Manufacturing

Creating a Blueprint for Successful New Product Development Using Social Media

About the Author

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Vijay has eight years of experience in the automotive domain, spanning the areas of consulting, IT and manufacturing. His consulting experience includes business process consulting, visioning, and business transformation consulting to different automotive OEMs, Tier 1 auto vendors, and Tier 1 aerospace vendors. He also has cross-functional experience in innovation, new product design and development, marketing, and strategy planning. Vijay is a certified New Product Development Professional (NPDP) from the Product Development and Management Association (PDMA), USA, and has co-authored two patents in automotive electrical power generation systems.

Manufacturing organizations worldwide now focus strongly on innovation to come up with new and exciting products that suit the increasing complexities in buyer behavior and market requirements. Such products help companies differentiate themselves in the cluttered marketplace and achieve high levels of customer satisfaction. However, New Product Development (NPD) is not always a smooth ride, as companies must grapple with challenges such as outpacing competition, containing costs, shortening product development lifecycles, and attuning NPD efforts to market demand.

This paper focuses on how social media can be leveraged for successful innovation in manufacturing organizations and highlights the role of social media in minimizing product failure during the NPD process. As consumers become more tech-savvy and take to various social media forums to voice their likes and dislikes, organizations can use this readily available information to design their products to be more in line with market demand.

Social media can help organizations gain a different perspective on product concepts, target customers and emerging trends, thereby ensuring a smooth and hassle-free uptake of the new products as they are introduced. The ideas presented in this paper relate to the manufacturing industry, but can be customized to apply to other industries such as retail, banking, consumer goods, and high tech.

Contents

1. Introduction

Global manufacturing organizations are in a state of perpetual competition against each other in their quest to maximize customer delight. They must constantly innovate to achieve process and product efficiency, and to provide a seamless experience to delight their customers. New Product Development (NPD) is an important process through which manufacturers can transfer maximum value to their customers, thereby gaining customer mind-space and loyalty, which in turn results in an expanding share of the market. However, here are two interesting statistics about the success rate of new products:

- Most new products never make it to market, and those that do, face a failure rate of 4 to 25 percent .

- For every seven new product ideas, around four enter development, one and a half are launched, and only one succeeds[1]

These facts do not augur well for the ability of manufacturers to address one of their biggest challenges — what exactly do customers want and how will they respond to a new product?

Answering this question requires companies to listen carefully to the voice of the customer, a voice that was earlier very faint. The advent of social media has changed this dramatically – today the voice of the customer can be heard loud and clear, million-fold. With people becoming increasingly social media savvy, can organizations leverage this medium to engage with customers on future product ideas? And to top it all, where and how can manufacturers start this process?

2. Changing Landscape of the Manufacturing Industry

TCS' white paper, 'Manufacturing Reinvented,' highlighted some key trends driving the transformation of the manufacturing industry[2]:

- Consumerization of manufacturing from B2B to B2B2C

- Virtualization and digitization across the value chain

- Supply chain network economy for better management of B2C aspirations

- Complexity reduction and modularization of business

- Innovation in product design, material science, and sustainability

- Use of next generation technologies (social media, mobility, analytics, and cloud) across various value chain components

- Evolution of innovative business models

All these trends spell the next big change for product innovation and development functions. Increasing customer centricity is compelling organizations to bring significant flexibility and customization in product design and development. Rapid proliferation of next generation technologies is leading manufacturers to redesign business processes and models. Through an in-depth analysis of the aforementioned trends, we have identified some key implications (see Figure 1) that can impact the entire manufacturing value chain.

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[1] Journal of Industrial Engineering and Management, A framework for successful new product development (Nov 2011), accessed May 1, 2013, http://www.jiem.org/index.php/jiem/article/view/334/240

[2] TCS, "Manufacturing Reinvented – How Technology is shaping the Future of Manufacturing" (May 2013), accessed December 1, 2013, http://www.tcs.com/resources/white_papers/Pages/Manufacturing-Reinvented.aspx
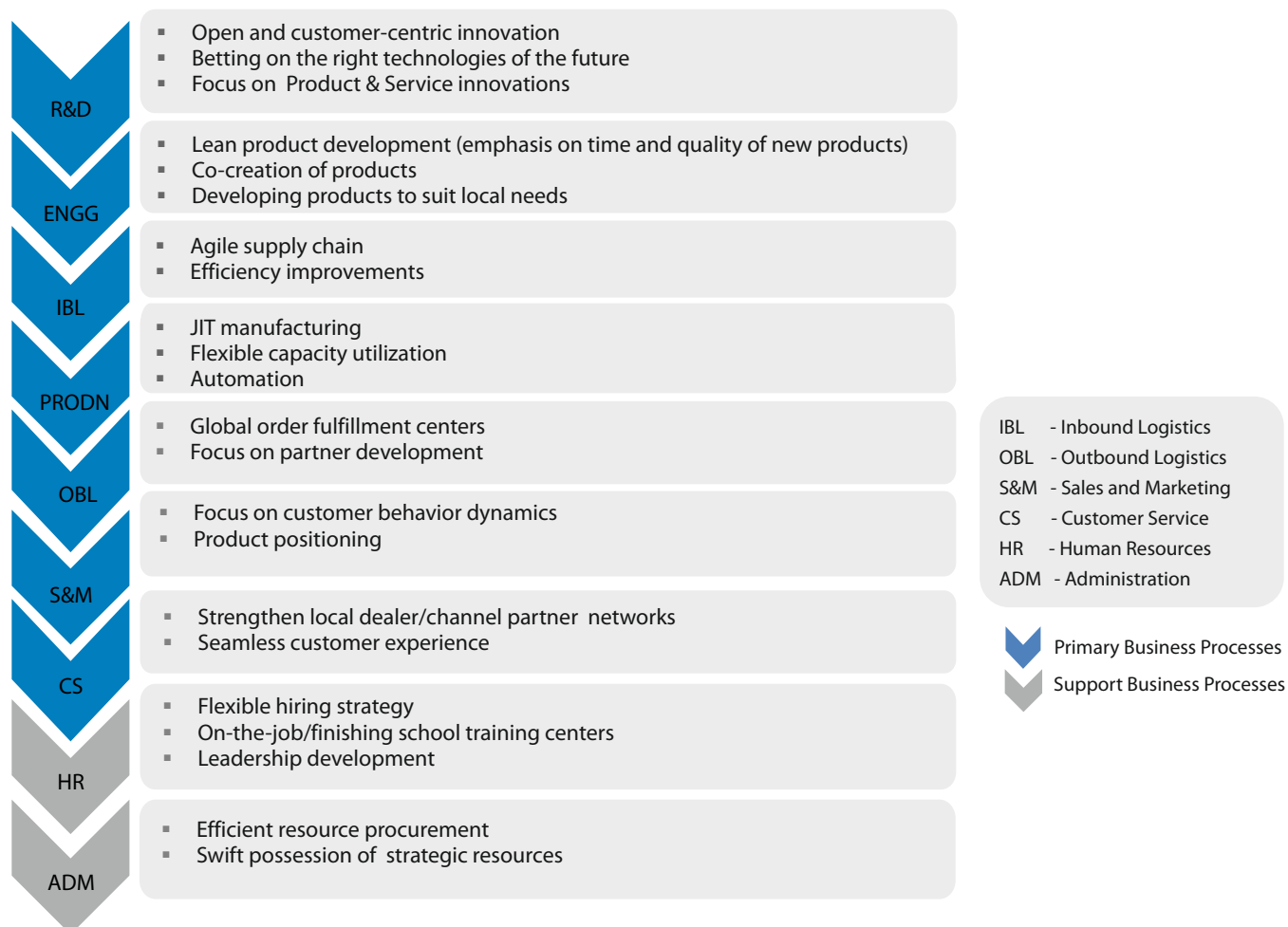
Figure1: How the Manufacturing Value Chain Is Changing in Light of Emerging Industry Trends
(Source: TCS Internal Research)

Figure 1 indicates that companies must focus on themes like customer proximity, business agility, and fostering innovation and collaboration. Innovation and NPD have always been the primary weapons in a company's arsenal to counter market challenges and build competitive advantage, especially in the manufacturing industry. Successful companies understand their customers' pain points and design products that comprehensively address these problems. For example, realizing that most rural and urban vehicle owners were looking for a simple and less expensive means of transportation, Tata Motors launched Tata Ace, the first four-wheel mini truck that transformed the face of sub-1 ton goods carriage sector in India when it was launched in 2005. As a result, Tata Motors sold 30,000 Aces in the very first year of its launch, and demand more than doubled to about 70,000 in the subsequent year. In 2012-2013, Tata Ace was rated the single largest commercial vehicle brand in the country[3]. The Tata Ace story demonstrates how organizations can use customer proximity, business agility, and innovation to improve profitability. Developing successful new products helps organizations secure a first mover advantage in the market and gain significant advantage over competition.

Manufacturing organizations need to carefully take stock of customer expectations while devising product strategies. Incorporating customer feedback and suggestions throughout the course of product development can help organizations come up with path-breaking and commercially viable innovations. With increasing access to the internet, consumers today use several digital platforms to voice their concerns and opinions about needs, preferences and issues. Social media is emerging as an important medium for interaction between organizations and their consumers. Analyzing social media chatter can help organizations gain meaningful insights into customer behavior and preferences. This, when complemented by the regular NPD process, can help improve the innovation success rate.

3. Challenges in the Conventional NPD Process

The conventional new product stage gate process consists of well-defined phases with stage gates between them to control the flow of projects from ideation till launch (see Figure 2). The decisions at each stage gate include 'Go,' 'No go,' 'Hold,' or 'Come back' – and this process can propel new projects in the right direction until they eventually turn into new products. But the big question is: "Why do some companies consistently fail to improve the success rate of new products, although they adopt the stage gate approach in their NPD process?" Without really criticizing the stage gate process, it appears that a crucial element may be missing in the approach, and the same could be included in current stage gate processes to make them more effective and relevant to the challenges currently faced by the manufacturing industry. This crucial element refers to active customer engagement or dialog by the organization during the NPD stage gate process to understand the requirements or perceptions of the customer.
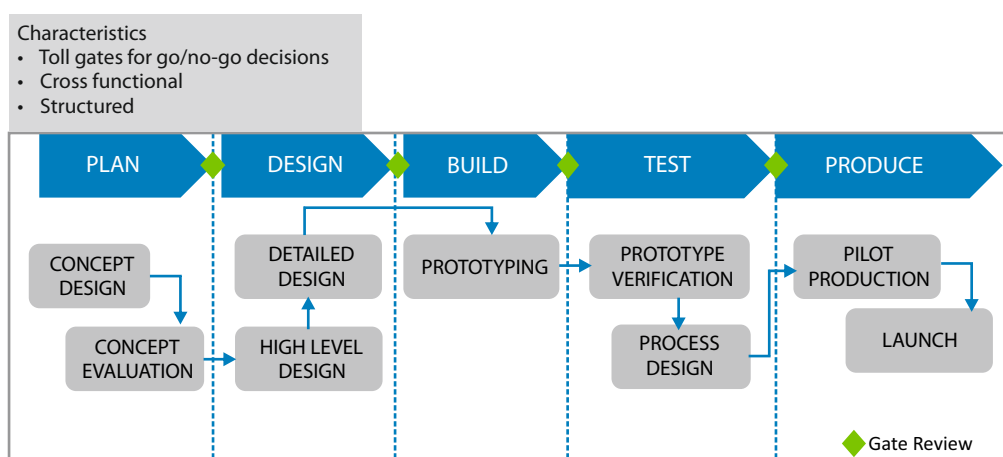
Figure 2: Conventional Stage Gate New Product Development Process

The key challenges in the conventional stage gate NPD process include:

Lack of market feedback

The stage gate NPD process revolves around the stakeholders within the organization (although the process does take some inputs from external suppliers). Notwithstanding the fact that cross-functional teams are involved early in the process to provide inputs on new products from different perspectives, there are rarely inputs from

customers during the entire tenure of the new product stage gate process. If product managers were asked the question: "How often is the feedback from the market incorporated during the NPD stage gate process?" in most cases, the answer would be 'never' or 'rarely.'

Lack of clarity in inputs

The front end of the NPD process is mostly fuzzy in nature. This means that there are many ambiguities in product planning, inclusion or exclusion of product features, target customers, value proposition, and so on. Most companies conduct market research or evaluate on-field customer conversations to understand their customers' latent or unmet needs and aspirations, and address the same in their new products. However, these surveys or discussions are limited to focused customer groups of small sample sizes. It is also difficult to predict the latent needs of customers from these surveys, as many customers are unable to articulate their needs correctly. Due to these uncertainties, solutions to the customers' needs, drawn from this initial hypothesis, are imperfect and not apt for design and development.

These challenges reduce the NPD process to a guessing game, which negatively impacts the success rate of new products. As per a research study, the results of which are elaborated in the book, 'Winning at New Products: Creating Value through Innovation', following are some key reasons for failure of new products[4]:

- Inadequate focus on periodic customer feedback, user inputs and industry insights
- Dynamic product specifications and ever-changing project scope
- Lack of collaboration amongst stakeholders

It is interesting to note that inadequate focus on periodic customer feedback was a key reason for most product failures. The same is corroborated by the graph shown in Figure 3, where, among others, 'Market Research, VoC', 'Concept Testing with Customer' and 'Value Assessment of Product to Customer', are some important parameters on which organizations have been evaluated[4], while studying the reasons of product failures. A careful understanding and analysis of the above stated reasons leads us to an important inference with respect to the NPD process: the process lacks customer-centricity and a mechanism to achieve it.
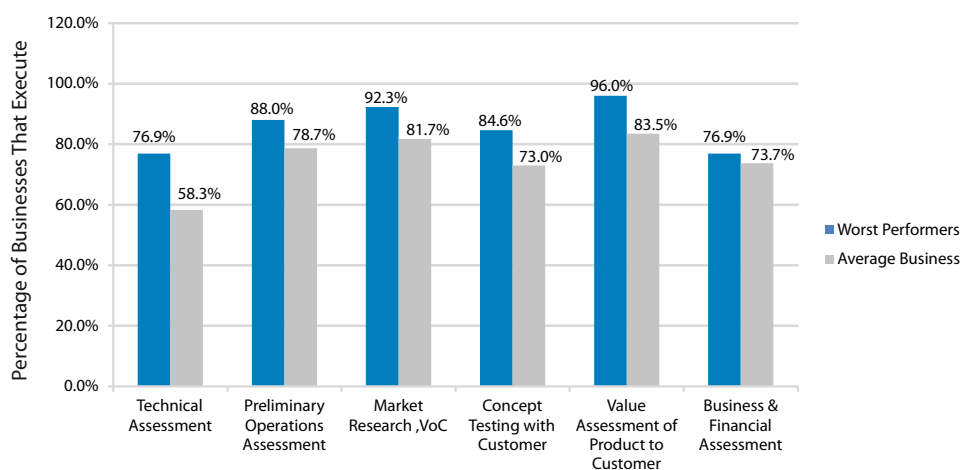

**Figure 3: Pitfalls in Early Stages of the NPD Process
(Percentage of businesses that execute poorly in NPD)**

[4] Cooper, R.G., "Winning at New Products : Creating Value through Innovation", 2011

4. Social Media and the NPD Process

Social media: a necessity?

Social media is increasingly becoming a vehicle for people to indulge, engage, and propagate thoughts and opinions. Today, customers or prospective customers of a product are likely to convey their feelings, emotions, likes, and dislikes about a specific product or a feature through social media channels, rather than any other feedback mechanism, owing to the convenience this platform offers. The power of collaboration and constant constructive feedback about a product or service via social media are some of the key benefits to an organization.

This does not mean that the organizations need to expose their innovative process entirely to the outside world. Reasonable discretion should be exercised while leveraging the benefits of social media in the NPD process. Organizations can leverage the power of co-innovation and co-creation using social media, since most consumers are keen to participate in online discussions about different themes, topics and campaigns.

Table 1 lists the key differences between conventional NPD processes with and without the deployment of social media:

Sr.no	New Product Development Process Without Social media (Conventional)	New Product Development Process with Social Media (Proposed)
1	Market surveys through focus groups with similar profiles	Diverse set of consumer profiles may be accessed over the internet
2	Can reach only a limited number of people	Can reach the masses
3	Outcomes from the survey participants may be influenced by the host	Consumers have unlimited freedom to express their thoughts
4	Voice of the customer (VoC) collected only at the beginning of the new product development process	Frequent interaction and dialogue with the customers is possible
5	Surveys are expensive	Less expensive (compared to traditional one-on-one surveys)
6	Outcome of the VoC is dependent on the expertise of the audit/host team and prone to errors. Outcomes are not consistent and repeatable.	Outcome is independent of audit/host team skills (as the analysis, interpretation of results are enabled by technology).Outcomes are consistent and repeatable.

Table 1: Differences between Conventional NPD process with and without Social Media (Source: TCS Internal Research)

From the above table, it is evident that organizations can transition to customer centricity with the help of social media and embark on business efficiencies with properly designed strategies around it.

Using Social Media Effectively

The prime motive for manufacturers to incorporate social media in their collaborative business processes is to gain access to consumers' feedback in validating new product concepts and/or ideas. This validation feeds into the traditional NPD processes, which become more robust and reliable. Thus, social media can act as a bridge between existing and prospective customers and the NPD team of the organization. Figure 4 depicts how manufacturers can leverage social media for NPD processes:
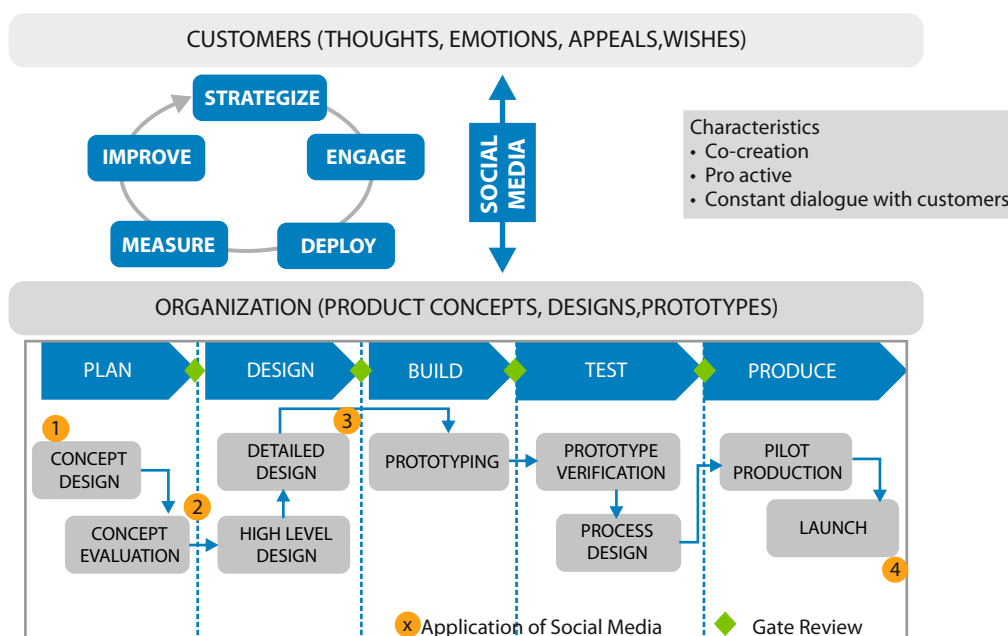

Figure 4: Role of Social Media in NPD (Source: TCS Internal Research)

Some potential applications of social media in New Product Stage Gate process are presented in Table 2.

Sr.No	Application of Social Media in NPD Value Chain	Goal(s)	Benefits to Organization
1	Listen to the Voice of the Customer from different online forums	▪ Collect new product ideas (through explicit crowd sourcing or implicit sourcing from the social media presence) ▪ Gather leads for new ideas ▪ Understand challenges faced by customers to create new product ideas ▪ Understand which features are most liked/hated by customers	▪ Maintain healthy pipeline of ideas for new products ▪ Create new market segments
2	Discuss product concepts (such as for improved fuel economy or comfort)	▪ Evaluate acceptance rating for different concepts ▪ Understand the value proposition from customers' point of view on different product concepts ▪ Understand the target customer's profile	▪ Reduce the risk of carrying wrong product concepts forward in NPD stage gates ▪ Improve targeting of right products to the right customers
3	Discuss high level designs (like 'bean' shaped car body, less luggage space, auto stop, etc.)	▪ Make better decisions on trade-off analysis of different technical solutions ▪ Revalidate customer needs (thereby confirming the value proposition of the product)	▪ Reduce rework ▪ Reduce time to market ▪ Better adoption of products
4	Discuss feedback of the launched product	▪ Get honest and open feedback (pros, cons, pain points) about the product	▪ Opportunity for course corrections ▪ Reposition the product

Table 2: Applications of Social Media in NPD (Source: TCS Internal Research)

Using Social Media in the NPD process

The use of social media in the NPD process has four basic aspects as shown in Figure 5 — Strategy, Process, Teams, and Metrics.

Strategy:

The social media strategy refers to a plan of action to realize the overall NPD goals/objectives. Some of the strategy-related elements are: type of information to be collected from social media through dialogue and listening, coverage of sites/blogs to glean information, selection of IT product/tool, etc. Organizations can adopt an inclusive or exclusive strategy to collect the information. An inclusive strategy is meant to collect diverse open ended inputs from social media covering different aspects. This strategy is meant to collect information on core and peripheral aspects of the theme, and may be adopted to bring about differentiation and create breakthrough products and platforms. An exclusive strategy is meant to collect inputs on close ended problems focus only on the core aspects of the theme, and can be used to devise low cost products and develop new product enhancements/extensions. Organizations can also employ analytics over the social media data and derive insights. Properly designed data relationship model supported by market listening solution, perform predictive analysis by converting unstructured data, images, and sentiments into desired value proposition for target market with fair accuracy.

Process:

The process for social media engagement encompasses the structured protocols and procedures for incorporating inputs from social media into the stage gate NPD process. Suitable touch points from the social media are consumed by the stage gate processes and owners to enrich the product concept statements, business case and target customers. This will help the decision makers to make the right decision at the right time. If customers consistently make significant value statements about a product in social media, then the product can be positioned with focus on vital design drivers for new product design. For instance, if customers voice their opinions about a car's fuel economy or adequate passenger leg space, auto OEMs can use these design drivers to position the product around these themes. At the same time, organizations should ensure the accuracy of inputs from social media, and convert social media chatter into a set of clear expectations or product statements with the help of trained personnel, in order to make sound decisions. One approach for ensuring the accuracy of the inputs is to look at the sample size and its spread across divergent sources within social media. Also, organizations can employ internal subject matter experts/focused groups to validate the obtained inputs. The deviation score between the opinions of internal resources & external sources can be used to ensure consistency and accuracy.

PROCESS
How do I integrate social media inputs with the new product stage gate process?

STRATEGY
Where do I need to make my presence felt?

Product Planner's
Decision Making Kit

TEAMS
What kind of skills sets and roles do I need in order to incorporate social media into the NPD process?

METRICS
How do I measure the quality of the engagement?
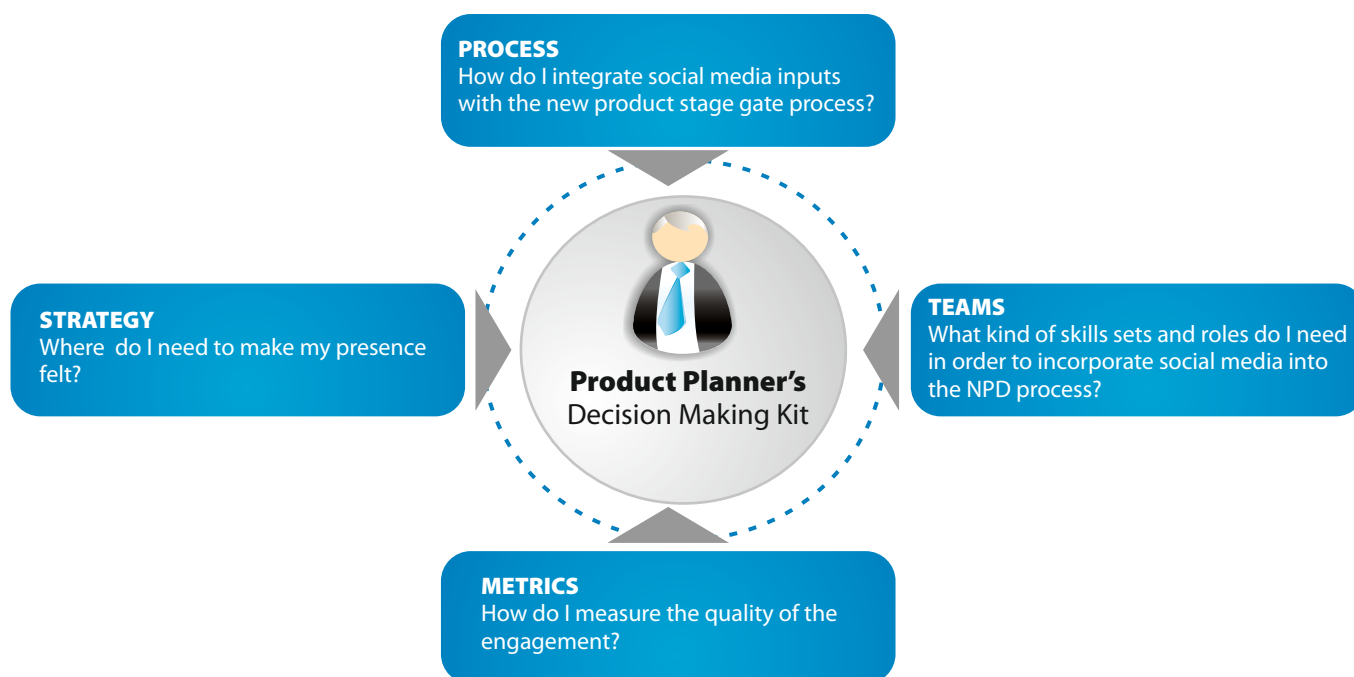
Figure 5: Social Media in NPD - Core Elements

Team:

To embed social media within the fabric of an organization and to leverage it optimally, the organizational structure and ownership responsibilities must be tweaked. The team for social media must have trained professionals within the organization who can collect, analyze, and process information from social media. Organizations need trained product managers or product planning managers to adapt at using social media tools to interpret and act upon the information and meaningful insights. Social media analysts can collect and analyze information and present the

same to the product planning managers, sharing their insights to create a roadmap for a typical engagement. Organizations need to reskill the existing product planners & managers along with the social media analysts who can support the organization in the transformational journey. Organizations can start with a centralized team structure for Social media engagement focusing on different product groups and share the experiences /best practices within them for continual learning.

Metrics:

How can organizations measure the quantity and the quality of the engagement with their potential customers? The following is an indicative list of parameters that should be monitored by the organization while deploying social media-based NPD processes:

1. Volume (number of users engaged with a given theme)

2. Momentum (the pace at which customers get engaged, such as the number of customers engaged in an hour)

3. Quality of engagement (Engagement Index = number of active engagements/total number of users in a given period)

4. Impact (number of engagements that can be used to derive useful insights / total engagements)

The metrics are useful in taking course corrections during the social media engagement and helps to improve upon the existing practices.

Drawing on our extensive experience and our deep research in this subject, we propose a step-by-step approach that may be useful to organizations who are thinking about using social media in their NPD processes (see Figure 6).
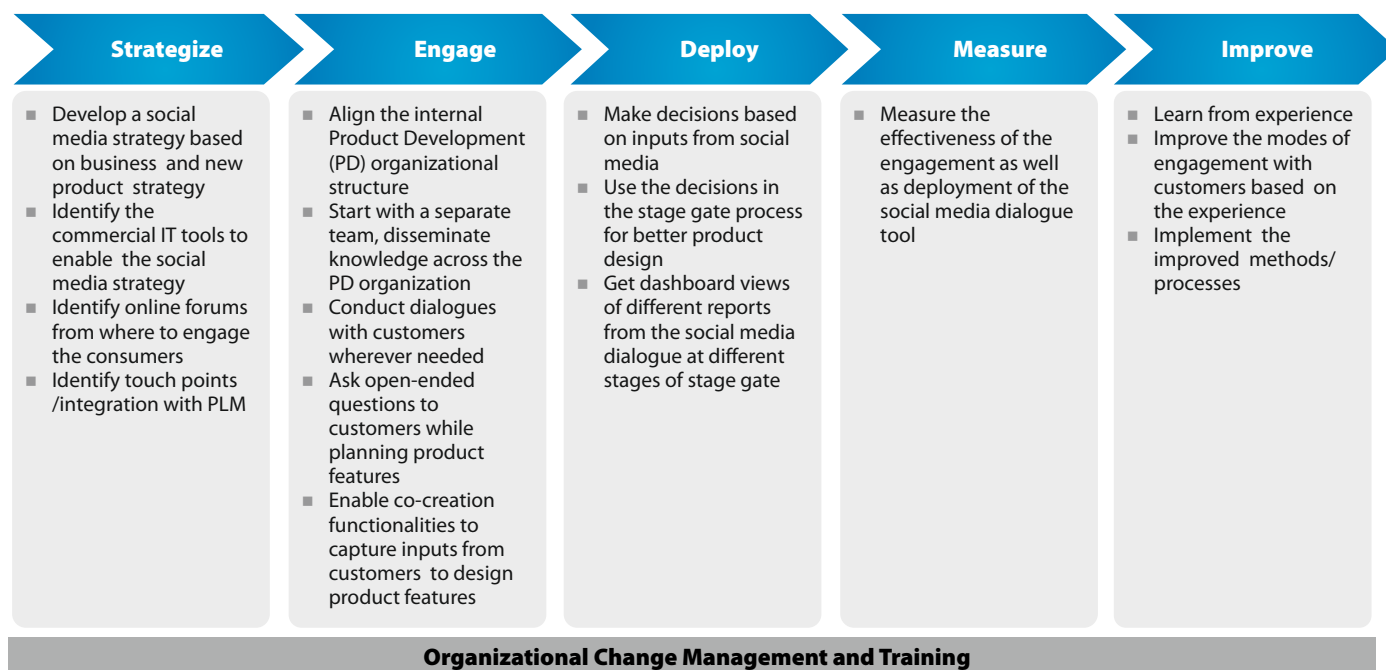
Strategize	Engage	Deploy	Measure	Improve
■ Develop a social media strategy based on business and new product strategy ■ Identify the commercial IT tools to enable the social media strategy ■ Identify online forums from where to engage the consumers ■ Identify touch points /integration with PLM	■ Align the internal Product Development (PD) organizational structure ■ Start with a separate team, disseminate knowledge across the PD organization ■ Conduct dialogues with customers wherever needed ■ Ask open-ended questions to customers while planning product features ■ Enable co-creation functionalities to capture inputs from customers to design product features	■ Make decisions based on inputs from social media ■ Use the decisions in the stage gate process for better product design ■ Get dashboard views of different reports from the social media dialogue at different stages of stage gate	■ Measure the effectiveness of the engagement as well as deployment of the social media dialogue tool	■ Learn from experience ■ Improve the modes of engagement with customers based on the experience ■ Implement the improved methods/ processes

Organizational Change Management and Training

Figure 6: Approach for Social media deployment in NPD (Source: TCS Internal Research)

Risks Involved in Using Social Media in the NPD Process

Like every other path-breaking concept or revolutionary technology, social media too is a double-edged sword. Organizations should ensure that it is used properly in order to reap the right benefits. There are certain risks associated with social media when used for the NPD process. Some of them are: loss of confidentiality of new product information, misinterpretation of inputs, use of unverifiable inputs, etc. The following tips may prove useful in managing these risks:

- Organizations should nominate a single point of contact (SPOC) to engage with customers via social media. This is especially important for traceability, tracking progress and making improvements. The SPOC can vary according to different platforms or new projects.

- Organizations should be circumspect and ensure that no patent/IPR related information is revealed when interacting with the prospective customer base. No reference to any specific new product pipeline models should be made.

- Social media analysts should ensure the authenticity of inputs received from social media. Consistency of inputs should be ensured so that false inputs are filtered before pre-processing and analysis.

- Organizations should be careful about handling information as the competition may access the same from the social media. Hence the customer engagement in the form of idea sourcing (crowd sourcing) must be completely insulated and neutralized. Whenever companies engage with customers in Idea sourcing it is suggested to invite them to private community and collaborate for data security.

- Organizations should create awareness across the new project teams about the use of social media. Training should be provided to the new project teams on the use of IT tools. A culture of fact-based decision-making aligned with social media driven insights should be fostered within the organization, to ensure the success of such initiatives.

Conclusion

Manufacturing organizations are constantly on the look-out to innovate and to introduce cutting edge products to the market. They have invested significant time, money and effort in new product design and in the development function. Many of them also follow the stage gate process religiously to improve quality and speed. However, all these efforts will be in vain if they do not tap into the voice of the customer. Organizations can respond to the above challenges by integrating social media into the new product stage gate process. Successful organizations are those who can understand customer problems, embrace technology-enabled collaboration through social media by leveraging the voice of the customer, and develop scalable and cost-efficient infrastructure.

Due to the convenience offered by the internet, customers like to convey their thoughts and feelings over social media forums, and these can be used as constructive feedback and thereby integrated into the stage gate process. The inputs from social media will improve decision making during stage gate reviews, eliminate misconceptions about value delivered, create the right value proposition for new product designs and target the right customers at right time, eventually improving the success rate of the new products. In addition, leveraging the right IT tools, training product managers, integrating social media with the stage gate process, and taking decisions with the help of social media inputs can not only improve NPD, but also provide sustainable competitive advantage in the market place.

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