

Expert Group

Product Information Management

Downstream PIM: Changes in PIM Thanks to Innovations
in the Customer Journey

Takeaways

1. Good, effective applications of 3D visualization already exist, but the continued development of this technology calls for the establishment of standards to facilitate the exchange of 3D models.
2. Embrace user feedback (UGC) and use it in a professional manner, making well-considered decisions about the process, the organization and the system you use to manage this information.
3. Voice requires larger amounts of more complex, high-quality data. To be able to respond to user queries effectively, it is important that voice assistants be able to identify the context of the product, the customer and the type of customer journey.

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Changes in PIM Thanks to Innovations in the Customer Journey

This year, the PIM (Production Information Management) Expert Group has elected to focus on the output, or downstream, side of PIM, homing in on three current developments in particular: 3D product visualizations, user-generated content and voice interfaces. The expert group formulated three questions with regard to these topics:

- What does this field involve and how will it impact PIM?
- Which new or adapted data elements are involved?
- How can organizations best deal with this?

The above-mentioned topics will be explained in greater detail below.



The first case pertains to the 3D visualization of products: How is 3D visualization already being applied to provide added value to customers and enable companies to reap the rewards? The case focuses on a construction supply chain that will be using 3D models throughout the entire process. It is clear that data quality is of the utmost importance, and that the use of high-quality data offers great opportunities for further process digitization and optimization.

The second case concerns the development of user-generated content, with a particular focus on user feedback, such as product reviews. Important questions include: What data should and should not be stored in your PIM system and how can you organize quality monitoring?

In the final case, we will discuss the development of voice interfaces. Although this technology is still in its infancy in the Netherlands, the expectations – based on experiences in the US – are high. Talking is a lot easier than typing on a keyboard, but what do you need to keep in mind when looking for a product? Which applications are the most promising and which ones are not (or not yet, at least)?

Ultimately, each case is about providing added value for customers.

1. Case: 3D Product Visualization

Following on from the earlier ShoppingTomorrow Expert Group on Product Visualization, we will be looking at this topic from a product information management angle. Our conclusions are based on the practical case of the Dura Vermeer construction company, which uses virtual reality (VR) to give customers a better impression of new-construction homes. We want to use this example to show why product information management is essential for product visualization. Tjerk Boorsma and his colleagues at Dura Vermeer took us on their business development journey and, with the assistance of Technology2Enjoy's Daniëlle ter Haar, we were able to experience the effects of VR for ourselves.



1.1 The Application of VR

The construction and installation sector started using *Building Information Modeling* (BIM) in 2010. Building information models are three-dimensional, digital representations of a building's physical and functional properties. Using BIM, stakeholders can share information and data during the lifecycle of a particular building. This, however, does require that suppliers provide correct data and use a standardized data format (i.e. the ETIM classification standard).

BIM enables Dura Vermeer to generate three-dimensional models of buildings, which can be viewed from any angle and perspective. This inspired Dura Vermeer to combine these 3D models with virtual reality, so that this technology could be used in the company's housing division, allowing customers to explore a virtual representation of their future home using a VR headset.

New homeowners have various decisions to make prior to construction, and the ability to take a virtual tour of their future home has been proven to help customers get a better sense of the various options they have in terms of the design. This really helps with the decision-making process, which is important because customers are essentially purchasing a 'living experience.' This use of VR reduces decision-making stress and improves customer satisfaction/customer loyalty (increasing NPS by up to 10 points). Dura Vermeer has also noted a 60% increase in the sale of optional add-ons, such as dormer windows and extensions. Other advantages of the use of VR include time savings and improved insight into customers' wants and needs.

Dura Vermeer has found that VR helps customers to make better and more predictable choices, removing any uncertainty on the customer's part. Other sectors also use virtual and *augmented reality* for similar purposes. For example, these technologies are used in the world of interior design (IKEA Place), fashion (Amazon's digital mirror) and online shopping (Alibaba's Buy+ and Facebook's News Feed).

1.2 Future Developments

One of the first questions that customers tend to ask after a VR experience is: "Where can I buy the furnishings I just saw?" It is clear that customers are interested in the total picture and want to get a sense of what their new home and, if possible, their new garden will look like once they are fully furnished. Virtual reality offers Dura Vermeer the opportunity to improve how customers experience its products, going beyond its traditional role as a construction company. Dura Vermeer can offer third parties (i.e. its partners) a platform for the promotion of products, such as kitchens, furniture and window treatments. Dura Vermeer can clearly see that this offers interesting opportunities.

There are also challenges, however, such as figuring out how to plan the delivery moments. In order to provide turn-key delivery of its homes, Dura Vermeer has to shift to a new type of contract, featuring multiple delivery moments. Dura Vermeer has plenty of plans for the further development of virtual-reality services to offer customers. Among other things, the company is looking to further improve its VR technology, record users' walking and clicking behaviour and stimulate other senses, such as smell.

In the future, it will be possible to immediately visualize customer wants in a VR environment and then translate this back into a tailor-made digital design. This involves using VR to place externally modeled items in the home, such as kitchens, furniture and custom-designed items, which can be made with the help of 3D printing, for instance. Visualization allows you to place a new vase in any given shape, size and color in your own living room, and then 3D print this brand-new design at the touch of a button.

1.3 Organizational, Technology and Data Requirements

To accommodate the standardized exchange of 3D models, BIM and the construction and installation sector use the IFC (Industry Foundation Classes) *open standard*. There is currently no uniform standard for translating these models into VR or for sharing VR models. There are various hardware and software platforms that are not compatible with 3D models generated by other platforms.

In order to provide better support to its customers, Dura Vermeer would like its partners to be able to exchange digital product models of the design elements featured in virtual homes. Dura Vermeer envisages three possible options:

- A single language or standard for creating and exchanging VR models.
- A VR object library for VR technicians.
- Dura Vermeer shares its own model with its partners, who can then add their products and services (kitchens, air conditioning, audiovisual equipment). This will enable Dura Vermeer to offer its customers a consistent VR experience.

Dura Vermeer finds that using VR and other new technologies when interacting with customers is becoming increasingly important: today's younger generations do their research online and decide on purchases without ever having seen the physical product.

The construction and installation sector is not the only industry that is faced with the lack of a uniform VR standard. The exchange of product information is vital in all sectors. New technologies such as 3D visualization, however, pose additional challenges.

Photos, videos, 360° images and AR/VR models require more and more storage capacity and flexible *digital asset management* systems. The number of attributes associated with products is also growing rapidly, including information such as 2D/3D specifications, metadata and related items. The increase in product data and required capacity has a major impact on system design when it comes to interfaces, cloud-related solutions and PIM systems.

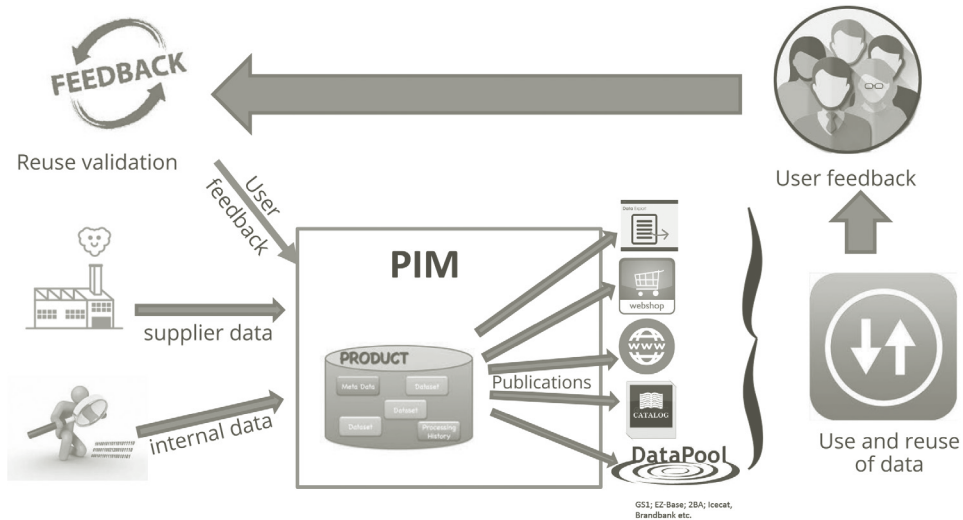
Conclusion: Good, effective applications of 3D visualization combined with PIM systems already exist, but the continued development of this domain calls for the establishment of standards to facilitate the exchange of 3D models.

2. Case: User-Generated Content

User-generated content (UGC) is not new. In fact, we used to call it word-of-mouth. Unlike in the past, however, we now have new technologies that let us utilize user feedback – including photos, videos, reviews, complaints, returns and statistics – for various purposes. Reviews, in particular, can help boost product and service conversion and can be used across various channels. That is why the expert group has opted to focus on user feedback.

User feedback can have a much more transparent, much broader application than just improving customer service. The product experience is becoming an ever-richer element of the customer journey and relevant, product-related feedback can help augment product information. It is advisable to store this feedback in a PIM system, so that it can be used and reused across the various publication channels.

The image below shows the position of user feedback vis-à-vis PIM and the generation and usage of product data.



2.1 User Feedback: An Important Trigger for Purchase Decisions

Based on the practical experience of the members of the expert group, primarily in the b2c market, reviews lead to substantially more sales. While this does require there to be at least a few user reviews, a larger number of reviews (i.e. more than ten) will not automatically lead to sales increasing even further. The table below shows that the majority of consumers use reviews, information on comparison sites and product information found in online stores as key sources of information when making a purchase. Out of these various sources, reviews have the greatest impact and are the most commonly used. It is clear, then, that user feedback is highly relevant and requires serious attention. It can also be noted that good old word-of-mouth (information from friends) remains a high scorer.

Which information do you look up online before visiting a store?	% answers
Reviews from other buyers and online shop users	54%
Information from comparison websites such as Kieskeurig.nl	52%
Product information at the online shops where you order the product	51%
Information from Google	42%
Product information found on manufacturers' websites	41%
Personal experiences with (similar) products	32%
Information from friends	30%
YouTube videos with user experiences	14%
Social media such as Instagram and Facebook	7%
I never look up information online before shopping	5%
Other, please specify	1%

How do you look up information online before you make a purchase?

1 THE 2018 GFK CONSUMER SURVEY, COMMISSIONED BY SHOPPINGTOMORROW AND CONDUCTED AMONG MORE THAN 500 CONSUMERS

2.2 Case: Dorel Juvenile

As a member of the PIM Expert Group, Dorel Juvenile has shared the following case, involving Amazon Vine. Amazon Vine is a fixed, organized group of people, selected by Amazon, who are sent unreleased products for testing and reviewing.



Amazon Vine

Business Case: Amazon & Social Media Channels

With Amazon Vine, Dorel is making a proactive investment in user feedback, with the aim of creating good, reliable reviews of its products. This immediately helps boost conversion (number of units sold) when launching new products. However, there are a number of prerequisites: The product must be in stock, it must be well-priced, sufficient information must be available (approximately 110 fields' worth of product information) and consumers must have confidence in their purchase. Every new Dorel product is first offered to Vine Reviewers, which means that by the time the product is launched, legitimate, honest user feedback is already visible on the site. This will immediately inspire confidence among consumers. Dorel also incorporates relevant, product-related feedback in its product information or in new versions of existing products.



Emile Zola reader **TOP 1000 REVIEWER VINE VOICE**

★★★★★ **Robust, well-cushioned, with a comfortable handle to carry the little one.**

28 July 2018

Colour: Nomad Black | Style: Rock | **Vine Customer Review of Free Product** (What's this?)

This is solidly built, relatively light and comfortable to transport. The push-in locking clips on either side of the carry handle rotate to three positions, and require both hands to operate. Both the cushioned fabric of the chair, and the snug little "baby-hugg" inlay are washable. There is a thin fabric sunshade that pulls out from the rear of the head support, which - although pretty basic - affords a degree of protection.

2.3 What Is User Feedback Used For?

In practice, the members of the expert group utilize user feedback (mainly reviews) to:

- boost conversion for newly launched products → accelerating sales;
- analyze and improve product-range development → improving the product range;
- implement product improvements and launch new products → boosting product quality;
- sell products to suppliers → generating secondary income;
- develop marketing communications about the product → increasing product awareness.

An important prerequisite is that companies always comply with the General Data Protection Regulation and that users give permission for publication where necessary.

2.4 How Do You Manage the Quality of User Feedback?

- Make sure that user feedback always stays authentic. Do not edit typos and style errors out of reviews. If user feedback is irrelevant or incorrectly applied, part of the review can be omitted.

User Feedback from Social Media at Dorel

User feedback makes for good content, provided that a clear strategy and guidelines are in place. User feedback should appeal to the target audience by virtue of being sincere and compelling, but it is also essential to Dorel that it complies with the applicable safety regulations. Some of the major challenges in this field are control, permission and quality (i.e. teaching consumers about safety). Feedback can not only be used for marketing purposes, but also enables companies to adjust or add products and PIM content.



- Organizing user feedback is a new task for your organization. The core question is: Which user feedback should you use when and where, and what feedback can increase sales and conversion? Be careful – sharing user feedback with your customers without processing it properly first can end up having a negative impact.
- Keep in mind that the amount of user feedback you receive can grow rapidly, leading to a lot of extra work. It is important to put a sound internal policy in place. What checks have to be carried out and which conditions and guidelines should they meet? Automated systems, such as machine learning, can help structure, analyze and process large amounts of user feedback.

Conclusion: Embrace user feedback (UGC), because it boosts conversion. It is important, however, to take a professional approach and to make well-considered decisions relating to the process, the organization and the system.

3. Case: The Wijnadvies Voice Assistant

The 2018 GfK Consumer Survey revealed that more than half of the interviewees expect to make a large part of their purchases via new channels, such as voice assistants, in five years' time. 31% of consumers is looking for assistance when making an order. But what impact will these new voice channels have on product information? Detailresult and Squadra went looking for the answers.

Detailresult, which includes supermarket chains Dekamarkt and Dirk van den Broek, believes that consumer behavior is changing. In 2013, during its transformation from a traditional offline player into a multi-channel player, the company found that the need for product data within the company – data that is required to provide consumers with the right information – had increased fourfold. The urgency of improving data quality has also increased. With an eye on the developments in voice commerce, Detailresult asked itself the question: Which additional requirements does voice commerce impose on the nature, quantity and quality of data?

Detailresult and Squadra developed a *proof of concept* in order to find out which implications of using voice technology are relevant to product information. The two companies worked together to create a voice interface for Google Assistant that lets consumers choose and order wine.

Developing and using the Wijnadvies ('Wine Advice') Voice Assistant brought to light a number of aspects that affect an organization's PIM system. As it turns out, for example, for a voice assistant to be able to ask the right questions it is important for them to know the context of both the product and the customer.

3.1 Store More Information

Many companies use shorter texts or show less information on mobile sites than on their desktop websites. This should be applied to an even greater degree for voice assistants. Users will lose interest more quickly when they have to listen to large amounts of text than they would when reading that text themselves. Since not all voice devices are able to present visuals alongside audio, you could elect to work with short, voice-optimized text. This is a good approach to effectively conveying your unique selling points (USPs) and key product properties using voice.

To help establish a selection of voice-relevant search terms, you will also have to include synonyms and related products. Depending on how this information will be used, you will have to determine where it can best be stored. One of the arguments in favor of storing this product data in a PIM system is that this allows you to use the information in various places throughout the organization. If you are training several voice assistants at once, a PIM system may be a suitable place to store all your data.

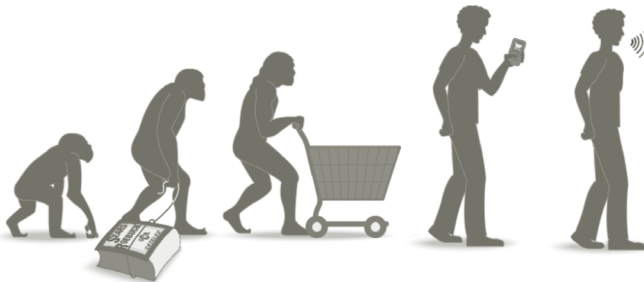
To help users find the right product, it is important that your filters are quick and effective, so that you can rapidly reduce a large number of results to a small selection: three is better than ten. It helps if you record product properties in a list consisting of values, rather than open text fields. In order to properly relay information back to the user, assistants may benefit from additional information. When a text includes jargon, proper names or foreign words, you will need to provide the voice assistant with extra information or *tooling*, such as Google Translate, so that they can pronounce the information correctly. The Wijnadvies Voice Assistant spells out the names of many wines, rather than attempting to pronounce them. If you cannot find a way to overcome this obstacle, there are many products that you simply will not be able to present using voice alone. Detailresult's PIM system does not yet contain information about pronunciation.

3.2 Put Information in the Right Context

User context matters. Consumers looking to make a repeat purchase, for instance, have a completely different customer journey than people researching a new product. It can be advantageous to make sure that virtual assistants are familiar with the various potential customer journeys and can tailor their approach accordingly. You can provide advice early on in the journey for customers researching a new product by quickly filtering based on essentials, e.g., “If you have this coffee machine, you can choose from these coffee capsules.” Customers want personalized results in order to make sure that the dialog is as efficient and brief as possible and that the number of options is cut down as quickly as possible. With voice, it seems even more important than on desktop and mobile that users quickly get a small list of relevant results. As such, voice has great potential when it comes to repeat purchases. Which device is used is also an important factor: Does the device only support voice-based dialogue, or can you also present information through written text and images?

In order to maximize the speed and efficiency of the customer journey (e.g., repeat purchase versus initial orientation and brand preferences), it is important that you know your customer well. This makes a link with a *customer relationship management* (CRM) system even more important than for physical channels and conventional e-commerce.

Finally, the voice assistant must be well-trained for exit situations, in which they refer customers to other channels, such as a helpdesk or desktop site, for example if a certain combination of product properties does not lead to any product matches. Adding product information will not always be the solution.



	Brick and mortar store	Online store (desktop and mobile)	Voice
Data quality	★	★★	★★★★★
Data quantity	★	★★★★★	★★★★★★
Complexity	★	★★★★	★★★★★★

This image illustrates the increase in the amount of data, data quality and data complexity when using voice.

3.3 Increasing Data Quality Is Crucial

Most companies that use a PIM system know how important high data quality is for a successful outcome. The emerge of voice will further increase the importance of data quality. Whereas users are capable of

recognizing and subsequently disregarding certain mistakes when reading text, errors can have strange effects on texts delivered by a voice assistant. This, in turn, may lead to aborted customer journeys and conversion loss. Punctuation and abbreviation are especially important aspects. A capitalization error in the stored data ('ML' rather than 'ml'), for example, caused the Wijnadvies Voice Assistant to introduce a 500 milliliter bottle as a 500 megaliter bottle.

Similarly, specifying amounts without clearly placing them in a pricing context can also lead to very strange results. In some cases, for instance, prices were pronounced as if they were times, rather than numbers. These findings clearly show that it is essential to include additional metadata or better, more consistent data in PIM systems to address these kinds of problems.

Conclusion: Voice requires information to be relayed to users as simply as possible. The system landscape involved in this process, however, is rather complex, because more information has to be combined from several different sources. This process also sets higher demands in terms of data quality.

To be able to respond to user queries effectively, it is important that voice assistants be able to identify the context of the product, the customer and the type of customer journey.

4. Conclusion

What all these developments have in common is that they will lead to an increase in data and product data, which, in turn, will need to be managed. Some of this product data will come from third parties (as with user-generated data), and some of this data will pertain to additional product features and will need to be generated by companies (for example manufacturing companies) themselves. 3D models are an example of the latter category. That you will have to use all sorts of different tools is indisputable, but above all it remains crucial that you safeguard data quality. Due to the emergence of ever more advanced solutions available to users, the risks associated with working with incorrect data are only increasing.

As such, we would recommend learning as much as possible from every case by experimenting with those particular issues that are relevant to your situation. Developments will continue coming thick and fast and you will only really learn how they will impact the field of product data when you actually start dealing with them in practice.

Good product data lets you unlock new routes in your digital store.

Once again, the cross-fertilization between the various sectors and industries represented in the expert group was experienced as being very valuable. There often turn out to be more similarities and between companies and industries than was expected, and the members can often learn a lot from each other. There is also a visual component to this: by visiting and touring each other's companies, it becomes clearer which opportunities and/or problems product data may present.

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