

Supporting the Business of Product Innovation

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Executive Summary

One of the top priorities of corporate executives is improving product innovation and development, with the aim of increasing revenues from new products, driving down costs, and reducing cycle time. Some of the most critical challenges companies face in improving innovation and product development are:

- Identifying winning product ideas for further investment;
- Developing a strong pipeline of high-value ideas at the front end of the process;
- Ensuring the strategic fit of products in terms of market requirements, sustainability, compliance and innovativeness; and
- Reducing inefficiencies stemming from poor execution of structured processes.

Product lifecycle management (PLM)—the movement of products from idea to development through to commercialization and eventual retirement from the market—is supported by a multitude of products and services that are designed to assist with specific aspects of the process. Examples of areas addressed by these solutions include product data management, shared visualization, project management and workflow. However, these offerings primarily support the tactical or technical aspects of the PLM process. They do little or nothing to answer critical strategic and business-related questions core to the value of product innovation.

Sopheon closes this gap by providing software solutions and services that enable and enrich the strategic decision-making of executives and team members, while increasing the efficiency of underlying actions throughout the product innovation process. Our solutions enable what we refer to as innovation governance – a system of cross-functional decision-making processes that define, align, and manage innovation activities across the entire product lifecycle, ensuring the achievement of strategic growth goals. As such, they present a complement to the tactical advantages of traditional PLM software.

This paper provides an overview of Sopheon’s best-practice solutions that support both an organization’s innovation governance processes and the creative-thinking people working within them, so that substantial improvements can be achieved, increasing the business impact of product innovation.

Sopheon aims to support companies in achieving their strategic growth goals. As such, our solutions present a complement to the tactical advantages of traditional PLM software.

Supporting Product Innovation Processes

Managing the Product Lifecycle

Definition of PLM

Product lifecycle management (PLM) is defined by Gartner as “the discipline of guiding products from initial concept through to retirement to deliver the most business value to an enterprise and its trading partners.”¹ Note that the emphasis here is on business value.

According to Gartner, PLM helps firms with processes and activities such as:

- Strategizing product portfolios;
- Planning product development programs;
- Idea management;
- Requirements management;
- New product introduction;
- Managing schedules, costs and resources;
- Compliance with regulatory targets;
- Searching systems of record for intellectual property (IP);
- Management, search, and reuse of product data; and
- Product design, simulation, visualization and collaboration.²

IT advisory firm CIMdata also subscribes to a business-oriented definition of PLM: “A strategic business approach that applies a consistent set of business solutions that support the collaborative creation, management, dissemination, and use of product definition information.” CIMdata emphasizes that PLM integrates people, processes, business systems and information.³

PLM software systems can be broadly categorized based on the processes they support and the types of information they handle – transactional processes, technical data or business decisions.

PLM is Multi-disciplinary and Growing Fast

Effective product lifecycle management requires involvement by people from many departments and functions within an organization. Marketing, R&D, engineering, finance, purchasing, regulatory, manufacturing, sales, customer support – all need to participate at various points within the business processes that either operate inside of, or intersect with, a product’s lifecycle.

Research by industry analysts consistently cites PLM as one of today’s fastest-growing markets for IT applications. The market has expanded continuously even during times of global economic downturn. Contributing factors include emerging geographic and industry demand, competitive pressures calling for a better understanding of customer needs and improved management of product portfolios, and for many organizations the globalization of product development. Sopheon believes these trends will continue.

Software Systems within PLM

PLM software systems can be broadly categorized based on the processes they support and the types of information they handle (see Figure 1). One of the advantages of this categorization scheme is that it allows us to examine which masterfile particular solutions deal with.

- **Transactional Processes**
Enterprise resource planning (ERP) applications manage the masterfile for transactional processes. They are designed to unify materials planning, purchasing, financial transactions, accounting and reporting into streamlined transactional processes. Supply chain management (SCM) and customer relationship management (CRM) applications also address process needs at this level.

- Technical Data**
 Computer-aided design (CAD) applications, as well as those related to formula, recipe, or product data management (PDM), are primarily focused on managing the masterfile of descriptive data within the product lifecycle. These PLM systems streamline and continuously improve the processes of defining, designing and producing products, while potentially also supporting aspects of product innovation. They offer collaboration capabilities that enable enterprise-wide sharing of product designs, reducing the chance of design and manufacturing errors. M. Rieves emphasizes that comparison of “as-built” information with the designs stored in PDM systems provides defense against product liability due to violation of government regulations.⁴
- Business Information**
 The business level of PLM deals with business issues around critical decision-making within the product lifecycle.

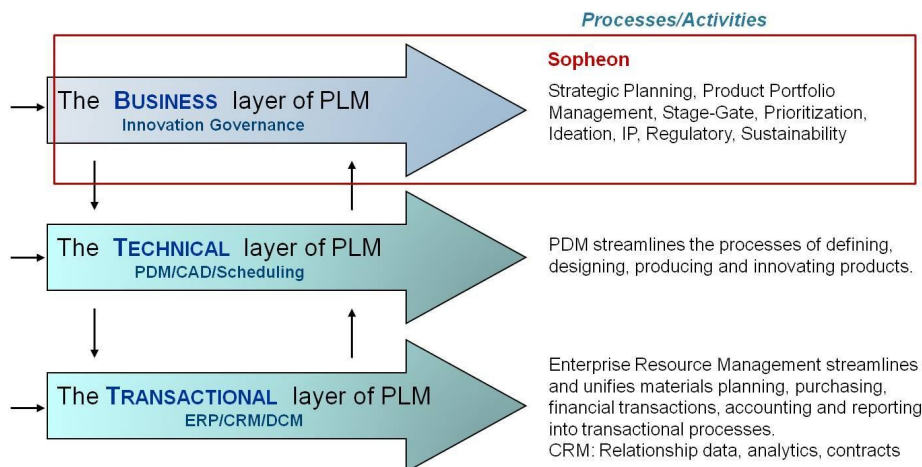
Sopheon’s Position within PLM

Innovation Governance at the Business Layer

In the previous section we noted that some PLM systems focus on improving the success of product design and manufacturing engineering. However, systems built to operate within the *technical* and *transactional* layers of PLM do little to support critical business-related decisions within the product lifecycle.

Systems built to operate within the technical and transactional layers of PLM do little to support critical business-related decisions across the product lifecycle.

At the *business* level of PLM—where Sopheon is positioned—the emphasis is on solutions that handle innovation governance issues such as process management, decision support, idea management, product portfolio management, expertise management, and intelligence around markets, competitors and technologies. Regulatory compliance and sustainability—important not only during product innovation—are also included within the business level.



Source: Sopheon

Figure 1 - Sopheon's Position within PLM. PLM software falls into three categories or 'layers', based on the processes they support and the types of information they handle: transactional, technical and business. Sopheon's solutions support the business layer of PLM.

For a more in-depth discussion of innovation governance, refer to the Sopheon paper entitled “[Innovation Governance: Aligning Strategy, Ideation and Execution for Better Business Results](#)”.

Portfolio and Resource Planning

Sopheon’s solutions are widely acknowledged by analysts and end-users for the strength of their capabilities in such areas as portfolio management and strategic decision support. In fact, Gartner has published a case study that describes how Electrolux, a leading manufacturer of household appliances, has used our software to develop its global portfolio and build and manage local and regional plans as a subset of the total portfolio mix.⁵

Strategic Roadmapping

Sopheon’s PLM software system includes the industry’s best-known and most widely used strategic product roadmapping solution. Roadmapping is a collaborative technique that allows management to set out timelines for product development strategies within the context of social, market, regulatory, environmental and technical trends and developments. This process identifies opportunities and constraints that can then be factored into the capture and enhancement of ideas, the analysis of concepts, and the development and release of new products.

Gated Process Execution

In a best-practice innovation process environment, project information is continuously entered into an enabling solution by team members following a consistent, established Stage-Gate® or other process standard across the global enterprise. This rigor makes complete, reliable and current portfolio data available for analysis and decision support to management at various levels throughout the organization.

From a general point of view, a well-designed and implemented innovation process can integrate intellectual property, regulatory and sustainability activities within each stage where they are relevant. During the feasibility stage, for instance, R&D can investigate the type of manufacturing processes required, so that production sites can be selected on the basis of the state of their facilities, the distance over which raw materials and finished goods will need to be transported, and the regulations that must be met both at the point of manufacture and by end users. All of these considerations will normally be revisited when setting up plant trials and carrying out pre-launch preparations.

Idea Development

Gartner has noted Sopheon’s role in capturing and sharing comprehensive information about product features, use and style early in the innovation process. This is an aspect of idea management. It includes helping to identify potential risks to support better decision-making on which concepts to develop and which to abandon. Sopheon has integrated idea management with product portfolio management (PPM) which, according to Gartner, “makes the selection of product investments more objective and increases the percentage of R&D investments that become commercial products.”⁶

Sopheon solutions support innovation governance issues such as process management, decision support, idea management, product portfolio management, expertise management, and intelligence around markets, competitors and technologies.

The value of integrating idea management with product portfolio management has also been discussed in analysis by Forrester Research, noting that PPM vendors such as Sopheon are going beyond offering basic capabilities such as collecting ideas from contributors to include dynamic idea evaluations, incentives, expert networks and community collaboration platforms.⁷

Sopheon's Solutions: An Overview

Accolade®

Accolade is Sopheon's modular web-enabled solution set that automates and governs innovation processes, enabling companies to increase revenue and profits from new products by improving and aligning strategy, ideation and process execution.

At the strategic level, Accolade provides support for long-term market, product and technology roadmapping, which ensures short-term investments are synchronized with long-term growth plans.

For ideation, Accolade enables a process of idea development to ensure companies have a strong pipeline of high-value ideas feeding into their innovation processes.

At the level of execution, Accolade provides support for automating the cross-functional gated processes that govern the entire product lifecycle. The Accolade solution will support and steer the activities within all product development and maintenance processes, streamlining the activities of users while relieving the administrative burden generally associated with process execution. It offers functionality for all staff playing a role in product innovation, e.g. gate-keepers (executives), project managers, process managers, team members and administrators.

At the heart of Accolade is Sopheon's solution for portfolio and resource planning, which aligns the entire PLM process and ensures our customers' high-value innovation efforts have the resources required to succeed – a real-time dashboard of portfolios, based on information captured throughout a project from conception to launch and maintenance.

Accolade's design reflects best practices uncovered by industry research and incorporates out-of-the-box methodologies and best-practice content developed by Sopheon through years of working with its customer base. Attributes that underpin Accolade's best-in-class stature include ease-of-use, fast deployment and low total cost of ownership. It is highly adaptable to multiple uses; the application can evolve as the adopting organization's innovation governance requirements grow and mature over time.

Accolade Vision Strategist™

Accolade Vision Strategist, one of three Sopheon solution components, helps organizations to visualize, communicate and optimize their future product and technology directions, and align them to the overall business strategy. Roadmapping plays a critical role in bringing discipline and rigor to the planning process.

Accolade is a modular web-enabled solution set that automates and governs innovation processes, enabling companies to increase revenue and profits from new products by improving and aligning strategy, ideation and process execution.

Accolade Vision Strategist, Sopheon's roadmapping software, helps organizations visualize, communicate and optimize future product and technology directions.

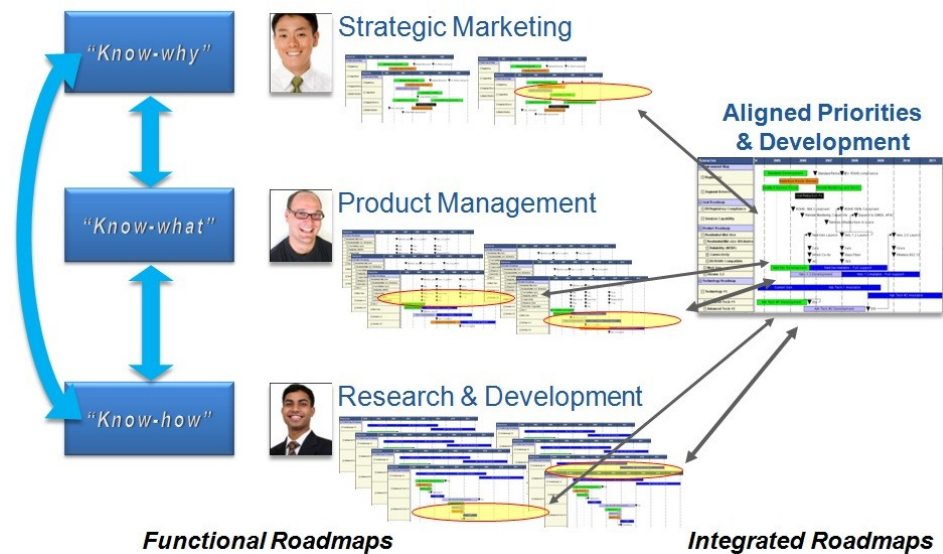
Accolade Vision Strategist allows functional areas to own their information, while at the same time enabling integrated cross-functional views.

Sopheon’s roadmapping software is designed to make the process easy by facilitating cross-functional collaboration, bringing future market, product and technology information together in a single system. The objective is to empower users to make product and technology planning highly visible, integrated and relevant to their business strategies, improving their ability to optimize strategic decision-making.

Sopheon’s consultants generally support customers through a workshop designed to kick-start roadmapping via cross-functional, collaborative facilitation techniques. This is a useful way to educate people about the process, to initiate roadmap discussions, and to begin to brainstorm about future directions via ‘sticky notes’ mapped over visual timeframes. These initial roadmap drafts are then moved into a virtual environment where the roadmaps are further matured, analyzed, and communicated to all relevant parties.

Roadmapping enables the marketing team, which tends to focus on ‘know-why’ questions, to look at trends across horizons and distill them down to specific needs. Product line managers, who focus on ‘know-when’ questions, can define an evolutionary plan for their products. Scientists and engineers, who address ‘know-how’ questions, can define technology paths that leverage platforms across product and market opportunities.

High-value ideas at the front end of the innovation process lead to higher-value products that contribute to revenue and profitability goals.



Source: Sopheon

Figure 2 - Aligning Functional Roadmaps. Various functional roadmaps can be integrated into a single integrated view in Accolade Vision Strategist.

Accolade Vision Strategist allows functional areas to own their information, while enabling planning teams to also create integrated views, working across functions to gain agreement on direction and make long-term plans real. This way, when the company is ready to make the required investment decisions, all stakeholders have confidence that spending is aligned with future growth plans.

Accolade Idea Lab™

Accolade Idea Lab helps companies who are seeking to fill their innovation funnels with high-value ideas. Most often, new users will have a number of items already in their portfolios, but they may only have a few ideas at the front end.

This component of Accolade is based on the principle that, while it is generally important to increase the number of ideas at the front end, what is even more important is that those new ideas are of superior value. High-value ideas at the front end of the innovation process lead to higher-value products that can move through the pipeline and out into the market where they become important contributors to revenue and profitability goals.

Accolade Idea Lab enables the generation of ideas by setting up and facilitating an innovation community where ideas are shared, discussed and voted upon by innovators from across the entire organization. Working with this community, it is possible to run idea campaigns (also known as ‘idea contests,’ ‘challenges,’ or ‘calls for ideas’) to quickly gather ideas on highly focused topics from select audiences in the organization. The innovation community can be encouraged and incentivized by crediting innovators with their ideas, getting them feedback from their peers, and possibly awarding them points that may be redeemed for material or other kinds of rewards.

Companies can systematize the front end of their innovation cycle and put in place a rigorous process for capturing, rating and selecting ideas, using evaluation criteria for ideas that make sense for the company’s size, industry, and innovation culture. Ideas that have passed through this process can be stored in an Idea Bank until there is capacity to move them automatically into the product development process, e.g. Stage-Gate.

Accolade Process Manager™

With Accolade Process Manager, users can configure and manage any structured product innovation process, providing a foundation for efficient, consistent management of a product from idea to launch. This component manages a configuration of stages and gates (other nomenclatures are also possible, e.g. phases and gates, program phases, etc.). It includes a template library that is accessed from the process, containing a large collection of ready-made best-practice templates developed by Sopheon based on its work with customers and consulting partners.

Graphical outlines and appropriate templates guide the user through the process. Tools available to members of interdisciplinary projects include:

- A smart Microsoft® Office documents feature, developed with Microsoft. (When smart documents are uploaded into the database, the key data and metrics are automatically extracted, making these available for reporting purposes. This dramatically reduces the amount of time team members spend on administrative tasks);
- Email notifications that alert users to changes and deadlines;

Accolade Idea Lab enables the generation of ideas by setting up and facilitating an innovation community where ideas are shared, discussed and voted on by innovators from across the entire organization.

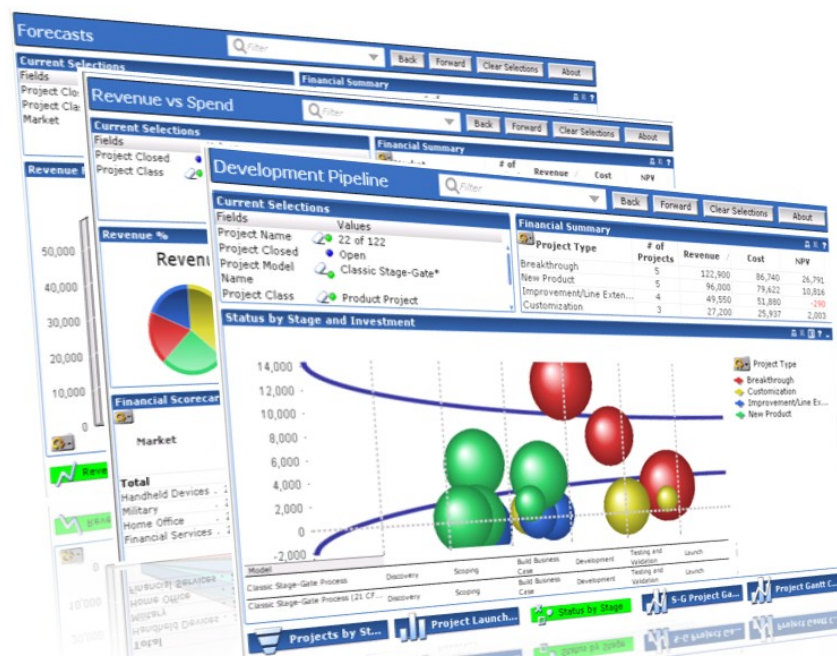
With Accolade Process Manager, users can configure and manage any structured product innovation process, providing a foundation for efficient, consistent management of a product from idea to launch.

- Search capability giving team members easy access to a central knowledge repository that stores all relevant project data collected throughout a product's lifecycle.

Portfolio Management is a principal focus of Accolade Process Manager. Master data is captured through the various deliverables and stored in the database to allow real-time reporting. It offers access to a variety of role-specific, best-practice dashboards of current and ideal portfolios, but if desired, Sopheon will also create custom charts and reports.

Figure 3 illustrates Accolade Process Manager's highly-visual and intuitive portfolio review dashboards, often used by executive teams during review sessions. The dashboards allow such teams to monitor trends in forecasted revenue or cost. They can also assess where projects sit in the development pipeline, and they can track the status of each of those projects, managing risks and identifying red flags early. This level of transparency and visibility ensures that as the business environment changes, portfolio managers can make ready adjustments to ensure continuing returns on innovation investments.

Portfolio management and resource planning are a principal focus of Accolade Process Manager.



Source: Sopheon

Figure 3 - Portfolio Review. Information captured throughout each project's lifecycle from conception through launch and to end of life is made available for portfolio management and planning in real time in a consistent and validated manner.

Resource Planning is the main discipline underlying the prioritization of product development projects. Estimating the resources required to execute a given portfolio

is vital to realizing the targeted value. Accolade Process Manager offers a number of resource planning tools that allow management to compare resource availability with the tasks at hand. The Portfolio Editor tool, for instance, enables the creation of various What-if scenarios, showing ways in which resources could be allocated to ensure support for high-value product development projects.

Innovation Maturity Consulting

The best practices built into Accolade are a result of Sopheon's experience in implementing innovation governance solutions at nearly 200 companies throughout the world. It is worth noting that Sopheon has implemented more Stage-Gate processes than any other solutions provider.

The backgrounds of our business consultants allow them to apply a highly effective implementation process. All of our consultants have:

- Academic and industry certification credentials;
- Real-world experience across a broad range of industries; and
- A deep understanding of innovation governance best practice.

Moreover, at Sopheon we have a unique approach to working with our customers. We are more than a software vendor; we become your innovation partner. We offer an ongoing relationship that helps ensure your product innovation success long after our software has been launched, allowing your team to continue to take advantage of our experience and knowledge in innovation governance as it strives to grow and mature your innovation processes.

We can help with post-deployment issues, including new learnings and unanticipated developments or challenges that are central to your environment. We believe it is important to conduct a process effectiveness review six to twelve months after launch of the software to address such issues as:

- Gathering broader input from users than that gathered during the implementation;
- New requirements that you were not aware of during the design phase;
- Use of software to support decision-making, hence a need for coaching of your gatekeepers and portfolio managers;
- New process requirements; or
- New portfolio views.

Our consulting offerings are wide-ranging:

- **Ongoing Innovation Governance Support**
This service supports process managers and the core innovation team by providing access to Sopheon's subject matter experts in integrated new product development, ideation, portfolio management and strategic roadmapping. Through this support, we help you to advance to the next level of innovation governance maturity.

Sopheon is more than a software vendor; we become your innovation partner, sharing our experience and knowledge in innovation governance as you grow and mature your innovation processes.

- **Effective Gatekeeping Workshops**
These workshops help you run more efficient and productive gate meetings, ensuring that you are continuously focused on the right projects.
- **Effective Portfolio Management Workshops**
These workshops help you to broaden the scope of portfolio management reviews, turning them from mere tactical assessments into strategic decision-making and planning exercises.
- **Innovation Governance Health Check**
Sopheon consultants work with your project teams to help them optimize your process to meet your unique needs and ensure continued alignment with accepted best practices. Information gathering through a series of interviews and system audits are combined with our experience and know-how to ensure your process performs at peak levels at all times.

Matching the Vendor and the Solution to the Challenge

When deciding which PLM vendor to partner with, you should start by considering the product lifecycle challenge you are trying to solve.

One piece of advice consistently heard from analysts and successful PLM practitioners is that when deciding which PLM vendor to partner with, you should start by considering the product lifecycle challenge you are trying to solve. Is it principally managing CAD files and the communication of product data between engineers? Is it identification of the most suitable suppliers or partners for effective market launch of products? If any of these is your goal, you should choose a vendor specialized at the transactional or technical levels of PLM.

If, however, your challenges are in the areas of process management, decision support, roadmapping, idea management, portfolio management, expertise management, or managing market, competitive and/or technology intelligence, you should choose a vendor such as Sopheon that specializes in innovation governance at the business level and provides end-to-end innovation process support.

Reference Notes

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About the Author

Frank van Ruyssevelt is a senior business consultant within Sopheon's client services group. He is an expert in the design and implementation of product innovation processes, including ideation, phase- and gate-based product development and portfolio management. Frank has worked extensively in the roles of advisor, analyst and trainer in support of Sopheon software implementation, primarily in the chemicals, food and beverage and consumer packaged goods industries. He can be reached at frank.vanruyssevelt@sopheon.com.

About Sopheon

Sopheon (LSE:SPE) is an international provider of product lifecycle management software and services. Its solutions help organizations increase revenues and profits from new products by synchronizing innovation planning and execution. Sopheon's Accolade® software suite is the first in the industry to provide all-in-one support for strategic product planning, ideation and innovation process execution. The suite's Vision Strategist™ component automates the roadmapping process, allowing users to visualize and forecast the future of products, markets and technologies. Accolade's Idea Lab™ component helps organizations generate, select and develop winning product and service ideas. Accolade Process Manager™ automates the product innovation process and provides strategic decision support for the management of product portfolios.

Sopheon's software is used by top innovators throughout the world, including industry leaders such as BASF, Cadbury, Corning, Electrolux, Motorola, PepsiCo, SABMiller and Verizon Wireless.

Sopheon has operating bases in the United States, the United Kingdom and the Netherlands, with distribution, implementation and support channels worldwide.

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