

o9 Platform Advanced Configuration: Integrated Business Planning (IBP) and S&OE

This manual provides a detailed reference for configuring, interpreting, and managing the Integrated Business Planning (IBP) frameworks within the o9 Platform. It covers the core IBP Foundation, Commercial Simulation, Financial Planning & Budgeting (AOP), Long Range Strategic Planning (LRP), and Sales & Operations Execution (S&OE).

1. DIGITAL TRANSFORMATION & THE ENTERPRISE KNOWLEDGE GRAPH (EKG)

o9's digital transformation connects customers, channel partners, suppliers, planning processes, and business operations using an AI-powered 'Digital Brain'. The Digital Brain and EKG:

- * The Digital Brain represents a paradigm shift in business intelligence, empowering organizations to make informed, data-driven decisions that propel them toward sustainable growth.
- * The foundational element of the Digital Brain is the Enterprise Knowledge Graph (EKG), which organizes and connects vast amounts of structured and unstructured data (customer behavior, market trends, supply chain dynamics, and financials).
- * The EKG captures not just the physical and financial ties of the supply chain, but also the dynamic information, acting as the platform's cognitive engine to mimic human-like reasoning.
- * Through machine learning, the EKG translates information into knowledge. For example, it can determine that order cancellations are more likely when specific buying trends are similar.

o9's Key Differentiators:

1. Scalability and Flexibility: The platform supports processes at all levels of maturity, scaling as business needs evolve without locking clients into rigid solutions. Its open architecture enables seamless real-time or batch integration with third-party ERP and CRM systems.
2. Optimal Service Level: The pricing model provides unlimited access with no extra costs based on transaction volume or user count. Upgrades and customer service are included free of charge.
3. Real-Time Demand-Supply Match (RTDSM): Uses a digital twin to simulate and optimize demand and supply in real-time, considering constraints like inventory levels, supplier capacity, and transportation.

2. IBP FOUNDATION BUILDING BLOCK

The IBP Foundation block enables the rapid deployment of Digital IBP processes, shifting organizations from disconnected, PowerPoint-based planning to an integrated, on-system digital process.

Key Reviews within IBP Foundation:

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- * Demand Review: Demand Managers present forecast accuracy, year-over-year growth, target plans, and Risks & Opportunities (R&O). The business evaluates consumer behavior and defines the Final Consensus Forecast.
 - * Supply Review: Focuses on the supply response to unconstrained demand. Planners evaluate backorders, demand-supply gaps, and whether fulfillment errors or material constraints require the final demand to be constrained.
 - * Product Review: Tracks new product introductions and phase-outs for transition items, ensuring the portfolio is actively managed.
 - * Financial Review: Highlights the monetary flow, analyzing Revenue, Cost of Goods Sold (COGS), Gross Margin (GM), Gross to Net Revenue, and Last Year (LY) comparisons.
 - * Management Business Review (MBR): Provides a high-level snapshot for executives, evaluating the Constrained View (production gaps vs. demand) and the Budget View (performance vs. set budgets).

Key Outputs and Decisions:

- * Gap Closure Actions: Strategies to close the delta between actual performance and planned targets (e.g., inventory rebalancing, flexible manufacturing, revenue enhancement).
- * Constraint Resolutions: Identifying and mitigating bottlenecks in capacity, logistics, or materials.
- * Risk Management (R&O Simulation): Identifying potential risks (e.g., economic downturns, supply disruptions) and developing mitigation plans (e.g., supplier audits, diversified revenue streams).

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3. IBP COMMERCIAL SIMULATION BUILDING BLOCK

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The Commercial Simulation building block is an extension to the IBP Foundation that enables rough-cut P&L simulation based on commercial levers.

Inputs and Capabilities:

- * Inputs: Sellout/Sell-in data, Share Actuals, P&L Line items, Baseline Forecasts, Initiatives, Budgets, and Full-year plan targets.
- * Capabilities: Models the lifecycle of commercial initiatives and simulates 'What-Ifs' based on volume, price, commercial spend, and New Product Introductions (NPI). It also assesses the potential impact of market size or share changes.

Key Decisions Derived:

- * Value and Volume for R&O: Estimating the financial impact of risks and opportunities on revenue, costs, and profitability, while predicting changes in sales volume due to market dynamics or competitive actions.
- * Outputs: Formally approved risks/opportunities, finalized commercial initiatives with allocated spend, and tracked action items for continuous improvement.

4. FINANCIAL PLANNING & BUDGETING (AOP)

This building block streamlines the Annual Operating Plan (AOP), monitoring, and performance management process, eliminating productivity-draining manual planning.

Core Functions:

- * Inputs include historical P&L, spend domain actuals, open orders, and promotional calendars.
- * Analyzes Market Opportunities and Critical Success Factors, creating both top-down plans (from executives) and bottom-up forecasts (from functional domains).
- * Executes variance analysis to iteratively close gaps between actuals and budgets.

Primary Decision Output:

- * Resource Allocation: Determining the optimal distribution of financial and operational resources to support strategic goals while balancing short-term needs.
- * Deliverables: A finalized Annual Operating Plan for board approval, broken down monthly by each business unit for ongoing performance tracking.

5. LONG RANGE STRATEGIC PLANNING (LRP)

LRP draws up strategic plans spanning three to five years, based on consumer trends, market data, and growth drivers.

Strategic Capabilities:

- * Long Range Demand Plan: Forecasts demand based on market size growth and share analysis.
- * Supply Chain Capacity & Capability Planning: Plans for manufacturing, distribution, rough-cut capacity, and supplier base capability over a multi-year horizon.
- * Network Design: Simulates different capacity scenarios to determine optimal long-term network configurations.

Key Decisions:

- * Capital Investment: Aligning capital intensive asset investment decisions with future growth needs.
- * Prioritized Initiatives: Establishing a long-term revenue plan (sales forecasts, gross margin, operating income) and defining the required personnel and technology resources.

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6. SALES AND OPERATIONS EXECUTION (S&OE)

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S&OE, also known as short-term IBP, orchestrates the cross-functional response to immediate demand and supply changes in the current and next quarter.

Bridging the Gap:

- * Unlike traditional systems, o9 integrates short-term S&OE and full-horizon IBP on a single platform. This ensures short-term deviations are effectively addressed without derailing long-term plans.

Capabilities & Execution:

- * Early Demand Warnings: Tracks forecast vs. orders, order realization, and order linearity.
- * Constrained Supply Visibility: Highlights the delta between unconstrained forecasts and actual constrained supply plans.

Key Tactical Decisions:

When facing immediate deviations (e.g., unexpected price increases of raw materials, sudden seasonal demand surges, or supply shortages), S&OE drives rapid responses:

- * Prioritization: Determining which customer orders to fulfill first, expediting shipping, or pushing stock to key customers.
- * Capacity Adjustments: Increasing overtime/shifts, postponing (or pulling forward) maintenance, or allocating volume to underutilized plants.
- * Commercial Levers: Rescheduling promotions, offering alternative products, or implementing demand-shaping strategies like price adjustments.
- * Policy Deviations: Temporarily modifying target stock levels, safety stock, or extending shelf-life policies to respond to immediate crises.

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o9 Platform Configuration: Master Data Setup, Dimensional Hierarchies, and IBPL Querying

This manual provides a detailed technical reference for setting up dimensional data structures, configuring level attributes, utilizing namesets, and querying data using IBPL (Integrated Business Planning Language) within the o9 Platform's Designer workspace.

1. DIMENSIONS AND LEVEL ATTRIBUTES

Dimensions form the foundational structural elements of the o9 platform. They define how data is categorized (e.g., Product, Customer, Region, Time).

Establishing Dimensions:

- * Found within the 'Designer' workspace under the 'DIM' tab.
- * The platform typically requires defining baseline dimensions: Product (Product DIM), Customer (Customer DIM), Region (Region DIM), and Time (Time DIM).
- * CRITICAL CONFIGURATION: When creating the Time dimension, the 'Dimension Type' MUST be explicitly set to 'Time' (rather than 'Regular'). This enables the platform to apply internal chronologic logic (differentiating past, present, and future periods).

Configuring Level Attributes:

- Level attributes are the specific characteristics or granularity points of a dimension (e.g., SKU, Product Category, Account, Channel).
- * Seed Tags & Leaf Levels: Certain attributes must be flagged as 'Seed tags' to allow data ingestion, and the most granular level of a dimension must be flagged as the 'Leaf Level' (e.g., 'SKU' within the Product dimension, 'Account' within Customer, 'Country' within Region).
 - * System-Generated Attributes: When uploading master data, certain background columns (prefix/suffix with a `\$`) are automatically generated by the o9 system and do not require manual creation by the configurator.

Attribute Properties (Images):

- * Configurators can map UI properties (like images) directly to attributes via the 'Attribute Properties' form.
- * Example: Defining a 'Channel Image' or 'SKU Image' and setting the data type strictly to 'Image'.

2. THE TIME DIMENSION: SPECIAL CONFIGURATIONS

The Time dimension requires unique configurations to allow the system to process chronologic ordering rather than alphabetical ordering.

Time Attributes (Month, Quarter, Year):

- * When establishing time-based attributes (e.g., Month, Quarter), the 'Order By' setting must be changed from 'Name' to 'Key'.
- * The 'Key Column Data Type' must be set to 'Date Time', which forces the system to recognize the attribute as a 'User-Supplied' key generation.
- * Why Order by Key?: If a time attribute is ordered by 'Name', the system will sort months alphabetically (e.g., April, August, December) rather than chronologically. Ordering by 'Key' ensures the system reads the 'Month Key' column and structures the timeline accurately (e.g., Jan 2021 before Jan 2023).

3. DIMENSIONAL HIERARCHIES

Hierarchies define the aggregation logic within a dimension, structuring how data rolls up from the leaf level to the highest aggregated node.

Creating Hierarchies:

- * Defined within a specific dimension's configuration pane using a drag-and-drop UI.
- * Rule of Thumb: Always build hierarchies top-down, starting with the highest-level attribute.
- * Example (Customer Hierarchy): Drag in 'All Accounts' -> 'Channel' -> 'Account'.
- * Example (Product Hierarchy): Drag in 'All Products' -> 'Product Category' -> 'SKU'.
- * Example (Time Hierarchy): Drag in 'Year' -> 'Quarter' -> 'Month'.

4. MEASURE GROUPS AND MEASURES

Measure groups intersect specific attributes to store factual or transactional data. Instead of keeping all data in one massive table, measure groups isolate data logic based on the required operational scope (e.g., separating demand planning metrics from supply chain procurement metrics).

Configuring a Measure Group (e.g., Planning Measures):

- * Found under the 'MG' (Measure Group) tab in the Designer workspace.
- * Granularity: Defines the strict intersection of attributes where the data will reside.
 - Example setup: Month, Account, SKU, and Version Name.
 - Note: 'Version Name' is always included by default as it dictates whether data resides in the 'Current Working View' (CWV) or an isolated scenario.

Creating Measures:

- * Measures represent the actual data columns (e.g., Budget, Inventory, Sell-In Actuals, Sell-Out Forecasts).
- * 'Sell-Out' vs. 'Sell-In': 'Sell-out' refers to data tracking goods moving from an account's distribution center to the end consumer (e.g., Walmart selling to shoppers). 'Sell-in' tracks goods shipping into the account's distribution center (e.g., a supplier selling to Walmart).
- * Inventory Aggregation Logic: For an 'Inventory' measure, the aggregation logic must be changed to 'Last Child' (instead of standard sum). This ensures the system calculates inventory based on the Ending-On-Hand (EOH) value for a specific period. Note: This requires the granularity to be mapped to a dimension of type 'Time', otherwise an error will be thrown.

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5. IBPL QUERYING AND NAMESETS

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IBPL (Integrated Business Planning Language) is the querying logic used to extract, filter, and manipulate data within the o9 database. Namesets function as abbreviations or "nicknames" for complex IBPL queries.

Nameset Configuration Rules:

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- * Defined within the 'Rule' tab of the Designer workspace.
- * Naming Convention Constraint: A nameset's 'Name' cannot contain any spaces.
- * Invocation: When calling a nameset inside a larger query, it must be prefixed with an ampersand (&). Example: `&PlanningMonth`.

Common Nameset Examples and Clauses:

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- * Basic Extraction: `Customer.Account` (Extracts all members from the account column).
- * Filter Clause (`.filter`): Applies conditional logic.
 - Example (`.Current Month`): `time.month.filter(#[month\$iscurrent])`. The system uses the background `\$.iscurrent` system attribute to locate the present timeframe.
- * Element Clause (`.element`): Targets specific rows based on an index. `element(0)` specifies the starting row. When combined with filters, it can extract all periods greater than or equal to the current period (e.g., generating a "Current and Future Months" array).
- * Related Members Clause (`.relatedmembers`): Fetches members from higher or lower aggregated attributes. Example: Looking at the current month to fetch the corresponding 'Current Year'.
- * Lead Offset (`.leadoffset`): Manipulates the starting index row by adding or subtracting periods (e.g., looking at `minus 1` to define a "Last Month" nameset).

The CWV (Current Working View) Nameset:

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- * Always pre-configured in every model.
- * Logic: `version.versionName.filter(#[key==0])`.
- * Under the hood, the o9 platform hardcodes the Current Working View to the index

key `0`. Any manually created scenarios are assigned negative key values. Thus, extracting key `0` universally isolates the live working environment.

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6. DATA UPLOADS, EXECUTION, AND TROUBLESHOOTING

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Data Uploads and Action Buttons:

- * To bypass manual backend uploads, configurators can deploy an 'Action Button' widget globally (Type: 'Plan', Name: 'File Import').

- * This generates a UI button allowing fast CSV/Excel imports directly into the staging environment and database.

Executing Queries:

- * Queries are tested within the 'Debugging' workspace -> 'Execute Query' tool.

- * Highlight the code snippet before running.

- * `executeSync` vs. `execute`: `executeSync` runs the query immediately. `execute` checks external systems for incoming sync data and waits for the refresh before outputting the result.

Syntax Quirks:

- * In IBPL `SELECT` statements, Master Data dimensions are joined using the multiplier/star symbol (`\*`) (e.g., `account \* month \* SKU`).

- * Measure columns are joined using a comma (`,`) (e.g., `budget, inventory, sellin\_actuals`).

- * Line breaks in code are identified by `

- `. If code is pasted from a PDF, hidden line breaks may cause an "Invalid Measure Name" error.

Troubleshooting Master Data:

If foundational master data (like a dimension type flag) is mapped incorrectly during the initial upload, simply fixing the toggle in the UI and refreshing the browser may not resolve the issue.

- * Fix Protocol: The configurator must navigate to the 'Deployment' workspace, select 'Stop No-Save' (to dump the incorrect cached logic), restart the tenant, and re-upload the data file to force the engine to ingest the corrected master logic.

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