

Comparison of Planning Models' Optimality

| Planning Model considerations 1-5 from Why DDP Works | Financial Planning & Analysis | Sales & Operations Planning | Marketing-Mix Modeling | Supply Chain Design |
|---|--|---|---|---|
| Definition | Wikipedia: In business, a financial plan can refer to the three primary financial statements (balance sheet , income statement , and cash flow statement) created within a business plan . Financial forecast or financial plan can also refer to an annual projection of income and expenses | APICS defines S&OP as the "function of setting the overall level of manufacturing output (production plan) and other activities to best satisfy the current planned levels of sales (sales plan and/or forecasts), while meeting general business objectives of profitability, productivity , competitive customer lead times, etc., as expressed in the overall business plan | Wikipedia: Marketing mix modeling (MMM) is a term of art for the use of statistical analysis such as multivariate regressions on sales and marketing time series data to estimate the impact of various marketing tactics (marketing mix) on sales and then forecast the impact of future sets of tactics. It is often used to optimize advertising mix and promotional tactics with respect to sales revenue or profit. | Wikipedia: Supply chain optimization is the application of processes and tools to ensure the optimal operation of a manufacturing and distribution supply chain . ^[1] This includes the optimal placement of inventory within the supply chain, minimizing operating costs (including manufacturing costs, transportation costs, and distribution costs). This often involves the application of mathematical modelling techniques using computer software. |
| 1. Plan must be unit based | no | yes | yes | yes |
| 2. Forecast must be dependent variable of S (\$) | no | no | yes, in part | no |
| 3. COGS and GA costs must be dependent variable of units | yes | yes | yes, in part | yes |
| 5. Solver technique must be prescriptive | Scenario analysis (i.e., what will happen if we do X) | Scenario analysis (i.e., what will happen if we do X) | Scenario analysis (i.e., what will happen if we do X) | Prescriptive (i.e., What is the best X?) |
| 4. Objective function | Profit max | Profit max | Contribution margin max | Cost min, typically, |
| Entire income statement modeled | Yes | Yes | No | No |
| Solution operationally | Not necessarily | Yes | Not necessarily | Yes |

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|---------------------------------------|---|--|---|--|
| feasible | | | | |
| Solution optimally feasible | No | No | No | Yes |
| Enterprise forecast optimized | No | No | No | No |
| Enterprise supply chain optimized | No | No | No | yes |
| Sales & marketing ROI maximized | No | No | No | no |
| RESULT | Plan necessarily sub-optimal | Plan necessarily sub- optimal | Plan necessarily sub-optimal | Design necessarily sub- optimal |