract

Dashboard:

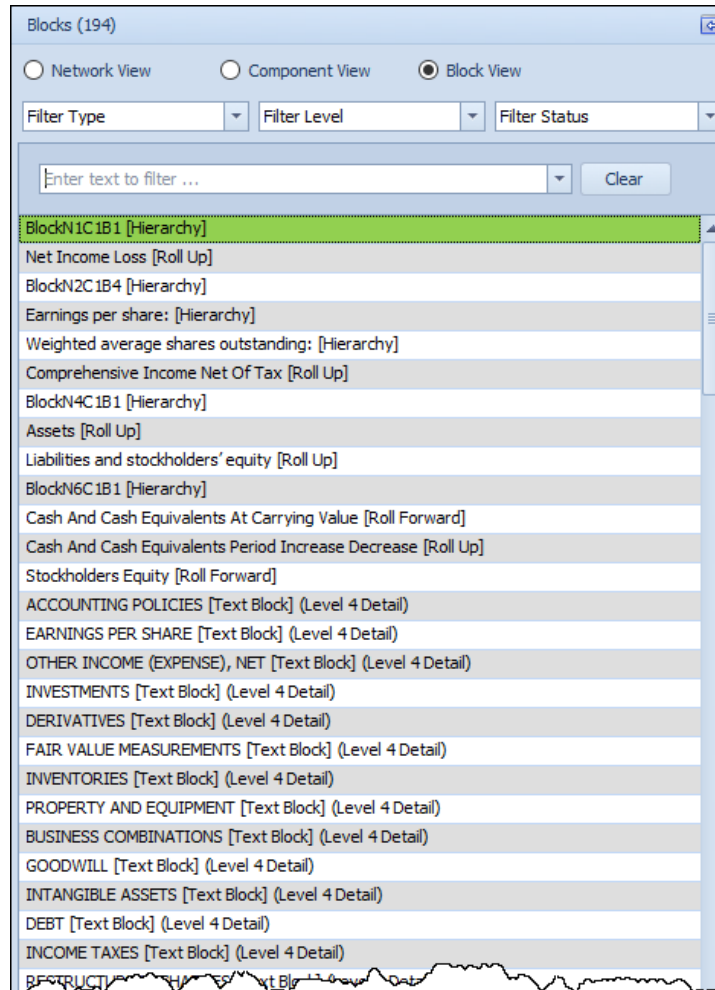


Line	Type	Message ID	Message	Location
61	Info	Report.Validation.ReportingChecklist	Reporting Checklist Validation: please see messages as there are errors/warnings.	Filename: msft-20170630.xml
60	Inconsistency	Report.Validation.ReportingChecklist	There is an reporting checklist inconsistency related to disclosure 'disclosures:NatureOfOperations'.	disclosures:NatureOfOperations
59	Info	Report.Validation.DisclosureMechanics	Disclosure Semantic Validation: Validated successfully.	Filename: msft-20170630.xml
58	Info	Report.Validation.FundamentalAccountingConcepts	Fundamental Accounting Concepts Validation: Validated successfully.	Filename: msft-20170630.xml
57	Info	Report.Validation.TypeOrClassRelations	TypeOrClassRelations: Validated successfully.	Filename: msft-20170630.xml
56	Info	Report.Validation.ModelStructure	Model Structure Validation: Validated successfully.	Filename: msft-20170630.xml
55	Info	Report.Load	Loading was successful: please see messages as there are errors/warnings.	Filename: msft-20170630.xml
54	Inconsistency	Report.Validation.Math.MemberAggregation	Mathematical computation inconsistency related to memberaggregation with member, us-gaap:EquityComponentDomain	101100 - Disclosure - Summary of Changes in Accumulated Other Comprehensive Income by Component (Detail)

The coloring has meaning, helps you understand the verification report.

Pesseract

Information blocks list:

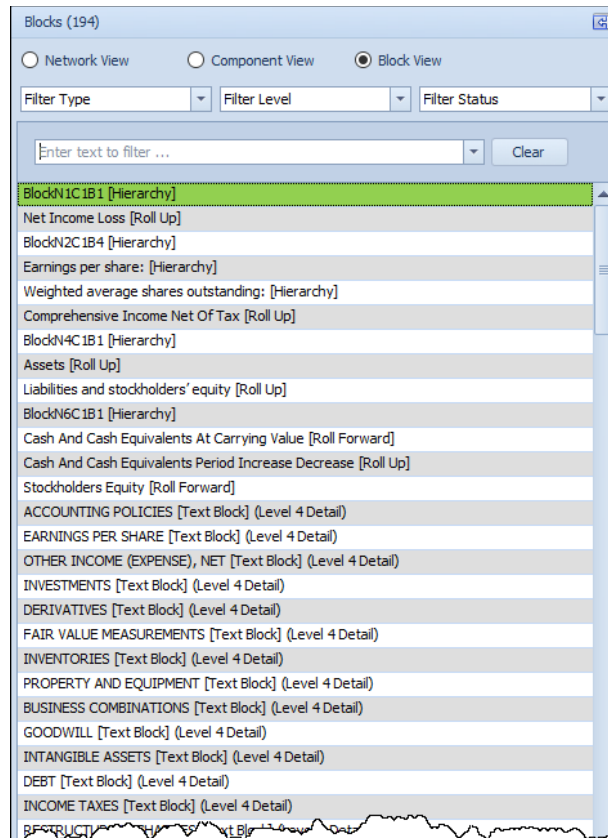


A block is a unit of information. Networks are technical syntax oriented and can be arbitrary. Hypercubes are likewise technical oriented and arbitrary. Individual facts are too small a set for many tasks. Complete networks of facts are too big and arbitrary. An information block is driven by logic rather than arbitrary technical choices. Blocks of information follow logical patterns. The Microsoft 10-K has 194 blocks of information.

Pesseract

Information Blocks Graph:

Pesseract does not have an information block graph of relations; however, the application is linked together and the links can be navigated between the information blocks.



This shows the 194 information blocks that exist in the financial report and the interconnections between those information blocks. An information block is simply a unit of information that exists within a financial report irrespective of where that information was presented. An information block is about the logical, objective representation of information not the subjective choice as to where the information is disclosed.

Pesseract

Disclosures:

Primary Information									
#	Disclosure	Category	Level	Pattern	Disclosure Found	Disclosure Consistent	Applicable	Representation Concept [TEXT BLOCK]	Representation Concept DETAIL
1	Accelerated Share Repurchases [Hierarchy]	Disclosure	Level4Detail	Hierarchy	True	CONSISTENT	True	NOT-EXPECTED	Stock Repurchase Program Authorized Amount1
2	Accumulated Other Comprehensive Income (Loss) [Hierarchy]	Disclosure	Level3TextBlock/Level4Detail	RollForward	True	CONSISTENT	True	Schedule Of Accumulated Other Comprehensive Income Loss Table [Text Block]	Stockholders Equity
3	Assets [Roll Up]	Statement	Level4Detail	RollUp	True	CONSISTENT	True	NOT-EXPECTED	Assets
4	Assumptions Used in Estimating Fair Value of Stock [Hierarchy]	Disclosure	Level4Detail	Hierarchy	True	CONSISTENT	True	NOT-EXPECTED	Share Based Compensation Arrangement By Share Based Payment Award Fair Value Assumptions Risk Free Interest Rate...
5	Balance Sheet	Statement	Level4Detail	Component	True	CONSISTENT	True	-	-
6	Balance Sheet, Parenthetical, by Legal Entity [Hierarchy]	Statement	Level4Detail	Hierarchy	True	CONSISTENT	True	NOT-EXPECTED	Allowance For Doubtful Accounts Receivable Current
7	Basis of Reporting Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Basis Of Accounting Policy [Text Block]	NOT-EXPECTED
8	Business Acquisition, Pro Forma Information [Hierarchy]	Disclosure	Level3TextBlock/Level4Detail	Hierarchy	True	CONSISTENT	True	Business Acquisition Pro Forma Information [Text Block]	Business Acquisitions Pro Forma Revenue
9	Business Acquisitions, by Acquisition [Roll Up]	Disclosure	Level3TextBlock/Level4Detail	RollUp	True	CONSISTENT	True	Schedule Of Business Acquisitions By Acquisition [Text Block]	Business Combination Recognized Identifiable Assets Acquired Goodwill And Liabilities Assumed Net
10	Cash and Cash Equivalents Summary [Roll Forward]	Statement	Level4Detail	RollForward	True	CONSISTENT	True	NOT-EXPECTED	Cash And Cash Equivalents At Carrying Value
11	Cash Flow Statement [Roll Forward]	Statement	Level4Detail	RollUp	True	CONSISTENT	True	NOT-EXPECTED	Cash And Cash Equivalents Period Increase Decrease
12	Commitments Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Commitments Disclosure [Text Block]	NOT-EXPECTED
13	Common Stock Outstanding [Roll Forward]	Disclosure	Level3TextBlock/Level4Detail	RollForward	True	CONSISTENT	True	Schedule Of Common Stock Outstanding Roll Forward Table [Text Block]	Common Stock Shares Outstanding
14	Compensation and Employee Benefit Plans Note [Hierarchy]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Compensation And Employee Benefit Plans [Text Block]	NOT-EXPECTED
15	Compensation Cost for Share-based Payment Arrangements [Roll Up]	Disclosure	Level3TextBlock/Level4Detail	Hierarchy	True	CONSISTENT	True	Schedule Of Compensation Cost For Share Based Payment Arrangements Allocation Of Share Based Compensation Expense	Allocated Share Based Compensation Expense
16	Comprehensive Income (Loss) Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Comprehensive Income Note [Text Block]	NOT-EXPECTED
17	Contingencies Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Legal Matters And Contingencies [Text Block]	NOT-EXPECTED
18	Corporate and Other Operating Income (Loss) Analysis [Roll Up]	Disclosure	Level3TextBlock/Level4Detail	Hierarchy	True	CONSISTENT	True	Reconciliation Of Operating Profit Loss From Segments To Consolidated [Text Block]	Operating Income Loss
19	Cost of Sales Policy [Policy Text Block]	Disclosure	Level2TextBlock	TextBlock	True	CONSISTENT	True	Cost Of Sales Policy [Text Block]	NOT-EXPECTED
20	Debt Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Debt Disclosure [Text Block]	NOT-EXPECTED
21	Deferred Revenue By Segment [Hierarchy]	Disclosure	Level4Detail	Hierarchy	True	CONSISTENT	True	NOT-EXPECTED	Deferred Revenue
22	Deferred Revenue Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Deferred Revenue Disclosure [Text Block]	NOT-EXPECTED
23	Deferred Tax Assets and Liabilities [Roll Up]	Disclosure	Level3TextBlock/Level4Detail	RollUp	True	CONSISTENT	True	Schedule Of Deferred Tax Assets And Liabilities Table [Text Block]	Deferred Tax Assets Liabilities Net
24	Derivative Instruments in Statement of Financial Position [Roll Up]	Disclosure	Level3TextBlock/Level4Detail	RollUp	True	INCONSISTENT	True	Schedule Of Derivative Instruments In Statement Of Financial Position Fair Value [Text Block]	NOT-FOUND
25	Derivative Instruments in Statement of Financial Position [Roll Up]	Disclosure	Level3TextBlock/Level4Detail	Hierarchy	True	INCONSISTENT	True	Schedule Of Derivative Instruments In Statement Of Financial Position Fair Value [Text Block]	NOT-FOUND
26	Derivative Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Derivative Instruments And Hedging Activities Disclosure [Text Block]	NOT-EXPECTED
27	Derivatives Policy [Policy Text Block]	Disclosure	Level2TextBlock	TextBlock	True	CONSISTENT	True	Derivatives Policy [Text Block]	NOT-EXPECTED
28	Dividends Declared [Hierarchy]	Disclosure	Level3TextBlock/Level4Detail	Hierarchy	True	CONSISTENT	True	Dividends Declared Table [Text Block]	Dividends Payable Date Of Record Day Month And Year
29	Dividends Declared Summary [Hierarchy]	Statement	Level4Detail	Hierarchy	True	CONSISTENT	True	NOT-EXPECTED	Common Stock Dividends Per Share Declared
30	Document and Entity Information [Hierarchy]	Document	Level4Detail	Hierarchy	True	CONSISTENT	True	NOT-EXPECTED	Entity Registrant Name
31	Earnings Per Share Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Earnings Per Share [Text Block]	NOT-EXPECTED
32	Earnings Per Share Policy [Policy Text Block]	Disclosure	Level2TextBlock	TextBlock	True	CONSISTENT	True	Earnings Per Share Policy [Text Block]	NOT-EXPECTED
33	Earnings Per Share Summary [Hierarchy]	Statement	Level4Detail	Hierarchy	True	CONSISTENT	True	NOT-EXPECTED	Earnings Per Share Basic
34	Earnings Per Share, Basic and Diluted [Hierarchy]	Disclosure	Level3TextBlock/Level4Detail	Hierarchy	True	CONSISTENT	True	Schedule Of Earnings Per Share Basic And Diluted Table [Text Block]	Earnings Per Share Basic
35	Employee Purchase Shares [Hierarchy]	Disclosure	Level3TextBlock/Level4Detail	Hierarchy	True	CONSISTENT	True	Schedule Of Share Based Compensation Employee Stock Purchase Plan Activity Table [Text Block]	Stock Issued During Period Shares Employee Stock Purchase Plans
36	Employee Stock Ownership Plan (ESOP) Note [Note Level]	Disclosure	Level1TextBlock	TextBlock	True	CONSISTENT	True	Compensation And Employee Benefit Plans [Text Block]	NOT-EXPECTED

Pessera

Reporting checklist:

#	Disclosure	Checklist Category	Reason Disclosure Must Exist	Discovered	Expectation Met	Link to Disclosure Mechanics
0	Reporting Checklist					
1	Document and Entity Information [Hierarchy]	Required disclosure	Disclosure always required	True	CONSISTENT	Document and Entity Information [Hierarchy]
2	Income Statement, by Legal Entity [Roll Up]	Required disclosure	Disclosure always required	True	CONSISTENT	Income Statement, by Legal Entity [Roll Up]
3	Earnings Per Share Summary [Hierarchy]	Possible disclosure	Disclosure is present	True	CONSISTENT	Earnings Per Share Summary [Hierarchy]
4	Weighted Average Shares Summary, Basic and Diluted [Hi...]	Possible disclosure	Disclosure is present	True	CONSISTENT	Weighted Average Shares Summary, Basic and Diluted [Hi...]
5	Dividends Declared Summary [Hierarchy]	Possible disclosure	Disclosure is present	True	CONSISTENT	Dividends Declared Summary [Hierarchy]
6	Income Statement, Parenthetical, by Legal Entity [Hierarc...]	Possible disclosure	Disclosure is NOT present	False	N/A	Income Statement, Parenthetical, by Legal Entity [Hierarc...]
7	Statement of Comprehensive Income [Roll Up]	Required disclosure	Disclosure always required	True	CONSISTENT	Statement of Comprehensive Income [Roll Up]
8	Statement of Comprehensive Income Parenthetical [Hierar...]	Possible disclosure	Disclosure is present	True	CONSISTENT	Statement of Comprehensive Income Parenthetical [Hierar...]
9	Balance Sheet	Required disclosure	Disclosure always required, satisfied by Assets [Roll Up] a...	True	CONSISTENT	Balance Sheet
10	Assets [Roll Up]	Part of disclosure	Satisfies Balance Sheet disclosure	True	CONSISTENT	Assets [Roll Up]
11	Liabilities and Equity [Roll Up]	Part of disclosure	Satisfies Balance Sheet disclosure	True	CONSISTENT	Liabilities and Equity [Roll Up]
12	Balance Sheet, Parenthetical, by Legal Entity [Hierarchy]	Possible disclosure	Disclosure is present	True	CONSISTENT	Balance Sheet, Parenthetical, by Legal Entity [Hierarchy]
13	Cash Flow Statement [Roll Forward]	Required disclosure	Disclosure always required	True	CONSISTENT	Cash Flow Statement [Roll Forward]
14	Cash and Cash Equivalents Summary [Roll Forward]	Possible disclosure	Disclosure is present	True	CONSISTENT	Cash and Cash Equivalents Summary [Roll Forward]
15	Statement of Changes in Equity [Roll Forward]	Required disclosure	Disclosure always required	True	CONSISTENT	Statement of Changes in Equity [Roll Forward]
16	Significant Accounting Policies Note [Note Level]	Required disclosure	Disclosure always required	True	CONSISTENT	Significant Accounting Policies Note [Note Level]
17	Earnings Per Share Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Earnings Per Share Note [Note Level]
18	Other Nonoperating Income and Expense Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Other Nonoperating Income and Expense Note [Note Level]
19	Investments in Debt and Equity Instruments, Cash And C...	Possible disclosure	Disclosure is present	True	CONSISTENT	Investments in Debt and Equity Instruments, Cash And C...
20	Derivative Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Derivative Note [Note Level]
21	Fair Value Measurements Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Fair Value Measurements Note [Note Level]
22	Inventory Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Inventory Note [Note Level]
23	Property, Plant and Equipment Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Property, Plant and Equipment Note [Note Level]
24	Mergers, Acquisitions and Dispositions Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Mergers, Acquisitions and Dispositions Note [Note Level]
25	Goodwill Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Goodwill Note [Note Level]
26	Intangible Assets Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Intangible Assets Note [Note Level]
27	Debt Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Debt Note [Note Level]
28	Income Tax Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Income Tax Note [Note Level]
29	Restructuring and Related Activities Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Restructuring and Related Activities Note [Note Level]
30	Deferred Revenue Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Deferred Revenue Note [Note Level]
31	Commitments Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Commitments Note [Note Level]
32	Contingencies Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Contingencies Note [Note Level]
33	Stockholders Equity Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Stockholders Equity Note [Note Level]
34	Comprehensive Income (Loss) Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Comprehensive Income (Loss) Note [Note Level]
35	Employee Stock Ownership Plan (ESOP) Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Employee Stock Ownership Plan (ESOP) Note [Note Level]
36	Segment Reporting Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Segment Reporting Note [Note Level]
37	Quarterly Financial Information Note [Note Level]	Possible disclosure	Disclosure is present	True	CONSISTENT	Quarterly Financial Information Note [Note Level]
38	Nature of Operations Note [Note Level]	Required disclosure	Disclosure always required	True	CONSISTENT	Nature of Operations Note [Note Level]

Pesseract

Logical derivations:

Entity	Period	ID	Test	Result	Amount Of Inconsistency	Evaluation
0000789019	2017-FY	FAC_CONSISTENCY_1	fac:Equity = (fac:EquityAttributableToParent + fac:EquityAttributableToNoncontrollingInterest)	True	0	fac:Equity[72,394,000,000] = (fac:EquityAttributableToParent[us-gaap:StockholdersEquity[72,394,000,000]] + fac:EquityAttributableToNoncontrollingInterest[0])
0000789019	2017-FY	FAC_CONSISTENCY_10	fac:NetCashFlowFromInvestingActivities = (fac:NetCashFlowFromInvestingActivitiesContinuing + fac:NetCashFlowFromInvestingActivitiesDiscontinued)	True	0	fac:NetCashFlowFromInvestingActivities[46,781,000,000] = (fac:NetCashFlowFromInvestingActivitiesContinuing[us-gaap:NetCashProvidedByUsedInInvestingActivitiesContinuingOperations[46,781,000,000]] + fac:NetCashFlowFromInvestingActivitiesDiscontinued[0])
0000789019	2017-FY	FAC_CONSISTENCY_11	fac:NetCashFlowFromFinancingActivities = (fac:NetCashFlowFromFinancingActivitiesContinuing + fac:NetCashFlowFromFinancingActivitiesDiscontinued)	True	0	fac:NetCashFlowFromFinancingActivities[8,408,000,000] = (fac:NetCashFlowFromFinancingActivitiesContinuing[us-gaap:NetCashProvidedByUsedInFinancingActivitiesContinuingOperations[8,408,000,000]] + fac:NetCashFlowFromFinancingActivitiesDiscontinued[0])
0000789019	2017-FY	FAC_CONSISTENCY_12	fac:GrossProfit = (fac:Revenues - fac:CostOfRevenue)	True	0	fac:GrossProfit[us-gaap:GrossProfit[55,689,000,000]] = (fac:Revenues[us-gaap:SalesRevenueNet[89,950,000,000]] - fac:CostOfRevenue[us-gaap:CostOfRevenue[34,261,000,000]])
0000789019	2017-FY	FAC_CONSISTENCY_13	fac:OperatingIncomeLoss = (fac:GrossProfit - fac:OperatingExpenses)	True	0	fac:OperatingIncomeLoss[us-gaap:OperatingIncomeLoss[22,326,000,000]] = (fac:GrossProfit[us-gaap:GrossProfit[55,689,000,000]] - fac:OperatingExpenses[33,363,000,000])
0000789019	2017-FY	FAC_CONSISTENCY_15	fac:IncomeLossFromContinuingOperationsBeforeTax = (fac:OperatingIncomeLoss + fac:NonoperatingIncomePlusInterestAndDebtExpensePlusIncomeFromEquityMethodInvestments)	True	0	fac:IncomeLossFromContinuingOperationsBeforeTax[us-gaap:IncomeLossFromContinuingOperationsBeforeIncomeTaxesMinorityInterestAndIncomeLossFromEquityMethodInvestments[23,149,000,000]] = (fac:OperatingIncomeLoss[us-gaap:OperatingIncomeLoss[22,326,000,000]] + fac:NonoperatingIncomePlusInterestAndDebtExpensePlusIncomeFromEquityMethodInvestments[823,000,000])
0000789019	2017-FY	FAC_CONSISTENCY_16	fac:IncomeLossFromContinuingOperationsAfterTax = (fac:IncomeLossFromContinuingOperationsBeforeTax - fac:IncomeTaxExpenseBenefit)	True	0	fac:IncomeLossFromContinuingOperationsAfterTax[21,204,000,000] = (fac:IncomeLossFromContinuingOperationsBeforeTax[us-gaap:IncomeLossFromContinuingOperationsBeforeIncomeTaxesMinorityInterestAndIncomeLossFromEquityMethodInvestments[23,149,000,000]] - fac:IncomeTaxExpenseBenefit[us-gaap:IncomeTaxExpenseBenefit[1,945,000,000]])
0000789019	2017-FY	FAC_CONSISTENCY_17	fac:NetIncomeLoss = (fac:IncomeLossFromContinuingOperationsAfterTax + fac:IncomeLossFromDiscontinuedOperationsNetOfTax + fac:ExtraordinaryItemsOfIncomeExpenseNetOfTax)	True	0	fac:NetIncomeLoss[21,204,000,000] = (fac:IncomeLossFromContinuingOperationsAfterTax[21,204,000,000] + fac:IncomeLossFromDiscontinuedOperationsNetOfTax[0] + fac:ExtraordinaryItemsOfIncomeExpenseNetOfTax[0])
0000789019	2017-FY	FAC_CONSISTENCY_18	fac:NetIncomeLoss = (fac:NetIncomeLossAttributableToParent + fac:NetIncomeLossAttributableToNoncontrollingInterest)	True	0	fac:NetIncomeLoss[21,204,000,000] = (fac:NetIncomeLossAttributableToParent[us-gaap:NetIncomeLoss[21,204,000,000]] + fac:NetIncomeLossAttributableToNoncontrollingInterest[0])
0000789019	2017-FY	FAC_CONSISTENCY_19	fac:NetIncomeLossAvailableToCommonStockholdersBasic = (fac:NetIncomeLossAttributableToParent - fac:PreferredStockDividendsAndOtherAdjustments)	True	0	fac:NetIncomeLossAvailableToCommonStockholdersBasic[21,204,000,000] = (fac:NetIncomeLossAttributableToParent[us-gaap:NetIncomeLoss[21,204,000,000]] - fac:PreferredStockDividendsAndOtherAdjustments[0])
0000789019	2017-FY	FAC_CONSISTENCY_2	fac:Assets = fac:LiabilitiesAndEquity	True	0	fac:Assets[us-gaap:Assets[241,086,000,000]] = fac:LiabilitiesAndEquity[us-gaap:LiabilitiesAndStockholdersEquity[241,086,000,000]]
0000789019	2017-FY	FAC_CONSISTENCY_20	fac:ComprehensiveIncomeLoss = (fac:ComprehensiveIncomeLossAttributableToParent + fac:ComprehensiveIncomeLossAttributableToNoncontrollingInterest)	True	0	fac:ComprehensiveIncomeLoss[20,098,000,000] = (fac:ComprehensiveIncomeLossAttributableToParent[us-gaap:ComprehensiveIncomeLossAttributableToParent[20,098,000,000]] + fac:ComprehensiveIncomeLossAttributableToNoncontrollingInterest[0])
0000789019	2017-FY	FAC_CONSISTENCY_21	fac:ComprehensiveIncomeLoss = (fac:NetIncomeLoss + fac:OtherComprehensiveIncomeLoss)	True	0	fac:ComprehensiveIncomeLoss[20,098,000,000] = (fac:NetIncomeLoss[21,204,000,000] + fac:OtherComprehensiveIncomeLoss[(1,106,000,000)])
0000789019	2017-FY	FAC_CONSISTENCY_3	fac:Assets = (fac:CurrentAssets + fac:NoncurrentAssets)	True	0	fac:Assets[us-gaap:Assets[241,086,000,000]] = (fac:CurrentAssets[us-gaap:AssetsCurrent[159,851,000,000]] + fac:NoncurrentAssets[81,235,000,000])
0000789019	2017-FY	FAC_CONSISTENCY_4	fac:Liabilities = (fac:CurrentLiabilities + fac:NoncurrentLiabilities)	True	0	fac:Liabilities[us-gaap:Liabilities[168,692,000,000]] = (fac:CurrentLiabilities[us-gaap:LiabilitiesCurrent[64,527,000,000]] + fac:NoncurrentLiabilities[104,165,000,000])
0000789019	2017-FY	FAC_CONSISTENCY_5	fac:LiabilitiesAndEquity = (fac:Liabilities + fac:CommitmentsAndContingencies + fac:TemporaryEquity + fac:Equity)	True	0	fac:LiabilitiesAndEquity[us-gaap:LiabilitiesAndStockholdersEquity[241,086,000,000]] = (fac:Liabilities[us-gaap:Liabilities[168,692,000,000]] + fac:CommitmentsAndContingencies[us-gaap:CommitmentsAndContingencies[]] + fac:TemporaryEquity[0] + fac:Equity[72,394,000,000])
0000789019	2017-FY	FAC_CONSISTENCY_50	fac:NetCashFlow = (fac:NetCashFlowContinuing + fac:NetCashFlowDiscontinued + fac:ExchangeGainsLosses)	True	0	fac:NetCashFlow[us-gaap:CashAndCashEquivalentsPeriodIncreaseDecrease[1,153,000,000]] = (fac:NetCashFlowContinuing[1,134,000,000] + fac:NetCashFlowDiscontinued[0] + fac:ExchangeGainsLosses[us-gaap:EffectOfExchangeRateOnCashAndCashEquivalents[19,000,000]])
0000789019	2017-FY	FAC_CONSISTENCY_6	fac:NetCashFlow = (fac:NetCashFlowFromOperatingActivities + fac:NetCashFlowFromInvestingActivities + fac:NetCashFlowFromFinancingActivities)	True	0	fac:NetCashFlow[us-gaap:CashAndCashEquivalentsPeriodIncreaseDecrease[1,153,000,000]] = (fac:NetCashFlowFromOperatingActivities[39,507,000,000] + fac:NetCashFlowFromInvestingActivities[46,781,000,000] + fac:NetCashFlowFromFinancingActivities[8,408,000,000])
0000789019	2017-FY	FAC_CONSISTENCY_7	fac:NetCashFlowContinuing = (fac:NetCashFlowFromOperatingActivitiesContinuing + fac:NetCashFlowFromInvestingActivitiesContinuing + fac:NetCashFlowFromFinancingActivitiesContinuing)	True	0	fac:NetCashFlowContinuing[1,134,000,000] = (fac:NetCashFlowFromOperatingActivitiesContinuing[us-gaap:NetCashProvidedByUsedInOperatingActivitiesContinuingOperations[39,507,000,000]] + fac:NetCashFlowFromInvestingActivitiesContinuing[us-gaap:NetCashProvidedByUsedInInvestingActivitiesContinuingOperations[46,781,000,000]] + fac:NetCashFlowFromFinancingActivitiesContinuing[us-gaap:NetCashProvidedByUsedInFinancingActivitiesContinuingOperations[8,408,000,000]])
0000789019	2017-FY	FAC_CONSISTENCY_8	fac:NetCashFlowDiscontinued = (fac:NetCashFlowFromOperatingActivitiesDiscontinued + fac:NetCashFlowFromInvestingActivitiesDiscontinued + fac:NetCashFlowFromFinancingActivitiesDiscontinued)	True	0	fac:NetCashFlowDiscontinued[0] = (fac:NetCashFlowFromOperatingActivitiesDiscontinued[0] + fac:NetCashFlowFromInvestingActivitiesDiscontinued[0] + fac:NetCashFlowFromFinancingActivitiesDiscontinued[0])
0000789019	2017-FY	FAC_CONSISTENCY_9	fac:NetCashFlowFromOperatingActivities = (fac:NetCashFlowFromOperatingActivitiesContinuing + fac:NetCashFlowFromOperatingActivitiesDiscontinued)	True	0	fac:NetCashFlowFromOperatingActivities[39,507,000,000] = (fac:NetCashFlowFromOperatingActivitiesContinuing[us-gaap:NetCashProvidedByUsedInOperatingActivitiesContinuingOperations[39,507,000,000]] + fac:NetCashFlowFromOperatingActivitiesDiscontinued[0])

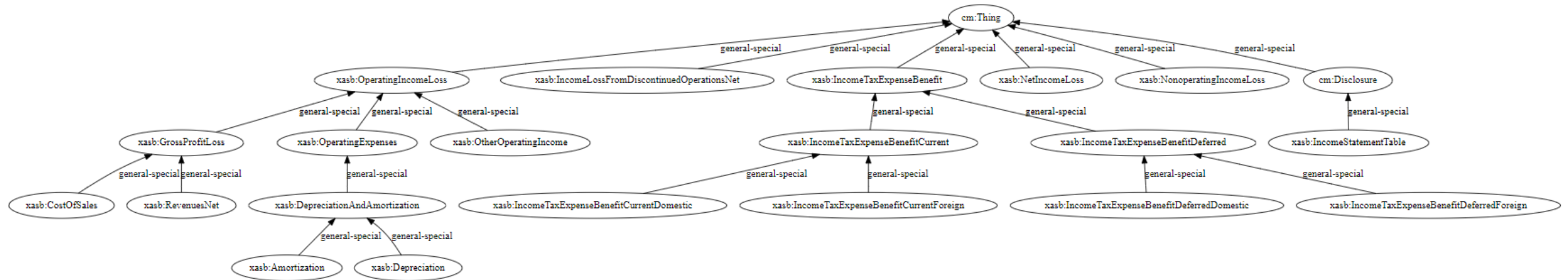
Fact Characteristics and Properties		
Properties	Occurrences	To Do
fac:CostOfRevenue[us-gaap:CostOfRevenue[34,261,000,000]]		
Fact origin:		
1	us-gaap:CostOfRevenue	34,261,000,000
2	us-gaap:CostOfGoodsAndServicesSold	-
3	us-gaap:CostOfServices	-
4	us-gaap:CostOfGoodsSold	15,175,000,000
5	us-gaap:CostOfGoodsSoldExcludingDepreciationDepletionAndAmortization	-
6	us-gaap:CostOfGoodsSoldElectric	-
7	us-gaap:DirectOperatingCosts	-
8	us-gaap:CostOfGoodsSoldOilAndGas	-
9	us-gaap:FinancialServicesCosts	-
10	us-gaap:ContractRevenueCost	-
11	us-gaap:CostOfRealEstateRevenue	-
12	us-gaap:RefiningAndMarketingCosts	-
13	us-gaap:CostOfNaturalGasPurchases	-
14	us-gaap:CostOfGoldProductsAndServices	-
15	us-gaap:CostOfRealEstateSales	-
16	us-gaap:CostOfMerchandiseSalesBuyingAndOccupancyCosts	-
17	us-gaap:CostOfServicesExcludingDepreciationDepletionAndAmortization	-
18	us-gaap:CostOfServicesOilAndGas	-
19	us-gaap:CostOfGoodsSoldDirectMaterials	-
20	us-gaap:ExplorationExpenseMining	-
21	us-gaap:DirectCostsOfHotels	-
22	us-gaap:TechnologyServicesCosts	-

New facts are derived from existing facts per rules of deductive reasoning.

Pesseract

Types and subtypes (a.k.a. wider-narrower associations):

Pesseract takes an incorrect approach for verifying type-subtype relations (as does XBRL Cloud); rules that show **NEGATIVE** information is used. This is a bad approach, a better approach is to document **ALLOWED** type-subtype associations.



Pesseract

Term detail:

The screenshot shows a window titled 'Report Element Properties' with a close button in the top right corner. The window has several tabs: 'Properties', 'Labels', 'References', 'Occurrences', and 'To Do'. The 'Properties' tab is active. The content is organized into sections: 'Report Standard Label' and 'Base Standard Label' at the top, followed by 'Documentation', then a section for 'Properties', and finally a section for 'Other'.

Report Element Properties	
Report Standard Label	Sales Revenue Net
Base Standard Label	Revenue, Net
Documentation	Total revenue from sale of goods and services rendered during the reporting period, in the normal course of business, reduced by sales returns and allowances, and sales discounts.
Properties	
Class	[Concept] Monetary
Prefix	us-gaap
Name	us-gaap:SalesRevenueNet
Other	
Balance Type	Credit
Period Type	For Period (duration)
Data Type	Monetary (xbrli:monetaryItemType)
ID	us-gaap_SalesRevenueNet

NOTE that additional documentation, references, commentary, and other information can be added to the knowledge graph by simply adding a reference to an XBRL linkbase containing that information to the script run by Pacioli.

Pesseract

Facts list (list of individual facts):

The screenshot shows a dialog box titled "Facts (2235)". On the left, there is a list of facts under the heading "Members:". The first fact is highlighted in green. On the right, there is a detailed view of the selected fact, showing its name, value, and context, along with a table of properties.

Members:

- name: AmendmentFlag | value: false | context: C_0000789019_20160701_20170630 |
- name: CurrentFiscalYearEndDate | value: --06-30 | context: C_0000789019_20160701_20170630 |
- name: DocumentFiscalPeriodFocus | value: FY | context: C_0000789019_20160701_20170630 |
- name: DocumentFiscalYearFocus | value: 2017 | context: C_0000789019_20160701_20170630 |
- name: DocumentPeriodEndDate | value: 2017-06-30 | context: C_0000789019_20160701_20170630 |
- name: DocumentType | value: 10-K | context: C_0000789019_20160701_20170630 |
- name: EntityCentralIndexKey | value: 0000789019 | context: C_0000789019_20160701_20170630 |
- name: EntityCommonStockSharesOutstanding | value: 7702243979 | context: C_0000789019_20170731 | unit: U_shares
- name: EntityCurrentReportingStatus | value: Yes | context: C_0000789019_20160701_20170630 |
- name: EntityFilerCategory | value: Large Accelerated Filer | context: C_0000789019_20160701_20170630 |
- name: EntityListingParValuePerShare | value: 0.00000625 | context: C_0000789019_20160701_20170630 | unit: U_iso4217USD_shares
- name: EntityPublicFloat | value: 466500000000 | context: C_0000789019_20161231 | unit: U_iso4217USD

name: AmendmentFlag | value: false | context:

Properties

Element Prefix	dei
Element Name	AmendmentFlag
Context	C_0000789019_20160701_20170630
Unit	
Precision	
Data	false

OK Cancel

Searchable, filterable, sortable

Pesseract

Fact table:

Drag a column header here to group by that column									
#	Reporting Entity	Period	Concept	Legal Entity [Axis]	Fact Value	Unit	Rounding	Parenthetical Explanations	
1	0000789019 http://www.sec.gov/CIK	2016-07-01/2017-06-30	Net income	Entity [Domain]	21204000000	USD	-6	1,2	
2	0000789019 http://www.sec.gov/CIK	2015-07-01/2016-06-30	Net income	Entity [Domain]	16798000000	USD	-6	3	
3	0000789019 http://www.sec.gov/CIK	2014-07-01/2015-06-30	Net income	Entity [Domain]	12193000000	USD	-6		
4	0000789019 http://www.sec.gov/CIK	2016-07-01/2017-06-30	Net unrealized gains (losses) on derivatives (net of tax effects of \$(5), \$(12), and \$20)	Entity [Domain]	-218000000	USD	-6		
5	0000789019 http://www.sec.gov/CIK	2015-07-01/2016-06-30	Net unrealized gains (losses) on derivatives (net of tax effects of \$(5), \$(12), and \$20)	Entity [Domain]	-238000000	USD	-6		
6	0000789019 http://www.sec.gov/CIK	2014-07-01/2015-06-30	Net unrealized gains (losses) on derivatives (net of tax effects of \$(5), \$(12), and \$20)	Entity [Domain]	559000000	USD	-6		
7	0000789019 http://www.sec.gov/CIK	2016-07-01/2017-06-30	Net unrealized losses on investments (net of tax effects of \$(613), \$(121), and \$(197))	Entity [Domain]	-1116000000	USD	-6		
8	0000789019 http://www.sec.gov/CIK	2015-07-01/2016-06-30	Net unrealized losses on investments (net of tax effects of \$(613), \$(121), and \$(197))	Entity [Domain]	-228000000	USD	-6		
9	0000789019 http://www.sec.gov/CIK	2014-07-01/2015-06-30	Net unrealized losses on investments (net of tax effects of \$(613), \$(121), and \$(197))	Entity [Domain]	-362000000	USD	-6		
10	0000789019 http://www.sec.gov/CIK	2016-07-01/2017-06-30	Translation adjustments and other (net of tax effects of \$9, \$(33), and \$16)	Entity [Domain]	228000000	USD	-6		
11	0000789019 http://www.sec.gov/CIK	2015-07-01/2016-06-30	Translation adjustments and other (net of tax effects of \$9, \$(33), and \$16)	Entity [Domain]	-519000000	USD	-6		
12	0000789019 http://www.sec.gov/CIK	2014-07-01/2015-06-30	Translation adjustments and other (net of tax effects of \$9, \$(33), and \$16)	Entity [Domain]	-1383000000	USD	-6		
13	0000789019 http://www.sec.gov/CIK	2016-07-01/2017-06-30	Other comprehensive loss	Entity [Domain]	-1106000000	USD	-6		
14	0000789019 http://www.sec.gov/CIK	2015-07-01/2016-06-30	Other comprehensive loss	Entity [Domain]	-985000000	USD	-6		
15	0000789019 http://www.sec.gov/CIK	2014-07-01/2015-06-30	Other comprehensive loss	Entity [Domain]	-1186000000	USD	-6		
16	0000789019 http://www.sec.gov/CIK	2016-07-01/2017-06-30	Comprehensive income	Entity [Domain]	20098000000	USD	-6		
17	0000789019 http://www.sec.gov/CIK	2015-07-01/2016-06-30	Comprehensive income	Entity [Domain]	15813000000	USD	-6		
18	0000789019 http://www.sec.gov/CIK	2014-07-01/2015-06-30	Comprehensive income	Entity [Domain]	11007000000	USD	-6		

Pesseract

Fact detail:

Fact Characteristics and Properties		
Properties	Occurrences	To Do
Reporting Entity	0000789019	http://www.sec.gov/CIK
Period	2015-07-01/2016-06-30	
▼ Legal Entity [Axis]	Entity [Domain]	
Name	dei:LegalEntityAxis	
Prefix	dei	
▼ Concept	Comprehensive income	
Name	us-gaap:ComprehensiveIncomeNetOfTax	
Prefix	us-gaap	
Balance Type	Credit	
Period Type	For Period (duration)	
Data Type	Monetary (xbrli:monetaryItemType)	
Fact Value	15813000000	
Units	iso4217:USD	
Decimals (rounding)	-6	
Nil	<input type="checkbox"/>	

Pessera

Model structure:

Rendering	Model Structure	Fact Table	Business Rules Structure	Business Rules Validation Results	Elements		
Label			Report Element Class	Period	Balance	Preferred Label Role	Name
▼ Statement [Table]			[Table]			Terse Label	us-gaap:StatementTable
▼ Legal Entity [Axis]			[Axis]			Terse Label	dei:LegalEntityAxis
Entity [Domain]			[Member]			Terse Label	dei:EntityDomain
▼ Statement [Line Items]			[LineItems]			Terse Label	us-gaap:StatementLineItems
▼ Revenue			[Abstract]			Terse Label	us-gaap:SalesRevenueNetAbstract
Product			[Concept] Monetary	For Pe...	Credit	Terse Label	us-gaap:SalesRevenueGoodsNet
Service and other			[Concept] Monetary	For Pe...	Credit	Terse Label	msft:SalesRevenueServicesAndOtherNet
Total revenue			[Concept] Monetary	For Pe...	Credit	Total Label	us-gaap:SalesRevenueNet
▼ Cost of revenue			[Abstract]			Terse Label	us-gaap:CostOfRevenueAbstract
Product			[Concept] Monetary	For Pe...	Debit	Terse Label	us-gaap:CostOfGoodsSold
Service and other			[Concept] Monetary	For Pe...	Debit	Terse Label	msft:CostOfServicesAndOther
Total cost of revenue			[Concept] Monetary	For Pe...	Debit	Total Label	us-gaap:CostOfRevenue
Gross margin			[Concept] Monetary	For Pe...	Credit	Total Label	us-gaap:GrossProfit
Research and development			[Concept] Monetary	For Pe...	Debit	Terse Label	us-gaap:ResearchAndDevelopmentExpense
Sales and marketing			[Concept] Monetary	For Pe...	Debit	Terse Label	us-gaap:SellingAndMarketingExpense
General and administrative			[Concept] Monetary	For Pe...	Debit	Terse Label	us-gaap:GeneralAndAdministrativeExpense
Impairment, integration, and restructuring			[Concept] Monetary	For Pe...	Debit	Terse Label	msft:ImpairmentIntegrationAndRestructuringExpens...
Operating income			[Concept] Monetary	For Pe...	Credit	Total Label	us-gaap:OperatingIncomeLoss
Other income (expense), net			[Concept] Monetary	For Pe...	Credit	Terse Label	us-gaap:NonoperatingIncomeExpense
Income before income taxes			[Concept] Monetary	For Pe...	Credit	Total Label	us-gaap:IncomeLossFromContinuingOperationsBef...
Provision for income taxes			[Concept] Monetary	For Pe...	Debit	Terse Label	us-gaap:IncomeTaxExpenseBenefit
Net income			[Concept] Monetary	For Pe...	Credit	Total Label	us-gaap:NetIncomeLoss
▼ Earnings per share:			[Abstract]			Terse Label	us-gaap:EarningsPerShareAbstract
Basic			[Concept] Share	For Pe...		Terse Label	us-gaap:EarningsPerShareBasic
Diluted			[Concept] Share	For Pe...		Terse Label	us-gaap:EarningsPerShareDiluted
▼ Weighted average shares outstanding:			[Abstract]			Terse Label	us-gaap:WeightedAverageNumberOfSharesOutsta...
Basic			[Concept] Shares	For Pe...		Terse Label	us-gaap:WeightedAverageNumberOfSharesOutsta...
Diluted			[Concept] Shares	For Pe...		Terse Label	us-gaap:WeightedAverageNumberOfDilutedShares...
Cash dividends declared per common share			[Concept] Share	For Pe...		Terse Label	us-gaap:CommonStockDividendsPerShareDeclared

Pesseract

Fact pivots (dynamic renderings, pivot tables):

The screenshot displays the Pesseract interface with a dynamic rendering of financial data. The left sidebar shows a tree view of components, with '100010 - Statement - INCOME STATEMENTS' selected. The main area shows a table with columns for 'Period [Axis]' (2016-07-01/2017-06-30, 2015-07-01/2016-06-30, 2014-07-01/2015-06-30) and rows for various financial metrics. The table is organized into sections: Revenue, Cost of revenue, Operating income, Income before income taxes, Net income, Earnings per share, and Weighted average shares outstanding.

Statement [Line Items]	Unit [Axis]	2016-07-01/2017-06-30	2015-07-01/2016-06-30	2014-07-01/2015-06-30
Revenue				
Product	USD	57,190,000,000	61,502,000,000	75,956,000,000
Service and other	USD	32,760,000,000	23,818,000,000	17,624,000,000
Total revenue	USD	89,950,000,000 ^{1,2}	85,320,000,000 ³	93,580,000,000
Cost of revenue				
Product	USD	15,175,000,000	17,880,000,000	21,410,000,000
Service and other	USD	19,086,000,000	14,900,000,000	11,628,000,000
Total cost of revenue	USD	34,261,000,000	32,780,000,000	33,038,000,000
Gross margin	USD	55,689,000,000 ¹	52,540,000,000	60,542,000,000
Research and development	USD	13,037,000,000	11,988,000,000	12,046,000,000
Sales and marketing	USD	15,539,000,000	14,697,000,000	15,713,000,000
General and administrative	USD	4,481,000,000	4,563,000,000	4,611,000,000
Impairment, integration, and restructuring	USD	306,000,000	1,110,000,000	10,011,000,000
Operating income	USD	22,326,000,000 ¹	20,182,000,000	18,161,000,000
Other income (expense), net	USD	823,000,000	(431,000,000)	346,000,000
Income before income taxes	USD	23,149,000,000	19,751,000,000	18,507,000,000
Provision for income taxes	USD	1,945,000,000	2,953,000,000	6,314,000,000
Net income	USD	21,204,000,000 ^{1,4}	16,798,000,000 ⁵	12,193,000,000
Earnings per share:				
Basic	USD/shares / shares	3 ¹	2	1
Diluted	USD/shares / shares	3 ^{1,4}	2 ⁵	1
Weighted average shares outstanding:				
Basic	shares	7,746,000,000	7,925,000,000	8,177,000,000
Diluted	shares	7,832,000,000	8,013,000,000	8,254,000,000
Cash dividends declared per common share	USD/shares / shares	2	1	1

Interface is dynamic, dimensions can be moved similar to how an Excel pivot table works.

Pesseraact

Model structure verification:

Child	Parent						
	Network	Table	Axis	Member	LineItems	Abstract	Concept
[Network]	0	0	0	0	0	0	0
[Table]	0	0	0	0	0	128	0
[Axis]	0	229	0	0	0	0	0
[Member]	0	0	229	264	0	0	0
[LineItems]	0	128	0	0	0	0	0
[Abstract]	128	0	0	0	26	5	0
[Concept]	0	0	0	0	428	152	0