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Nestlé Improves Its Financial Reporting with Management Science

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Nestlé's executive information system (EIS) department gathers data from the firm's subsidiaries (reporting units) to provide top management with operational, financial, and strategic information. In 1996, the EIS department decided to improve its service by using business analytics tools based on management science (MS) techniques. It wanted to encourage analysts and controllers to make better use of the information supplied. We developed four OR modules: sensitivity analysis, forecasting, simulation, and optimization, and integrated them into a more global modeling scheme for evaluating the economic profitability of Nestlé's projects and more generally evaluating the value of the Nestlé group and its multifocal businesses. Disseminating this approach within the Nestlé group through training and internal consulting has been a long and important process that has increased the number of managers accustomed to quantitative decision making and established new reporting protocols imposing the use of MS models.

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Many companies need to develop small business-analytic tools that managers can handle directly without specialized consultants. The management science (MS) community increasingly accepts this statement (Erkut 1998). However, it has not always done so. Typically courses in MS, even those offered in business schools, used to be devoted solely to algorithms and specialized modeling. Nowadays most MS courses are based on spreadsheet modeling, enabling instructors to teach quantitative modeling in a user-friendly environment (Grossman 1999).

In 1997, we started a collaboration between the University of Lausanne's business school (Hautes Etudes Commerciales, HEC) and Nestlé's executive information system (EIS) department at its international head office in Vevey, Switzerland. Two courses, "Business Quantitative Methods" in the university's MBA program and "Operations Management" in the degree program, taught MS as advocated by INFORMS' Forum on Education (http://education.forum.informs.org), emphazing modeling rather than algorithms. Students tested most of the topics presented in class by choosing and conducting mini-case studies, using Excel as a modeling system whenever possible.

Two former students of HEC-Lausanne, Christophe Oggier and Jeremy Stuby, decided to repeat this experience of developing case studies in Excel regularly in Nestlé's EIS department. Helping them were several operations management students doing long-term internships in the EIS department (L. Wanner, working on forecasting in 1998, N. De Francesco working on multivariate statistics in 1999, S. Koechli working on simulation and risk analysis and product portfolio analysis in 2000, and D. Schaad working on promotional sales forecasting in 2001).

Nestlé, the largest food and beverage company in the world, is divided into several markets and products. Its products are processed or manufactured by subsidiaries located around the world. Those companies regularly send aggregate data to Nestlé's headquarters in Vevey.

The EIS department gathers, checks, validates, and consolidates these data before storing them in EIS databases. It tries to provide accurate information to the analysts and controllers so that they can monitor the firm's performance and make good decisions. To do so, the department developed tools that help analysts, controllers, and decision makers (1) to access relevant information through a secured client-server solution, and (2) to provide standardized tables of results and charts.

The traditional reporting approach consists of extracting data, such as sales and profit information, and producing predefined documents, tables, and charts from them. Over the years, in response to requests from financial analysts the EIS department has developed services to support their reporting within Nestlé's headquarters by doing intensive training on the tools used to make the reports and their value-added functionalities and promoting these tools through frequent presentations, demonstrations, and intranet presence.

Christophe Oggier and Jeremy Stuby, employees in the EIS department since 1996, wanted to go a step further. Following their experience at the university, they thought people could better use the data gathered in the EIS databases if they were trained to build and use small MS models in Excel. We believed this idea was feasible, because we assumed that most employees with university degrees had taken at least one course in MS, statistics, or a related topic. They should therefore be able to develop or use small, simple models built in Excel.

We conducted a survey to find out whether our plan was sensible. It had three main sections: EIS data, EIS access tools, and EIS training and information. We asked 370 EIS users to fill out a questionnaire, and 35 percent of them responded (130 responses). Around 25 percent of the respondents said their main objective was to perform analyses using the EIS information system while 28 percent said business monitoring, and 40 percent, traditional reporting. This meant that many potential users might be interested in accessing new tools that would enable them to conduct thorough analyses on their own.

Modeling is a highly iterative process. It includes such steps as defining the problem, collecting data, formulating and solving models, and analyzing results. Our modeling systems based on Excel support this process. Compared with cutting-edge modeling systems, spreadsheet modeling can be considered a very simple approach. The freedom simple spreadsheets provide to users and their use of copying and pasting to replicate equations and variables means that model formulations may not remain compact, which limits the size of problems users can model. Indeed, spreadsheet modeling has the main disadvantage that users cannot visualize the mathematical structure of the models. However, we believe that it is useful for developing small and simple (but not simplistic) quality models. This statement is certainly controversial, but given the millions of licenses sold around the world, we wonder whether spreadsheet modeling isn't the most widely used modeling tool today (Fragnière and Gondzio 2002).

The MS areas EIS currently pursues are sensitivity analysis, forecasting, simulation, and optimization. The sensitivity module offers several Excel financial tools, such as Goal Seek, Table, and Scenario, enabling users to produce various kinds of charts. The forecasting module contains several smoothing and regression techniques. The simulation module contains models dealing with uncertainty and risk analysis. The optimization module focuses on mathematical programming (optimization under constraints) with the Excel Solver add-in for production or cash-management problems. Excel contains an optimization solver that gives most owners access to optimization techniques (Fylstra et al. 1998). The EIS department conducts seminars in which it trains employees through mini-case studies to use Excel or to develop small MS models in Excel devoted to sensitivity analysis, forecasting, simulation, and optimization. The department makes the documents, presentations, and Excel models available on a CD-ROM or on an intranet Web site. We took the examples used in the teaching material from real Nestlé data (for example, a forecast of the annual sales of ice cream in the US). Our goal is to encourage users to explore new problems by themselves and to apply these small and simple tools. MS textbooks based on Excel modeling (Ragsdale 2001, Savage 1998) have been very helpful.

In the five years of these training courses, they have become increasingly popular among Nestlé's employees. Initially, the EIS department offered them only at Nestlé' headquarters in Vevey, but it has recently conducted these seminars successfully in Asia and Australia. In addition, employees visit the intranet site regularly and have downloaded the models and support papers provided on it several thousands of times from over 100 countries. This approach has succeeded because enthusiastic students have used training and modern media technologies, such as the Web and CD-ROMs, to convince other people. As a result, top management now fully sponsors and supports the promotion of such decision tools.

From Reporting to Modeling

The EIS department extracts data from a multidimensional database, categorizes it, and makes it available through the EIS information system as follows:

—Sales statistics,

—Product profitability (profit and loss and return on invested capital by product), and

—Financial consolidation (the balance sheet and income statement).

First, we use the information system like a traditional reporting device (with mass-reporting standard tools) and generate standard reports, such as profit-and-loss accounts and sales statements. A further step is to analyze the data and transform it into more valuable information with the help of business-analytics tools. We have created four business-analytics modules so far:

—Sensitivity analysis,

—Forecasting,

—Simulation, and

—Optimization.

These MS modules are not used as stand-alone applications. We integrated them in a financial-analysis framework, so that financial managers could invoke them as needed.

Capital budgeting corresponds to a set of methods for evaluating, comparing, and selecting projects to achieve the best long-term financial return (Gropelli and Nikbakht 2000). Nestlé uses such financial-management tools to assess the profitability of new projects and to develop coherent strategies for its subsidiaries.

The principal tool it employs is called economic profit (EP), an indicator of value creation (if its value is positive) or value consumption (if it is negative). This indicator is similar to Stern Stewart and Company's better known economic value-added (EVA) indicator. One calculates EP by subtracting the weighted average cost of capital (WACC) from the return on invested capital (ROIC) and multiplying the difference by the invested capital:

$$\text{EP} = (\text{ROIC} - \text{WACC}) \cdot \text{invested capital}.$$

EP measures the profitability of an activity, which is made up of the investments in the activity minus the explicit costs and the implicit (opportunity) costs of the investment. ROIC represents the net profits after taxes divided by the assets (Gropelli and Nikbakht 2000). WACC corresponds to the opportunity cost of investing in that business based on Nestlé's level of risk and financial structure.

We accompany EP with a thorough analysis of value drivers, which provides a finer evaluation of projects and a broad view of the problem. Nestlé chose to use Rappaport's (1997) performance drivers:

—Sales growth,

—Profit margin,

—Working capital intensity,

—Fixed capital intensity,

—Income tax rate,

—Cost of capital, and

—Duration.

The first four are operational drivers that come from the income statement (sales growth and profit margin) and the balance sheet (working and fixed capital intensities). The Nestlé operational managers located in the various subsidiaries over the world can influence these drivers. The fifth and sixth drivers are financial drivers that only central management at the regional and worldwide levels can influence. The seventh value driver is a strategic one based on the long-term growth of value. Hence, it implies the notion of future and links economic profit to market value added (MVA), which is by definition equal to the present value of the future economic profits and represents the value of the company less its book value. By maximizing the MVA, we maximize the shareholder value. This value-added framework feeds the company's ultimate objective, which is to produce a capital-efficient long-term sustainable profitable growth (LTSPG). To achieve this, the firm requires high values for the seven value drivers. This evaluation is complex and implies trade-offs among the value drivers. The managers can use the MS modules to make up their minds.

The four MS modules contribute to the global valuation framework (Figure 1). For example, assume that we want to build a new powdered-milk line in a factory. We gather information from the EIS system to set up this capital-budgeting problem (Table 1).

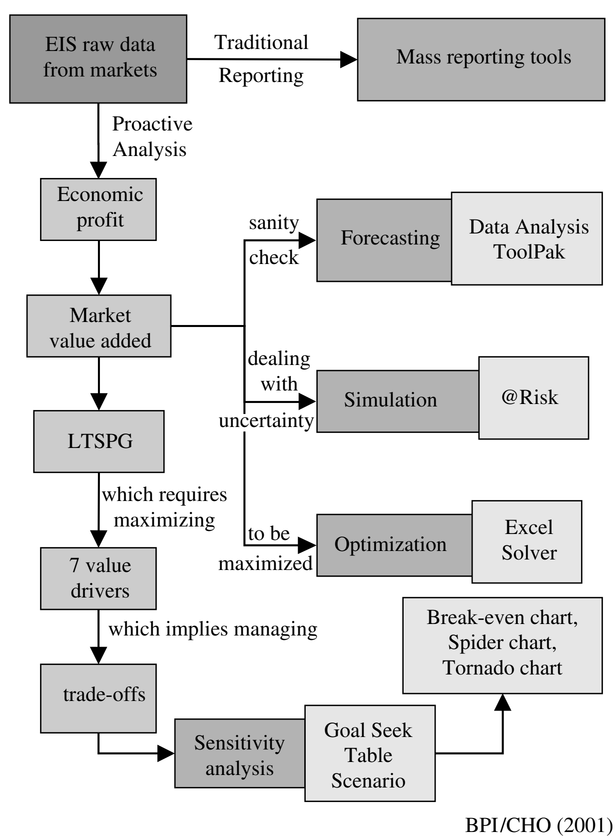


Figure 1: The different MS modules are integrated in Nestlé's financial framework. Economic profit and market value added contribute to long-term sustainable profitable growth (LTSPG), which depends on maximizing the seven value drivers, which implies managing trade-offs. The modules (sensitivity analysis, forecasting, simulation, and optimization) help to achieve this objective.

Model component	Expected values	Remarks
Investment in new manufacturing line	US$650,000	Capital expenditure to install the new line
Initial quantity to be sold	77,000 tons	Will be influenced by the growth factor
Annual growth in quantity	3 percent	
Initial sales price per ton	US$5.50	
Variable expense percentage	63.4 percent	Of the net proceeds of sales (NPS)
PFME (products' fixed marketing expenses)	US$3,000 + 2.5 percent of net proceeds of sales	Mixed of fixed and variable expenses
Fixed factory overhead (FFO)	US$11,400 (annual)	Fixed over 10 years
Depreciation of the line	US$65,000 (Capital expenditure divided by 10)	Linear over 10 years
General overhead	US$35,000	Fixed over 10 years
Tax rate	35 percent of earnings before taxes	Not under company control
Weighted average cost of capital (WACC)	9 percent	Cost of capital, not under company control
Time horizon	10 years	

Table 1: The investment in a new manufacturing line has to be balanced against the cash flows it will produce. To calculate these cash flows, we project the quantity to be sold over 10 years and deduct from these sales the fixed and variable expenses. We actualize these future cash flows with the weighted average cost of capital and compare the result with the initial investment. It is worth investing in the new line if the present value of the future cash flows is greater than the initial investment.

From those data, we help the analyst to build a spreadsheet corresponding to a base scenario (Figure 2). After this step, we call up the MS modules to help the financial manager make a decision.

The Sensitivity Analysis Module

From a base scenario describing the best guess or consensus developed from the analyst's knowledge, we study the impact on the solution of certain parameters by changing their values. For example, we use Excel's Goal Seek function to learn what amount should be invested to break even or to get a 12 percent internal rate of return (IRR). We can depict the conditions for this break even in a break-even (BE) chart (Figure 3).

NPV Model

		YEARS 0	1	2	3	4	5	6	7	8	9	10
INVESTMENT (US$)		**650,000**										
QUANTITY GROWTH	**3%**											
PRICE PER TON (US$)			**5.50**	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
QUANTITY SOLD (TONS)			**77,000**	79,310	81,689	84,140	86,664	89,264	91,942	94,700	97,541	100,468
NET PROCEEDS OF SALES (NPS)			423,500	436,205	449,291	462,770	476,653	490,953	505,681	520,852	536,477	552,571
VARIABLE EXPENSES	**63.4%**		268,675	276,735	285,037	293,588	302,396	311,468	320,812	330,436	340,350	350,560
MARGINAL CONTRIBUTION			154,825	159,470	164,254	169,181	174,257	179,485	184,869	190,415	196,128	202,011
PFME	**3,000**	**2.5%**	13,588	13,905	14,232	14,569	14,916	15,274	15,642	16,021	16,412	16,814
FIXED FACTORY OVERHEAD		**11,400**	11,400	11,400	11,400	11,400	11,400	11,400	11,400	11,400	11,400	11,400
DEPRECIATION OF THE LINE			65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000	65,000
PRODUCT CONTRIBUTION (Contribution after specific fixed costs)			64,837	69,165	73,622	78,212	82,941	87,811	92,827	97,994	103,316	108,797
GENERAL OVERHEAD		**35,000**	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000	35,000
EARNINGS BEFORE INTEREST TAXES AND AMORTIZATION (EBITA)			29,837	34,165	38,622	43,212	47,941	52,811	57,827	62,994	68,316	73,797
TAXES	35%		10,443	11,958	13,518	15,124	16,779	18,484	20,239	22,048	23,910	25,829
EARNINGS BEFORE INTEREST AND AMORTIZATION (EBIA)			19,394	22,207	25,104	28,088	31,161	34,327	37,588	40,946	44,405	47,968
CASH FLOW		−650,000	84,394	87,207	90,104	93,088	96,161	99,327	102,588	105,946	109,405	112,968
WACC	**9%**											
NPV	**−34,545**	**=NPV(B22;D20:M20)+C20**										
IRR	**7.8%**	**=IRR(C20:M20)**										

Figure 2: This Excel spreadsheet extract indicates the formulae used to obtain the net present value (NPV) and internal rate of return (IRR) for a base scenario. The initial investment in the current year (year 0) is US$650,000. We estimate the quantity to be sold the following year (year 1) as 77,000 tons at a price of US$5.50 per ton, which generates a net proceeds of sales (NPS) of US$423,500. We forecast a quantity growth of three percent and a stable price per ton of US$5.50 as of year 2. We deduct the variable expenses from the sales at a rate of 63.4 percent. This gives us the marginal contribution, which is the contribution after the variable expenses. We estimate the products' fixed marketing expenses (PFME) at US$3,000 per year plus a variable portion of the sales of 2.5 percent. The fixed factory overhead (FFO) costs are stable at US$11,400 per year. Following standard accounting principles, the depreciation of the new line is 10 percent, which amounts to US$65,000 per year over 10 years. By deducting the PFME, FFO, and the depreciation from the marginal contribution, we get the product contribution, which is the contribution after deducting variable and specific fixed costs. From this product contribution, we then deduct the general overhead at US$35,000 to get the earnings before interest, taxes, and amortization (EBITA). To get the earnings before interest and amortization (EBIA), we deduct the taxes of 35 percent from the EBITA. Finally, we add the depreciation to the EBIA to get the cash flow. We estimate the weighted cost of capital (WACC) at nine percent and use this rate to actualize the future cash flows. We then deduct the initial investment from this present-valued amount to get the net present value (NPV). If the NPV is positive, it is worth investing in the project. If not, we had better keep the money and use it in another project. We compute the IRR by finding the cost of capital rate that gives an NPV of 0. This rate is then compared to the WACC rate. If it is greater, it is worth investing in the project.

We use Excel's table function to assess the price policy (the combined impact of variations in the price and the quantity sold on NPV), issues of technical management (for example, a decrease in variable expenses and factory-fixed overhead) or marketing expenses. We can use the Table function to create a chart of the trade-offs between two drivers (Figure 4). We can use spider and tornado charts to identify the impacts of more than two drivers on a chosen variable, for example, the internal rate of return (IRR) (Figure 5).

Nestlé uses such visual summaries widely at the center and at the subsidiaries. They are usually prerequisites for investment decisions; hence technical

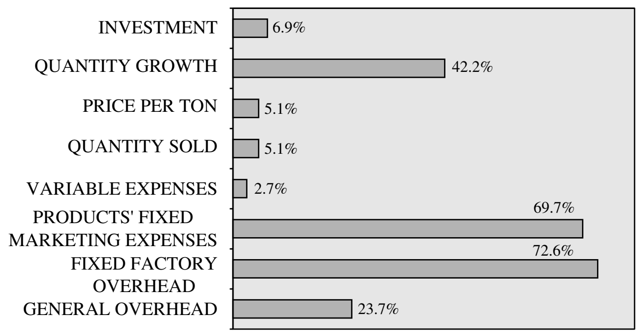


Figure 3: The break-even (BE) chart shows the percentage improvement needed in any one driver to cause the project to reach the break-even point. For example, we need to reduce the variable expenses by only 2.7 percent to reach the break-even point, whereas we must reduce the fixed factory overhead by 72.6 percent to reach the same break-even point. We should, therefore, focus on the variable expenses driver.

and financial staff members must include such charts in their analyses.

The Forecasting Module

We use time series and regression analyses to forecast the future values of several drivers used in the model (for example, quantity sold). We often give these forecasts to the financial analysts (for example, marketing managers estimate future quantities to be sold).

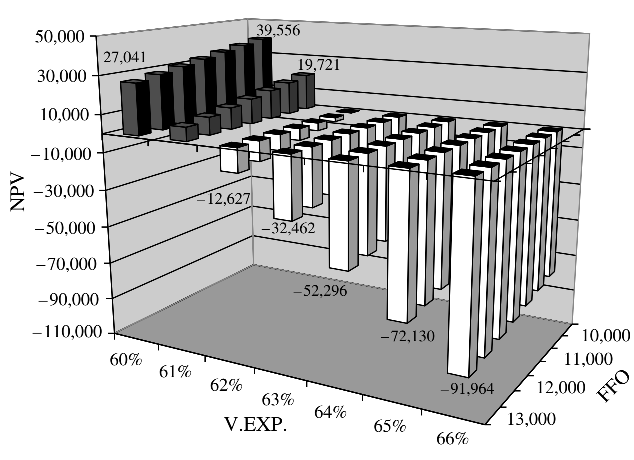


Figure 4: This trade-off chart shows the combined effects on net present value (NPV) of fixed factory overheads (FFO) and variable expenses. For any level of variable expenses from 62 to 66 percent, the FFO, even if minimized, will not help the line to break even.

Financial analysts perform quick sanity checks using MS techniques to cross-check or challenge the data given to them.

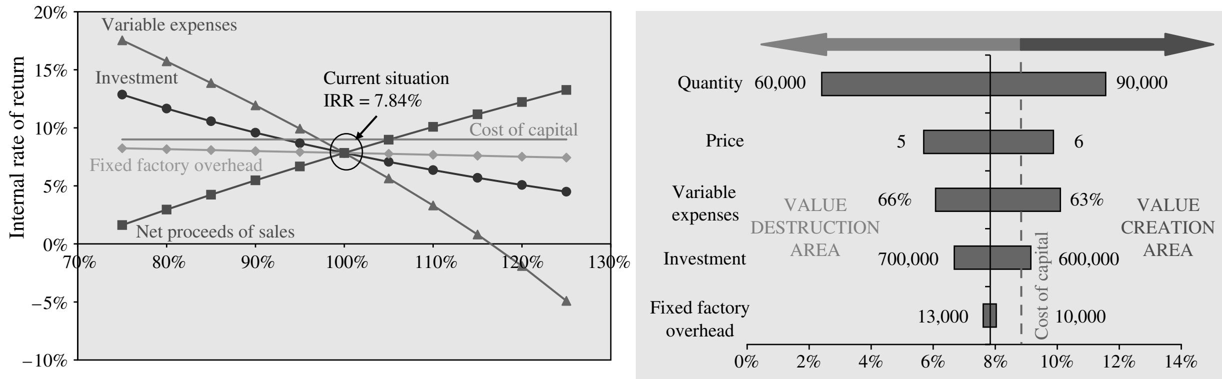
The Simulation Module

We use Monte-Carlo simulation to generate numerous scenarios driven by random parameters according to probability distribution laws. For instance, in a given model we can assume the entry price of a competitor to be normally spread around a mean (we use normal probability distribution to represent the entry price), whereas overhead costs can vary from a minimum to a maximum with the same probability (hence we can represent it with a uniform distribution function). We generate and analyze those simulations using the @RISK software (Winston 1998). However, the simulation module shows how to perform such a simulation through Excel. It also deals with risk analysis and decision trees.

The Optimization Module

The optimization module introduces mathematical programming and the use of the Excel Solver. It focuses on how to formulate the problem, which must be resolved by distinguishing a target variable, decision variables, and constraints. We then analyze the solver output and the sensitivity report.

All four modules work together in a logical and coherent way, although each can be used separately. For the example investment project, we first want to know if this project will be profitable, that is, a decision maker wants to know whether its NPV is positive or not. Second, we want to know which of the model's drivers are strong and which are not and what is the sensitivity of the NPV to these drivers. For answers to these two questions, we rely on the sensitivity-analysis module. To go a step further in supporting the decision-making process, we can add uncertainty to the model, that is, a distribution of probabilities, and see how the NPV reacts to multivariate factors. We can find the NPV distribution and assess the probability that the NPV will be negative or above a given threshold (using the simulation module). We can then perform risk analysis and use the defined probabilities to make decision trees, again using the simulation module. We can perform



(a) (b)

Figure 5: In the spider chart, the driver with the steepest slope is the strongest of the model. This means that a slight change in the value of this driver will greatly affect the payback of the project. In the tornado chart, we can define upper and lower limits (risk assumptions) for each driver. The wider the bar is, the more uncertain the driver is and the more the payback of the project varies.

some sanity checks on the data provided in the model using smoothing methods or regression analysis, for example, to calculate the expected quantity to be sold, and then assess and challenge the data provided by the marketing department using the forecasting module. Finally, we can maximize the value added by the new project while respecting different constraints by using mathematical programming in the optimization module. For example, we can build a spreadsheet model in which production capacity, storage capacity, and demand are the model's constraints and the target variable to be maximized is the additional earnings the new project provides. After formulating this input, we can use the Excel Solver add-in to solve this optimization problem (Figure 6).

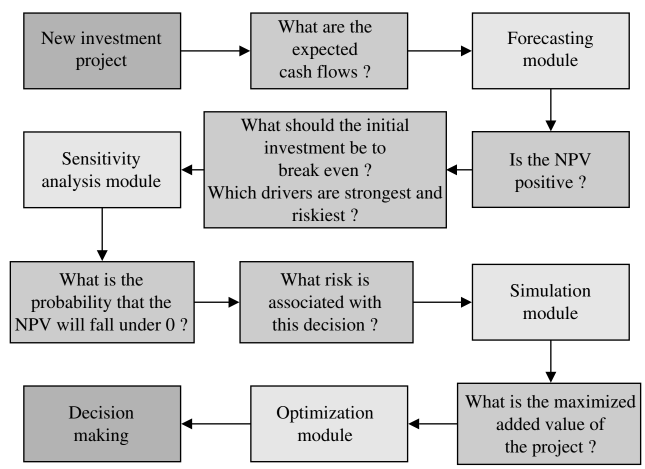


Figure 6: In a new investment project, the first step is to determine the expected cash flows. We use the forecasting module to estimate future values, such as future quantities. After setting up the model, we must find out whether the project will provide a good payback and assess the sensitivity of this payback to variation in the various drivers. We can do this using the sensitivity analysis module. The simulation module helps us to design probabilities in the model and figure out a probability law for the payback. Finally, to maximize the payback under various conditions, we use the optimization module. All these steps support the decision making.

Spreading MS at Nestlé

The EIS team trains users and provides them with support for advanced analysis. The aim is to provide accessible information to managers in the following areas:

—Zone management,
—Strategic business and marketing,
—Corporate controlling,
—Accounting and reporting,
—Treasury,
—Mergers and acquisitions,
—Pensions and insurance, and
—Technical.

Most important, we provided information to the operational finance and control departments in the local markets.

Starting in 1997, we passed various milestones in spreading MS throughout the company:

—In autumn 1997, we created the sensitivity-analysis module.

—In spring 1998 and in August 2000, we made a presentation to the finance and control managers of the zone Asia-Oceania-Africa-Middle East (one of the three zones in Nestlé's structural organization).

—From 1997 to 2003, we made many internal presentations and conducted internal courses at Nestlé's headquarters.

—In spring 1999, we developed the forecasting module (modeling, concepts, and methods).

—In spring 1999, we implemented an intranet, making all the material related to the modules we had created (user manuals, presentations, examples, models, and Excel templates) available worldwide.

—In spring 2000, we developed the value-creation analysis tool and a new module of simulation and risk analysis.

—In April 2000, we organized and ran a two-week road show in southeast Asia (Malaysia, Thailand, Vietnam, Indonesia, and Singapore).

—In March and April of 2001 and 2002, we conducted one-day courses with practical exercises as part of the two-week seminars "Controlling at Nestle."

—In May 2001, we organized a one-week road show that we took to Melbourne and Sydney, Australia.

—In spring 2002, we created the optimization module.

We check the usefulness of capital budgeting based on MS modules regularly through intranet surveys and course evaluations. We find that interest in this approach is growing, and some reporting protocols require use of the MS modules. Nevertheless, the process of gaining interest and acceptance was long and tedious. We did not face much resistance; we just had to convince people. We also encountered some political risks; the EIS department had to avoid interfering with the financial managers whose task is to digest the primary data supplied to them. We always presented the approach as a way to facilitate and highlight the financial managers' work.

Managers' Use of OR and MS Models at Nestlé

The EIS department plan to provide users with open models and to train them in OR/MS techniques instead of limiting them to black-box cutting-edge models has proven effective in spreading OR/MS use within the company. Indeed, managers do not use the model as it stands but must adapt it to answer their specific business needs. They thus come to own the model and the related OR/MS technique. They learn to understand the environment in which the model can work and can also challenge the model to make it evolve. Most important, they can choose the OR/MS technique appropriate to their needs. For example, when a financial controller has to cross-check a marketing department forecast concerning a new product line (a sanity check), he or she must know what OR/MS technique to apply in each situation. The time series for ice cream has a seasonal trend, while that for pet food will be flat or slightly inclined. The controller will choose Winters' method for the ice cream and either simple exponential smoothing or Holt's method for the pet food. Knowing that Excel and its data-analysis tool pack do not include direct tools for Winters' method, the controller can then use regression analysis, taking into account the seasonal factors for the ice cream. In using an exponential-smoothing method with one or two factors, the controller can leverage the factors to meet particular business needs. For example, in a changing business environment (new ice-cream competitors entering the market), he or she will rely on a high alpha factor to give more weight to recent historical data than to older (perhaps obsolete) historical data.

Every day managers face new problems in a complex environment in which multiple products are sold in multiple countries through multiple channels. They cannot rely on one cutting-edge model. To obtain the flexibility they need, managers must understand the OR/MS techniques available and quickly adapt them or even build models to suit their business needs.

Financial managers can use their knowledge of OR/MS techniques and apply appropriate models in many areas. For investment decisions, they can use the sensitivity-analysis module and its toolbox of charts. Financial controllers and marketing managers often use sensitivity analysis to calculate selling prices for finished products. The EIS team developed an open model that links selling price with a full profit-and-loss account to use as a standard for the firm's Asia, Oceania, Middle East, and Africa markets. Marketing managers in each market can adapt the model to their needs. Managers of treasury departments often use risk analysis and optimization models for cash management, and mergers and acquisitions departments use risk analysis to evaluate opportunities and risks.

Assessment of the End-User OR/MS Approach

We implemented several OR/MS techniques in standard back-office solutions used throughout the Nestlé Group (for example, to forecast and plan sales). Such solutions are necessary for routine and mass reporting. Our end-user modeling approach complements these routine solutions in helping managers solve specific problems that require the use of OR/MS.

In our end-user modeling approach, we focus on the end-user rather than a system and thus are spreading OR/MS throughout the company. The complex business environment of Nestlé does not allow us to build one or two cutting-edge models that answer all the questions and that are under the control of only some specialists. Our answer to "complex" is "simple." Simple techniques, simple models, and teaching the basics of OR/MS through all possible means have enabled us to democratize OR/MS within the company. We consider this the only approach that can last in such a company. Managers vary in the ease with which they use different forecasting techniques. The modules' acceptance and use depend on their difficulty. We can describe the modules' use by using a pyramid, the width of which represents the number of users. At the bottom of the pyramid is the sensitivity-analysis module, which is the most widely used. Almost everybody who was taught this module feels comfortable using table and scenario tools. In the middle of the pyramid are the forecasting and optimization modules. Finally, at the top of the pyramid, the simulation module shows us the current limit on what OR/MS techniques managers can use on a large scale in such a company. Indeed, only advanced analysts in the mergers-and-acquisitions or treasury departments use probability distributions. Nevertheless, we base our approach on the long term and believe we can transform the pyramid into a square in which all techniques are widely used.

Conclusion

Executive information system departments are not normally acquainted with quantitative methods. However, courses in MS that we took at the business school of the University of Lausanne in 1996 made a difference. We have helped Nestlé managers to use business-analytics tools in their reporting. We assumed that people in this decentralized company could use simple business-analytics tools to improve their business decisions. We cannot measure the success of our work in terms of cost reduction or profit increase. However, most Nestlé managers around the world are now aware of these MS techniques and their potential. The quantitative expertise thus acquired over the last few years should help Nestlé to maintain its leading position in the food-and-beverage industry. We intend to spread these techniques faster, farther, continuously, and in a more systematic way, to develop specific and sharper modules (linear programming, dynamic simulation, real options) for centers of expertise, such as technical or business excellence, and hence to extend these techniques to functions other than finance. We must time our campaign to avoid introducing these MS techniques too early, when the managers are not ready to assimilate them, or too late, which could cause the company to lose competitive advantage.

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Bernard Teiling, AVP, Group Control, Nestec S.A., Av. Nestlé 55, 1800 Vevey, Switzerland, writes: "By this letter, I would like to confirm that the different methodologies, guidelines and tools developed by the EIS department throughout these last years in the area of finance have proved to be useful for our financial community all over the world. Indeed, the introduction of management science techniques at Group level has benefited a number of our markets from this advanced knowledge and helped train a lot of employees for whom management science was not a routine practice.

"The proposed Financial Analysis Tools' modules cover a wide palette of activities used in finance related tasks: sensitivity analysis (investment project), forecasting (strategic planning), simulation (investment project, risk analysis) and optimization (cash management) build together a logical framework for financial analysis. I am convinced that the models and examples supplied are not only used as it is by our employees but help them in developing their own models integrating these quantitative methods. Furthermore, and although it is impossible to prove, the use of these tools must play an important role in the overall performance of our company.

"I would like also to emphasize the important and precious work that has been done to spread these techniques—not always so easily accessible—within a company as big as Nestlé as well as to outside universities. The numerous presentations, workshops, training courses and permanent presence through our intranet have led to the successful achievement we know today and we can confirm with more than five years of experience."