

CONNECTING CONCEPTUAL DESIGN TO REAP THE BENEFITS OF SOCIAL INNOVATION IN PRODUCT DEVELOPMENT

WHITE PAPER



Driving innovation in product development demands new ways of thinking. Manufacturers increasingly need an effective strategy and efficient means for channeling product ideas, unique insights, and differing perspectives into the conceptual design process. To consistently develop innovative approaches that ultimately culminate in successful products, designers require direct, secure, and controlled communication and collaboration connections with key stakeholders—both internally and externally—so they can incorporate a range of voices, views, and inputs into new concept development. By bringing social networking tools to the designer's modeling environment, the SOLIDWORKS® Conceptual Designer solution enables manufacturers to realize the competitive advantages of leveraging social innovation in new product development.

REALIZING THE POWER OF SOCIAL INNOVATION THROUGH CONNECTED CONCEPTUAL DESIGN

No designer is an island, and innovation does not take place in a vacuum. Although many individuals have delivered inventions and innovations throughout history, they all successfully synthesized the knowledge, ideas, views, suggestions, and recommendations of others to refine their inspiration, guide their creativity, and focus their vision toward a practical application and successful outcome. Creating new product concepts is no different, except that the time allotted for completing this synthesis is undoubtedly much shorter. Instead of having the good part of a lifetime to process and combine customer needs, potential solutions, and applicable technologies into an innovative concept, as many inventors and innovators had, today's conceptual designers face far greater urgency to innovate quickly, and are frequently expected to complete this complex process in a matter of months, weeks, or days.

As the economy becomes increasingly global and technology continues to rapidly advance, product development organizations face the challenge of compressing conceptual design cycles—in order to consistently deliver product innovations first—while simultaneously pursuing greater engagement with key stakeholders in the development, manufacturing, supply, distribution, and customer chains. Innovative product ideas can come from many places, and the ability to connect conceptual design with increasingly dispersed users, customers, distributors, partners, managers, marketers, and sales professionals can stimulate innovation. Engaging these important stakeholders through secure, controlled, and socially connected online communities—using the tools provided in SOLIDWORKS Conceptual Designer—not only can achieve increased levels of collaboration more quickly, but also lead to more innovative, customer-driven design concepts.

Social innovation occurs when the voices, expertise, and insights of key players in a market space form a single, dynamic design community, which influences, guides, and fosters the development of innovative product concepts. With a concept modeler that supports social-networked-style communications—like SOLIDWORKS Conceptual Designer—manufacturers can take advantage of the ability to engage, capture, and incorporate all of the inputs, feedback, and perspectives of their particular design community.

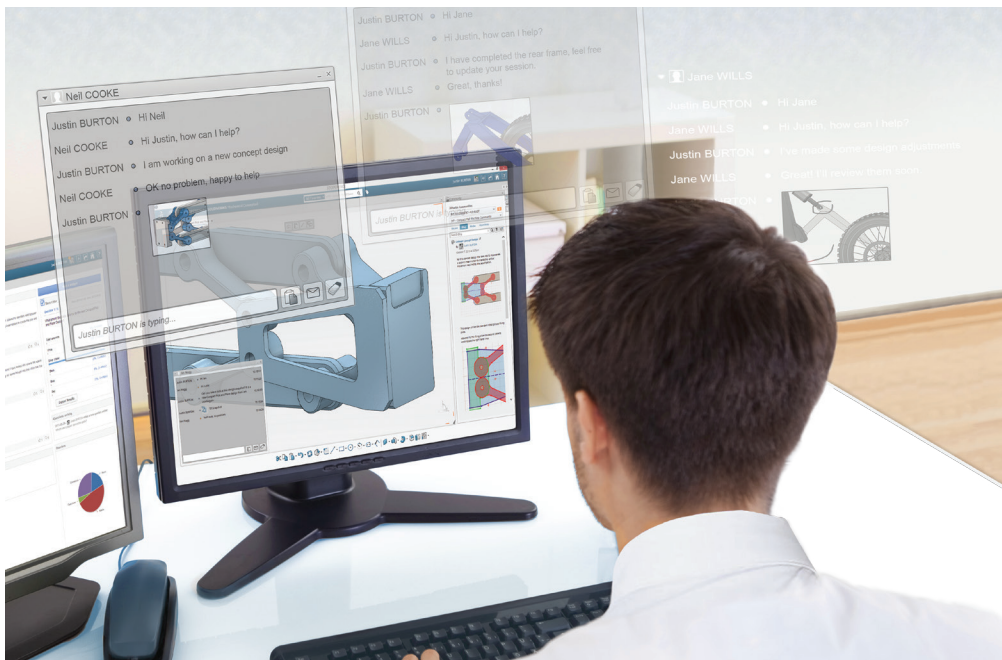


GETTING OUTSIDE THE BOX—SOCIAL TOOLS STIMULATE INNOVATIVE CONCEPT DEVELOPMENT

Manufacturing companies have striven to gain market insights and product ideas from outside their organizations for some time. Using tactics ranging from market research to focus groups to voice-of-the-customer programs, manufacturing organizations have long sought external points of view to counter the tendency toward overly internalized product development and stimulate new ways of thinking. Because innovation typically doesn't come from repeatedly doing the same thing in the same way, gaining outside perspectives, especially those of users or customers, helps product development groups get outside the box of complacency and stimulates innovation in conceptual design.

Traditional customer outreach programs, however, are not always effective, efficient, or reliable. They can be expensive to conduct, produce indefinite results, and rarely support direct collaboration with designers. True inclusion of the voice of the customer as part of conceptual design also demands more than a single or limited number of communications or contacts. Accurately capturing the customer point of view is an iterative process, requiring an open and fluid, yet managed and controlled, flow of information. And, it's not only the customer's perspective that matters. Gathering input and feedback from other stakeholders—ranging from suppliers, partners, and distributors to internal players, such as management, finance, estimating, procurement, manufacturing, marketing, and sales personnel—can also be valuable for sparking new ideas and concepts.

Maximizing the impact of engagement with external and internal stakeholders as part of conceptual design requires a new communications paradigm—one that is based on unstructured, yet controlled interaction, rather than structured communications. Past attempts to support collaboration among key players have relied on structured meetings, visits, conference calls, and surveys. By applying the social network model of communications to product development, manufacturers can support secure, controlled, yet unstructured communications among stakeholders with the common interest of realizing the rewards of innovation. With the ability to contribute input, provide feedback, and offer guidance on new design concepts in real-time, 24 hours a day, seven days a week, from multiple digital devices, stakeholders can take advantage of the same tools that have built social networks— instant messaging, chat, imaging, and like/dislike judgments—to establish a networked conceptual design community that drives efforts towards innovation.



THE ADVANTAGES OF CONNECTING SOCIAL INNOVATION TO PRODUCT DEVELOPMENT THROUGH CONCEPTUAL DESIGN

While the overarching benefit of connecting social-networked innovation to conceptual design involves a more efficient and effective system of product-development communications with key stakeholders, bringing a strategic design community directly into the designer's modeling environment also requires a system of controls for filtering and managing communications. When social communications are sufficiently managed, involving design communities in the designers development environment can enable a range of additional competitive advantages. Manufacturing enterprises can leverage the many benefits of communication networks for conceptual design to propel the development of innovative product concepts.

Increased Ideation

The first and most obvious advantage of applying socially linked design communities to conceptual design is the substantial increase in the number of new product ideas. Instead of relying solely on ideas or concepts that are generated internally, manufacturers can tap the minds, experience, and perspectives of everyone involved in the development, engineering, production, distribution, marketing, sale, and use of a product. Although not all of these ideas will turn out to be tenable or profitable, the sheer influx in the volume of new concepts proposed will result in increased innovation as the outcome of the conceptual design process.



Dynamic, Fluid Communication

Because socially networked design communities enable more dynamic, fluid, and unstructured communication, product development organizations can improve the results of conceptual design efforts. The ability to flexibly engage within a social-modeled network—utilizing live chat, model sharing, and real-time communication—at any time and from any where not only means that fewer meetings are required, but also that the input and feedback received will be of higher quality and greater import. With dynamic, social communications, designers can obtain feedback, iterate on concepts, and converge on innovative designs more quickly. A networked design community will be able to visually communicate and exchange concepts and ideas in ways that were previously impossible. This improved means of communication allows manufacturers to take advantage of the knowledge that is widely distributed and the talent that is hidden throughout their organizations.

Broader Consensus Sparks Productivity

The impact of connected design communities also extends to the ability to build a consensus around concept innovations across the enterprise. Professionals from different functional areas will be better informed regarding new concepts in development and even have a sense of ownership from being involved in the process. This feeling of connection can unleash greater enthusiasm, excitement, and support for innovation across the manufacturing organization, resulting in the productivity gains that come with tightly focused product development. With a broader consensus behind a product, more people across the enterprise will be invested in it, helping to shorten time-to-market and improve quality.

Developing More Successful Products

The ultimate goal of conceptual design is to create new concepts and innovations that lead to successful, winning products. By supporting concept development with an externally and internally linked design community, manufacturers can increase the probability of success through more direct customer engagement. Designers can use these customer connections to incorporate social innovation and enhance the overall user or customer experience. By infusing the user's point of view into new concept development, manufacturers not only will win additional business—particularly with engineered- or made-to-order products—but also create products that enjoy greater customer satisfaction, which will, in turn, build customer loyalty. Loyal, satisfied customers will help manufacturers generate increased sales and revenue over the long term.

Improved Knowledge Utilization and Management

An often-overlooked benefit of connecting social innovation to product development through conceptual design is the ability to capture interactions within the design community, which allows manufacturers to uncover, utilize, and manage the knowledge that exists across their enterprises and throughout their customer base. By enabling product development organizations to maintain a data and communications record of newly generated and existing product knowledge, a socially connected design community can cultivate a fertile field for future development. Ideas and concepts that don't pan out for their initial, intended applications may have value for other uses or in different settings. Social documentation of a design also captures the ideas and thought processes surrounding concept development, so if someone leaves, their knowledge remains within the company.

Building Better Relationships

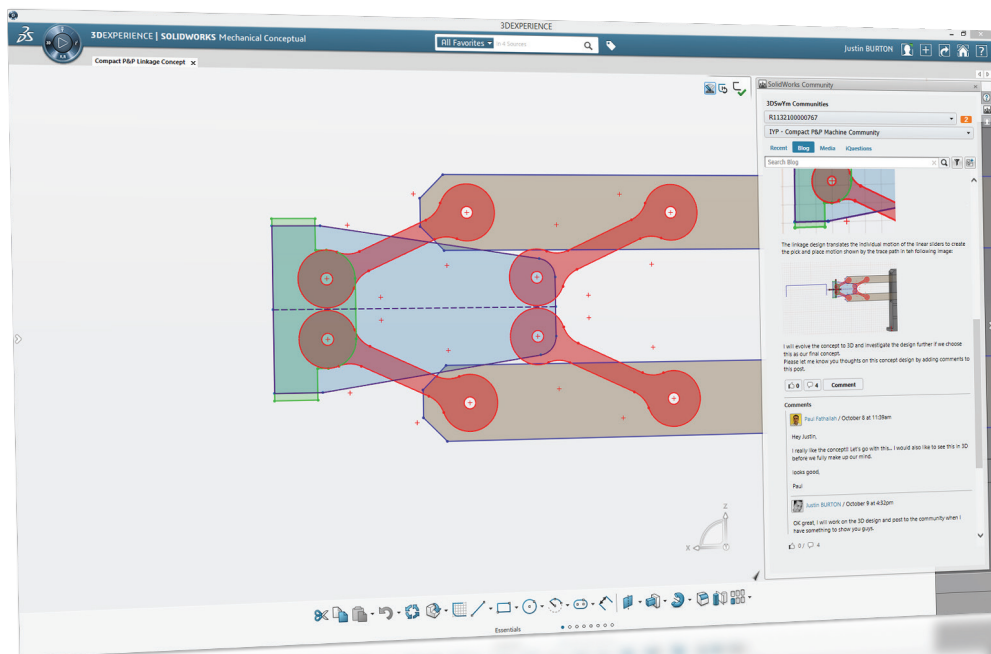
Community engagement of key stakeholders in the conceptual design process will initiate, grow, and solidify important working relationships, both within and outside the manufacturing organization. Customers, suppliers, and partners who are engaged with designers within a social communications framework for the purpose of developing product innovations will feel like they are part of something, know that they are valued for their insights, and have a vested interest in the success of a product. This sense of community extends within the manufacturing enterprise as well. Departments, facilities, and offices that may not previously have had contact will become valued members of the same team. Designers and engineers will develop relationships with non-technical and field-focused professionals, resulting in greater teamwork and support.

SOLIDWORKS CONCEPTUAL DESIGNER—BRINGING SOCIAL INNOVATION TO CONCEPTUAL DESIGN

Dassault Systèmes has adapted the social network model for fluid, dynamic communications into SOLIDWORKS Conceptual Designer. This flexible, cloud-based, single modeling environment leverages the power of the Dassault Systèmes **3DEXPERIENCE**® platform to facilitate innovation in new concept development. By securely connecting designers with extended design communities from within the actual modeling application, the software enables product development organizations to incorporate social innovation as a vital part of conceptual design.

Community-Connected Integrated Modeling Environment

Using SOLIDWORKS Conceptual Designer, designers can establish, control, and manage a range of communications with key internal and external stakeholders without ever leaving their modeling system. There's no need to jump to email, switch between applications, or schedule meetings to collaborate with customers, suppliers, partners, or colleagues. With SOLIDWORKS Conceptual Designer, communications with members of the connected design community take place inside the same development environment in which concept models are created—through live chat, model sharing, and real-time communication—giving designers the flexibility to consider and incorporate valuable input and feedback as they work with actual design concepts in real time.



Synthesizing Customer, Engineering, and Business Requirements

SOLIDWORKS Conceptual Designer's socially connected communication capabilities facilitate the often-challenging process of synthesizing customer, engineering, manufacturing, sales, and business requirements into innovative product concepts. Instead of scheduling numerous meetings, having many telephone calls, or engaging in extended correspondence with all of the various parties that make up a particular design community, designers can leverage the software's social networking tools to simultaneously realize fast, easy, social network-like access to all important players. In addition to saving significant amounts of time and avoiding repetitive tasks, designers will benefit from having all communications funneled directly into their modeling environment, making the process of boiling down all of the various product requirements into an innovative concept much easier.

Real-Time Social-Networked Communication and Collaboration

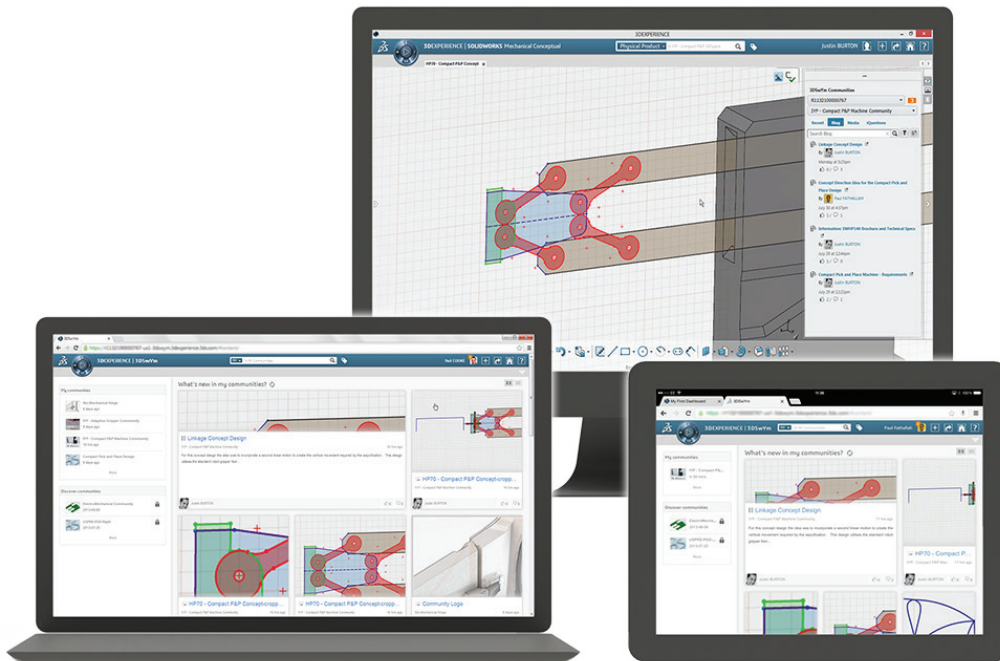
With SOLIDWORKS Conceptual Designer, Dassault Systèmes has applied the best available social networking technologies to the conceptual design process. Instead of building digital communities around groups of families and friends, however, the software is designed to establish and leverage the involvement of product design communities comprising selected individuals from internal and external groups who share an interest in the development of innovative products. Because SOLIDWORKS Conceptual Designer is cloud- and web-based, it's always available to community members through any digital platform, including workstations, desktops, laptops, tablets, and smartphones. By supporting real-time, social-networked communication and collaboration, SOLIDWORKS Conceptual Designer makes social innovation an important part of the product development process.

Secure Conduit for Social Innovation

Unlike the privacy concerns attendant to conventional social network technologies, SOLIDWORKS Conceptual Designer has built-in access management controls and a safe, cloud-based architecture to help create a secure conduit for injecting social innovation into product development. Designers also control what information they share and with whom they share it in a specific design community. While the designer is the recipient of all communications, other members of the community can only access and view content that is shared or sent by the designer through invites. This approach maximizes the impact of the important contributions of key stakeholders while securing innovative ideas and concepts that add to a manufacturer's valuable intellectual property.

Flexible Interactions

What makes SOLIDWORKS Conceptual Designer so different from traditional design systems is the lack of a CAD software requirement for connected members of the design community. Although the designer accesses SOLIDWORKS Conceptual Designer cloud-based capabilities from within the locally installed software or from his or her web browser, other members of the community don't need any special type of software to receive or send communications. All they need is one of the standard web browsers running on any digital device, whether it's a workstation, laptop, tablet, or smartphone. This flexibility enhances interaction within the design community and allows conceptual designers to share design information—using 3D chat, instant messaging, model snapshots, and design markup tools—that previously would have required the installation of a CAD system or its viewer by every member of the team.



Transparent Management of Social Collaboration

A critical requirement for making socially connected design communities effective is capturing and retaining all of the give-and-take interaction and exchange of information that takes place within each conceptual design community. SOLIDWORKS Conceptual Designer automatically and transparently captures, retains, and manages all social interaction during conceptual design collaboration in a database that resides in the cloud. The solution records and stores social communications, including live chat sessions, for future reference and use. Every discussion that a designer has about new concepts—including the successes, the failures, and the innovations waiting to be uncovered—are stored and safeguarded for future use, allowing product development organizations to retain and continue to leverage valuable stakeholder input.

SOLIDWORKS CONCEPTUAL DESIGNER DRIVES SUCCESSFUL PRODUCT DEVELOPMENT THROUGH SOCIAL INNOVATION

Incorporating social-networked communication frameworks as part of conceptual design can help drive increased innovation in product development. By delivering an effective means for funneling the valuable ideas, knowledge, experience, and perspectives that reside throughout an enterprise, its customer base, and its supply and distribution chains into conceptual design, manufacturers can stimulate innovation in the development of new product ideas. SOLIDWORKS Conceptual Designer brings the competitive advantages of social innovation to today's product development organizations.

By adapting social networking tools to the designer's modeling environment, SOLIDWORKS Conceptual Designer enables manufacturers to connect designers with the voices, views, and contributions of key stakeholders inside and outside the company, including customers. Utilizing the powerful Dassault Systèmes **3DEXPERIENCE** platform, SOLIDWORKS Conceptual Designer injects the inputs, feedback, and insights of an extended design community into the conceptual design process, resulting in more innovative and successful products. This enhanced level of communication helps manufacturers achieve innovation more strategically, increase productivity more consistently, and build internal and external relationships more effectively—all while transparently capturing, retaining, and managing conceptual design activity. Social innovation is an important competitive advantage for product development organizations. SOLIDWORKS Conceptual Designer makes it happen.

To learn more about how SOLIDWORKS Conceptual Designer can help you incorporate social innovation into conceptual design, visit www.SOLIDWORKS.com or call 1 800 693 9000 or 1 781 810 5011.

Our 3DEXPERIENCE platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

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