

The Economic Justification for Enterprise Product Development Software

What is Enterprise Product Development Software?

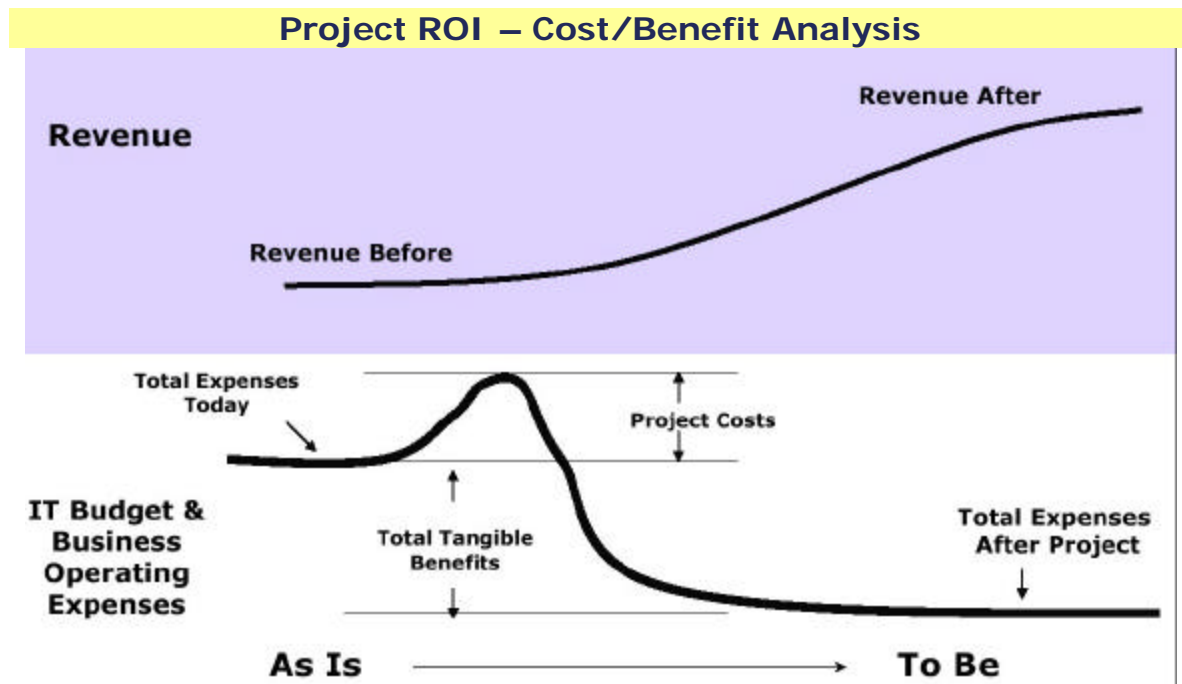
Enterprise Product Development Software involves several different disciplines, including R&D, Marketing, Sales, Regulatory, and Production. The system provides a central repository of all relevant information about a company's products which allows for global visibility and enhanced collaboration during product development. It ensures that everyone is working together toward a common goal using the same information and procedures.

Recipe information, costing and property calculations, marketing justifications, product data sheets and regulatory documents such as Material Safety Data sheets and nutrition labels are examples of some product information that may be maintained by the Product Development system. A variety of software tools allow for rapid formula development and prototyping leading to shortened time-to-market. The **ProductVision** system by Advanced Software Designs (ASD) provides these benefits and more.

How Do You Justify the Software Purchase?

After a period of accelerated activity caused by Y2K fears, the expenditures for IT purchases have leveled off. In the current tight money environment caused by a weak economy and the bursting of the technology bubble, companies are demanding better accountability for their software purchases. According to a recent issue of Information Week, 82% of companies now require Return On Investment (ROI) calculations for IT software purchases.

Measuring ROI is difficult. Many companies (up to 65% as noted by a Computerworld survey) do not have the knowledge or tools to do ROI calculations. And even if the tools exist, it is frequently difficult to quantify all of the benefits of implementing a solution such as **ProductVision**.



ROI is simply the net benefits derived from the purchased divided by cost, expressed as a percentage. For example, if a project returns \$2 in tangible benefits from \$1 in cost, the calculated Project ROI would be 200%. Some companies also use other financial benchmarks including Net Present Value, Internal Rate of Return, and Payback period. Regardless of the method used, the calculation itself is simple. Determining the numbers to use for both the tangible benefits and costs is what makes this difficult.

Identifying the Costs and Benefits

Tangible benefits include hard-dollar cost savings and enhancements to revenue which improve the company's profitability. Typically, cost savings are assumed to be realized through productivity gains resulting in lower personnel costs. Companies should not under-estimate the importance of cost savings resulting from cost AVOIDANCE, however. Some allowance needs to be made for avoidance of regulatory compliance fines and product recall costs that are not charged because of the capabilities provided in **ProductVision**. These factors are discussed in detail below.

Project costs should include all expenditures that a company must make to implement the Product Development software throughout its useful life. That is, what is the Total Cost of Ownership (TCO) of the software? This includes:

- Product Development Software initial purchase price
- Computer hardware costs (including servers, communication equipment, and workstations)
- Related software requirements (Windows XP, SQL Server, Citrix Metaframe, etc.)
- Installation, implementation, training, consulting, customization and documentation costs (including both costs from the software vendor and internal company costs)
- Ongoing training costs for new users
- Ongoing software maintenance costs

ProductVision provides benefits that enhance and PROTECT your company's revenue. These benefits are usually harder to quantify:

- How many dollars in revenue is it worth to be able to bring a product to market a couple of weeks earlier?
- How much future revenue is gained by avoiding an unnecessary product recall and the resulting loss of customer goodwill?
- What is more responsive customer service worth to your customers?
- What are the sales advantages of showing a professional, progressive face to the customer?

These and other benefits detailed below can be obtained by implementing **ProductVision** throughout your company.

Where Are You Now and Where Are You Going?

At the most basic level, you first must fully specify the current environment and then detail the desired results that will be obtained from implementation of the Product Development software. You must document and evaluate current inefficiencies and redundancies, as well as any unnecessary efforts or expenses. You may need to answer:

- What is the true “scope” of the solution? Will the software meet the needs of only a single department, corporate entity, or the entire enterprise? If you are purchasing the software for more than a single department, enlist other departments early on in the process to quantify the benefits of the purchase to all of the stakeholders in the decision.
- How many individuals are involved in the current process? Develop a data-flow diagram for the current Product Development process. How much communication is involved in this process? (This includes forms, paperwork, meetings, or any other form of communication.)
- What software tools and utilities are currently used? What are their advantages and limitations?
- What types of problems, errors, and roadblocks are encountered during the current process?
- How much time is lost to current inefficiencies, and how much does this time cost your company? This includes time spent in workarounds and looking for information which is not available electronically or globally.
- What are your current archiving and recovery procedures? How effective are they?
- Which resources are required to handle problems and emergencies?
- Are there related concerns or problems that have been voiced within your organization? For example, the initial need for Product Development software might have been raised by R&D, but other departments, such as your Regulatory Affairs group, may benefit just as much from the purchase.

The answers to these questions will be invaluable in determining cost savings from increased productivity.

Once you have fully defined the current process, it is necessary to develop a detailed description of the new, improved environment. This will normally require several changes to the current structure. After all, you are trying to make improvements, aren't you? Frequently, a cross-functional tool such as Product Development software requires a company to modify the current boundaries between functions in the development process. Some changes may include:

- **Establishment of a global computer communication infrastructure which allows any stakeholder in the process access to the information maintained by the Product Development software.** Global visibility of recipes, packaging information, specification sheets and other information is critical in making sure that everyone in an organization is working together in an optimum fashion.
- **Reassignment of current duties.** New tools enable information to be entered more efficiently and in a more timely fashion. For example, QC specifications developed by R&D may be entered by R&D instead of Production, resulting in less lost time and duplication of effort and potential for errors.
- **Elimination of some procedures.** Sophisticated functionality in ProductVision allows R&D personnel to develop nutrition labels, and frees other employees to pursue more productive activities.
- **Changes to document flow.** Electronic approval processes in ProductVision eliminate the paper process frequently used in development environments. This not only reduces paperwork, but it ensures that the process is not stalled while an approval document sits on a participant's desk.

Whenever a new system is envisioned, many “needs” and “wants” are identified which must be prioritized and weighted. ASD can aid in this process by providing a detailed listing of functions

and features of its ProductVision software tailored to your specific industry.

Tangible Cost Savings Realized When Using ProductVision

Hard dollar cost savings obtained from increased productivity in the product development process is a major incentive to implement **ProductVision**. Other cost savings may be more properly classified more as “cost-avoidance” rather than cost saving, but still represent tangible benefits provided by the system. Compared to a non-integrated or manual system, savings are realized in several different areas:

Productivity Savings

- ❖ Powerful (and user-friendly) data query capabilities make it very easy to leverage earlier efforts when you are starting a development project. You can easily find starting-point recipes for similar requirements that can be quickly copied and used in the new project. This benefit is magnified in a Global environment, where all recipes world-wide may be searched.
- ❖ The existence of a centralized product development database reduces wasted time by eliminating duplication of effort and by making all the necessary product information available at the touch of a button. All relevant product information such as the recipe, costs, characteristics, specifications, status of development, and other related documents are maintained in one place.
- ❖ **ProductVision** provides a framework which enforces consistent product development procedures and policies. This eliminates confusion in the process and the resulting lost time working “against” the process. For example, you can check the regulatory status (Kosher, GMO, Allergen) of a new product immediately during R&D development so that changes are made before a time-consuming approval process is initiated and the product formulation is ultimately rejected.
- ❖ **ProductVision** was developed as a rapid product development tool. As such, extensive efforts have been made to streamline the process of entering information. The physical process of creating a new formula can be done in seconds, instead of several minutes or more required by many other systems. Extensive use of standard Windows features such as short-cut menus and drag-and-drop makes data entry a snap. The user can create “templates” which can be copied as a new item in a couple of keystrokes.
- ❖ **ProductVision’s** integrated project and approval workflow system reduces the time involved in developing an idea through to a shipping product. No more paper shuffling and time lost searching for who is holding up the process.
- ❖ The “What If” feature allows the R&D formulator or food scientist to rapidly prototype new ideas and reject those which do not meet the required specifications. This eliminates “back of envelope” calculations and wasted lab trials.
- ❖ The program has been designed to make all information immediately accessible. Drilling-down from a formula to an intermediate through to an ingredient requires only a couple of mouse-clicks. Multiple ingredients or recipes can be displayed on the screen simultaneously and compared side-by-side. Again, this reduces the time spent in the formulation process.
- ❖ Integrated tools for creation of regulatory documents and information such as Material Safety Data Sheets, Nutrition Labels, Ingredient Declarations, Product Data Sheets, Kosher, Allergen, and GMO (genetically modified) status’s greatly reduce the time necessary to prepare this information. This information is available instantly when a recipe is created. You do not need to reenter the information in another system, which saves time and increases the accuracy of the resulting document.
- ❖ **ProductVision** provides a complete audit trail for changes made on any item in the system. This eliminates the need to search through paper files or archived spreadsheets to find what changed in a recipe and why. While this may not happen often, it is frequently a frustrating and time-consuming process. A related benefit in ProductVision is that all obsolete recipes may be maintained in the central database where they are searchable and may be

reactivated simply by copying them to an active “entity”. This saves time when searching for previous results and eliminates the effort required to reuse a retired formula.

- ❖ Links to commercially available databases, such as the ESHA Genesis database for nutritional information and the Ariel Research RegAID regulatory database, greatly reduce the effort required to populate information for a new raw material or to ensure that the most current information is always used.
- ❖ The **ProductVision** Application Connector Module ensures that information entered in the system is available to other related systems, such as ERP, document management, and LIMMS systems, etc. Again, the information only has to be entered in one place.
- ❖ Management reporting effort is reduced as all documentation can be created in one place, using either **ProductVision’s** user-report tool or through the use of a third-party reporting tool such as Crystal Reports.
- ❖ **ProductVision’s** user-defined property and user-defined reports features allow you to quickly extend the functionality of the system without customization or programming. New requirements are implemented in minutes instead of days.
- ❖ Global Change and Global Replacement functionality tools in **ProductVision** allow your group to quickly evaluate and update formulas at a single location or around the world with lower cost or higher-performance ingredients in order to gain a competitive edge in the marketplace.
- ❖ **ProductVision** has been written to closely follow the conventions used in the Microsoft Office product suite, such as Word and Excel. This, plus other features such as an extensive Help system greatly reduce initial training costs and make it much easier for the occasional user to be productive immediately. The software is designed to be as intuitive as possible. On-going help desk costs are also greatly reduced.
- ❖ The tools in **ProductVision** generally replace functions currently performed in multiple systems, such as Excel, Word, workflow systems, document management systems, etc. Replacing these multiple systems with a single, user-friendly system generates savings in reduced IT support, reduced training, and reduced documentation requirements.

In summary, providing your employees with a powerful tool such as ProductVision releases them from many tedious and non-productive activities and allows them to perform to their full potential. This results in an increase in employee satisfaction. This higher rate of employee satisfaction along with improved performance produces a chain reaction that leads directly, and ultimately, to more satisfied customers. And satisfied customers provide the base for business growth and competitive success.

Cost Avoidance Savings

Avoiding a potential future cost is another way to benefit from implementing a product development system. Strict compliance with regulatory and customer requirements is always a good idea. ProductVision greatly simplifies the process by maintaining the product specifications and ensures that new and improved products meet these specifications. In the areas of cost avoidance, the potential costs can be quite large:

- What is the cost of recalling product labeled as Kosher or Allergen-free and later found to contain ingredients which are non-compliant?
- What is the potential litigation and judgment costs for lawsuits resulting from products sold as allergen-free that are later found to cause health problems to sensitive individuals?
- What is the cost of not being able to provide documentation that a specific Material Safety Data Sheet was provided to a plaintiff several years earlier?

In September 2000, Kraft Foods had to recall their Taco Bell taco shells at the cost of several million dollars because they contained StarLink genetically modified corn. This corn was approved for use only in animal feed and was mistakenly used in the production of this product. Subsequent investigations found that no detailed specifications existed to prevent this

occurrence. This episode cost Kraft twice, once to recall the product and again in lost customer confidence and future sales.

Compliance with hazardous chemical regulations is even more important. Non-compliance with safety standards (such as inaccurate or missing Material Safety Data Sheets) has in certain cases extended past civil to criminal charges. That is, non-compliance can result in prosecution and incarceration. California (always progressive) has a unique statute called Proposition 65. This law is revolutionary in that it does not rely on governmental enforcement. Proposition 65 contains a “bounty” provision which allows a citizen to bring action against a “violator” for up to \$2,500 per day per violation and to collect 25% of the fines as a reward. For one violation for a year, this would amount to \$912,500, with a bounty for the plaintiff of \$228,125. Predictably, a cottage industry has grown up around this statute which ensures that unwary companies are fined for even the most innocent mistake. In this case, the offense is simply not reporting Proposition 65 listed carcinogenic and mutagenic materials even if they are contained at extremely low levels.

The point of these stories is that it is always much cheaper to avoid catastrophic fines and recalls; however, a reliable system and associated procedures must be in place to ensure compliance. **ProductVision** provides the tools you need.

In addition to non-compliance costs, **ProductVision** can assist in cost avoidance by allowing you to:

- ❖ Leverage the people that you have – support increased effort with reduced personnel because of the improved efficiencies.
- ❖ Leverage the information that you have – with information buried in lab notebooks and with chemists who have left the organization, there is no way of knowing if an already developed product may meet today's needs. **ProductVision** may enable you to completely eliminate a product development cycle by identifying and utilizing a product that already exists.
- ❖ Minimize costs associated with market introduction failures. Because of the collaborative nature of **ProductVision** software and the fully integrated modules that allow you to simultaneously consider and evaluate many factors contributing to a successful product introduction (technical performance, cost, regulatory compliance, etc.), you reduce the risk associated with spending limited resources on developing a product that will not be a commercial success.

Revenue Enhancements with ProductVision

ProductVision has many features which contribute to enhanced revenue. The program has been designed as a rapid product development system which leads to shortened development cycles and faster time-to-market. A major ice cream company and ProductVision customer stated that the program shortened their development cycle by two weeks (out of an average of three months). For a company which develops many products, this is a very significant improvement which theoretically should provide a competitive advantage and higher revenues.

Other benefits of the system include more timely and accurate customer service response and an improved customer image, which should lead to more sales and revenue. Rapid product creation and costing leads to more accurate pricing and increased competitiveness. And accurate, easily accessible management data and reporting leads to better strategic decision-making, which should increase revenues in the long run.

Framework to Justify the Software Purchase

ProductVision formula management system from ASD provides a variety of tools that will allow your organization to: harness existing knowledge; develop new products in a structured, collaborative environment; and ultimately shorten your product development cycle to gain a competitive edge. To justify the cost of the project, however, thorough analysis of the productivity and cost avoidance savings and revenue enhancements will be required. We at ASD hope that the specific issues discussed in this document will provide a basic framework on which to build your economic justification proposal, and look forward to working with you on a successful **ProductVision** implementation.