

Helping Software Developers Help You

A key part of gear design software development is customer feedback. With the right feedback, you can get your software developer to work for you to provide the most relevant features possible.

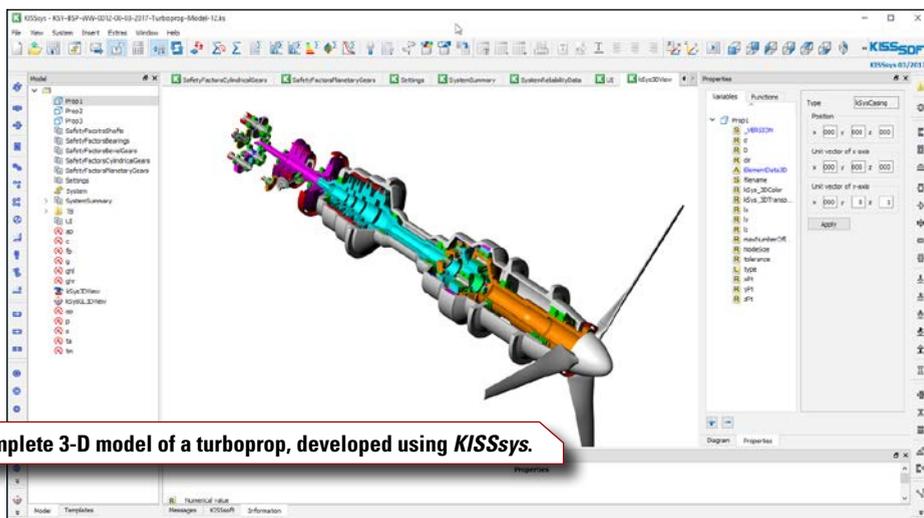
Alex Cannella, News Editor

Something that sets gear design software apart in an industry of physical products is its unparalleled ability to be iterated upon. While a manufacturer may go decades without replacing a gear cutting machine, gear design software is a product that is constantly being upgraded on a yearly, monthly, or sometimes even weekly basis. By its nature as a medium, one of software's greatest strengths is that it can constantly be tweaked, expanded or retooled. It's an advantage every gear design software developer takes healthy advantage of to the benefit of everyone involved.

But something that sometimes goes understated is just how important the customer's feedback is in that iterative process. Software developers face a daily dilemma. No matter how many modules or expansions a developer produces, they will never be able to cover every base. No matter how long a developer's list of accomplishments, the wishlist of future features that have yet to be implemented will always be longer. So how does a software developer pick their battles?

There's no single, universal answer for any software developer. The choice is always a subjective one that can be influenced by a number of factors ranging from industry standards to market trends. But customer feedback is consistently a regular source of direction when a developer is looking to the future to decide what to make next.

This can manifest in a few different ways depending on how a software developer's business is built. KISSsoft, for example, releases a new version of their software once a year, but a decade ago, they had a new version every six months. The decision to change, when it came,



Complete 3-D model of a turboprop, developed using KISSsys.

was based entirely on customer feedback.

KISSsoft's software is designed so that each new version is individually received and installed as its own complete package. This means that even if KISSsoft releases a new version, companies can keep working on the old version instead of having to get used to the new one mid-project. In fact, KISSsoft's CEO, Stefan Beermann, recommends that companies don't try to switch ongoing projects over to a new version. But because of the separate installs,

both versions can be running on the same computer, meaning new projects can kick off on the new version while the old proj-

ects wrap up without disturbing workflow.

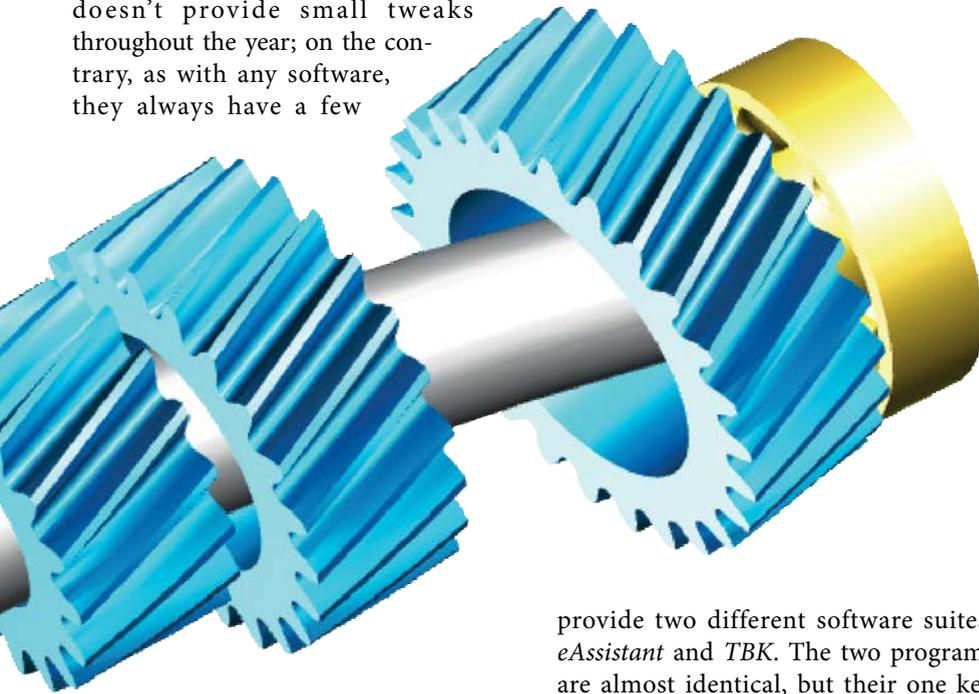
But the tradeoff of software that doesn't update overnight is that you need to do it yourself, and for larger corporations, implementing a product across the entire company is a significant process mired in paperwork and procedure. The point is that in large com-

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panies, software has to be released for installation, to have a well-defined status on the users' computers. For some of KISSsoft's customers, large businesses with thousands of computers, installing two updates a year across the entire company became a logistical hassle, and the difficulties these customers were having prompted KISSsoft to adjust their release schedule.

"It would be a complete mess if you had 1,000, 2,000 employees in one location and you don't know how the computers are set up," Stefan Beermann, CEO at KISSsoft, said. "This would simply break down. For small companies, this is not an issue. They just get it and install it. But for the large ones, it is."

Which isn't to say that KISSsoft doesn't provide small tweaks throughout the year; on the contrary, as with any software, they always have a few



patches for working out any bugs in the program. But you will only ever see one major release that is the culmination of everything KISSsoft's been working on in the past year.

Over at SMT, on the other hand, there are no such binding restrictions, and releases are much more frequent. According to Paul Langlois, department manager of CAE products development at SMT, the company's releases are put out as frequently and early as possible. In 2016, they had 16 releases over the course of the year. Like most gear design software developers, SMT is working on multiple features at once, but without a steady release schedule, a larger item can be

developed over the course of a few months while customers see several updates filled with smaller features that may only take days or weeks to implement.

"The ideal release schedule is to get out any functionality developed as soon as it can to the customer," Langlois said. "In our opinion, there's no point in holding back...just because of an official release schedule. We just like to get out our functionality as soon as possible so it can be of use to the customer as soon as possible. Some of the larger companies have procedures which do limit the ability to install frequent updates, but this should not hold back the many others which do not."

GWJ is a middle of the road option between SMT and KISSsoft. They

provide two different software suites: *eAssistant* and *TBK*. The two programs are almost identical, but their one key difference is their distribution method. *eAssistant* is online, while *TBK* is the offline licensed version. *eAssistant* is the standard version that GWJ is always updating as new features are ready, but *TBK* still gets one or two updates a year compiling everything new in *eAssistant*. The offline version gives customers flexibility in deciding how they want to maintain their software while also providing opportunities for customers with limited internet access.

Design decisions, of course, go well beyond picking a release schedule. The meat of the decision making process isn't on when, but on what. And here, customer feedback becomes even more

important. A majority of the features being developed by every gear design software company we talked to were first considered because of a specific request from a customer who either needed an entirely new function or had run into an unexpected difficulty while using an already established one.

At KISSsoft, there's still the occasional big ticket update that the company develops in response to market trends such as an upcoming feature for calculating asymmetric teeth. But KISSsoft has been around for so long that you can already design almost any gear you want using almost any method under the sun with their software. And with the main market trends covered, all that's left for KISSsoft to develop are features that cater to the newest, most bleeding edge manufacturing methods and smaller features, things like quality of life updates, which half the time they'd only even think to implement due to feedback from customers regularly using the software in the field. Customer feedback is the compass that often helps KISSsoft find a starting point for what to do next.

And according to Beermann, the little tweaks KISSsoft couldn't have found without feedback can often be the most important changes in each new iteration. For every new module they develop, there are a dozen smaller changes that get put into each new version, which over the course of the year, starts to really add up and means each update launches with almost 100 smaller adjustments or features, and Beermann finds those changes the most valuable because they're each meant to improve an already existing, regularly utilized piece of software.

"For the user, I think the other 90 changes are most likely more important ones," Beermann said. "Because these are the small things we improve or we extend and is used in everyday work."

One recent example is for KISSsoft's module for contact analysis in cylindrical gears. Up until now, users would see graphics with the results, where the x-axis was the rotation angle of the pinion. In another graphic, the user can animate the meshing of the two gears and thus analyze the situation. Some of KISSsoft's most recent work was to simply add the current rotational position of the teeth in the physical representation

of how the gear and pinion mesh.

“This is for sure nothing which is very spectacular. We won’t make a huge press release out of it,” Beermann said. “But if you’re using that module, it’s very, very helpful, because you can now make a good mapping of what you see with what the results are. Before it was more estimating, ‘yeah it could be five degrees, maybe six degrees,’ so it was not very exact.”

Much of KISSsoft’s current work is in this vein. According to Beermann, 2017’s update saw a number of large features make their debut, and 2018 is going to mostly be about “cleaning things out” and polishing what came out this year.

Customer requests and feedback are similarly at the top of SMT’s list of priorities.

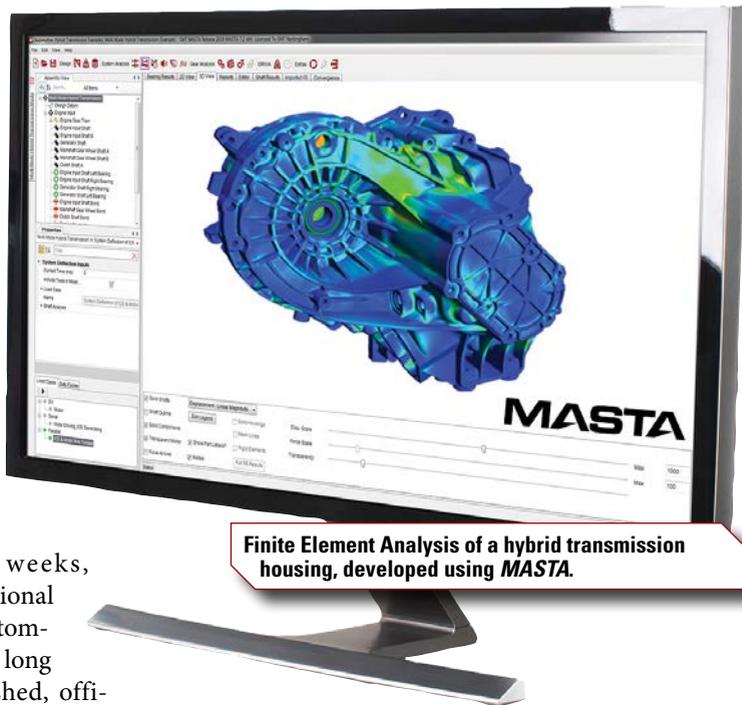
“We try very hard to keep our customers happy and they have a lot of input in what we do,” Langlois said.

However, SMT’s support also extends to prospective customers, such as it did with one of their most recent updates to their *Masta 8* software. A potential customer was shopping around comparing different software suites, and found SMT’s to be favorable. However, there was one issue: *Masta 8* couldn’t integrate with Klingelnberg’s *KIMoS* software, which was a critical requirement for the customer.

“This link to *KIMoS* was on our radar,” Langlois said. “It was in our feature request system, but it was lower down the priorities list. But when this customer stressed that it was critical to them, we had to act on that immediately.”

Within two weeks, SMT had a functional demo for the customer to try, and not long after that, a finished, official version was released for all to use. It’s a story that ends happily for both parties: SMT received a new customer, and the customer got the service they needed to do their business.

It’s also a story that illustrates a point on how to effectively make your needs known to your software developer: At SMT, the process of developing new software is not one in which customers drop memos to have some new software

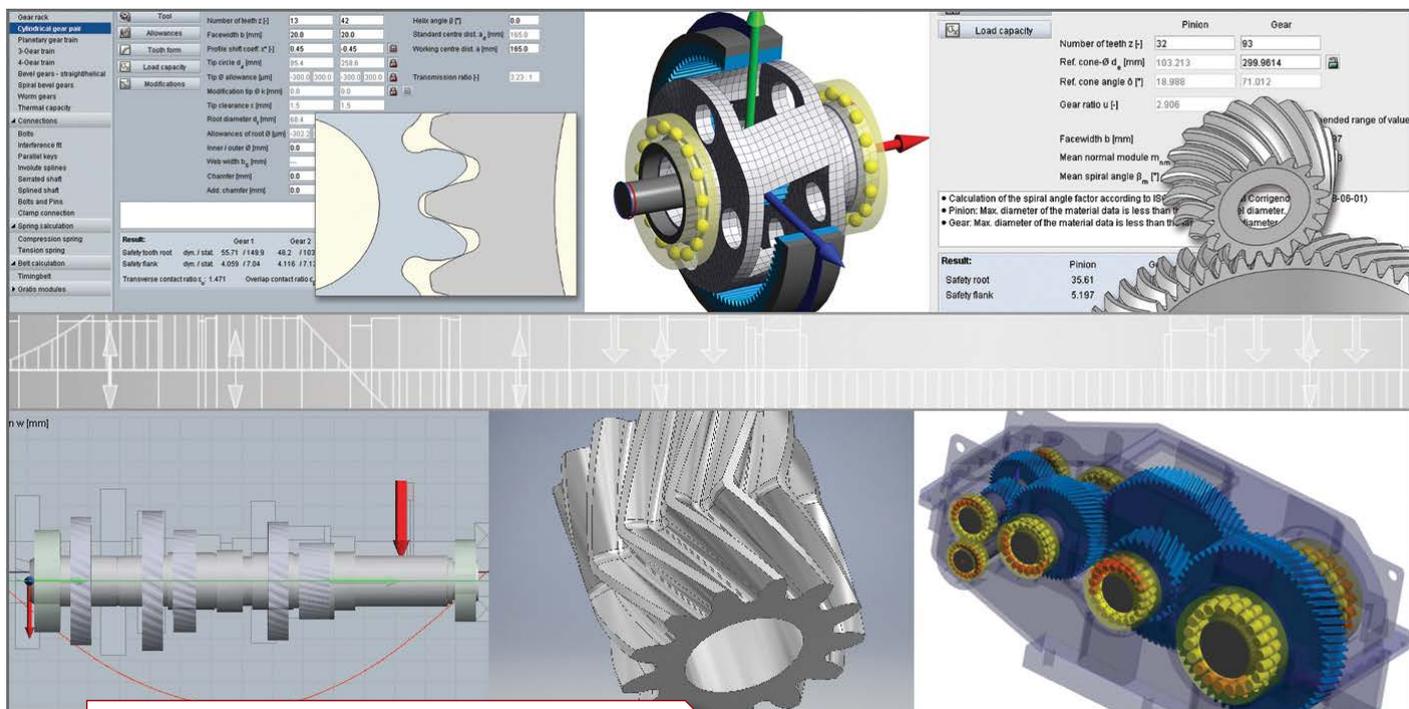


Finite Element Analysis of a hybrid transmission housing, developed using MASTA.

feature on their desk by Friday. It’s an extended, back and forth dialogue.

“It doesn’t stop at [a customer] requesting a feature and then us implementing it with no conversation,” Langlois said. “We very much encourage that conversation all the way through.”

After an initial request for a feature is presented, SMT often provides a demo version for the company to try out, a dry



TBK software from GWJ offers many design options for individual gears as well as shafts and complete systems.

run before they finalize the product for commercial release. And the more feedback a customer can give them based on that demo, the better they can hone and refine it for a final version. And according to Langlois, the more details that a customer can provide about their experience, from how using the software felt to the actual results, the better they know whether the new feature needs to be tweaked or not. And then once both parties feel they've gotten it right, it's on to the final release.

Even during the initial request, the more detail you can provide your software developer, the better they can serve your needs. Every developer we talked to has found that quality trumps quantity. The more detailed a feature request is, the more well-thought out it is. And the more well-thought out a request is, the better you'll be able to express its importance. Being able to say not just what you want, but why you want it and under what circumstances it would be implemented, is extremely helpful for a software developer. And in turn, a well-thought-out request is more likely to be implemented.

"From [active requests] we really do implement the largest percentage, simply because this is usually a well-thought-out thing where the customer already had some brain work put in," Beermann said. "So, it's much better prepared than talking things at conferences or even the problems people bring to a training."

"If you understand why the customer has this wish, it's much more effective for us because we understand the need," Gunther Weser, general manager at GWJ said. "And so we have more information to integrate this. It's very important for our guys in development. If they understand why they should integrate this, it draws really better."

Langlois stated: "We always try and tie [customers] down as much as possible to tell us what their priorities are and why... Stressing to the customer that if they can prioritize on their side, think about it significantly what would best suit them — what would save them the most money, the most time — and then communicate that to us. That makes our prioritization process much easier."

Langlois also stressed criticality as a key component that makes a specific

request important. Often, companies submit a full wishlist detailing every little bit of software they'd like tweaked or added, and it can be difficult to sort out which additions are critical to a company's process and which are just wishful add-ons. Those wishlists provide a developer with far more features than they could implement, and so often they require more information regarding which ones are most important and should be prioritized, while figuring out how much time it would take to develop each feature. Explaining in no uncertain terms a feature's importance to how your company operates (and, obviously, making sure that feature is actually critical) is the number one way you can get your developer's attention and jump to the top of the list.

Patience can also be required. The process for developing new features takes time and includes a lot of testing even after the code has been laid down. For companies like SMT, that means a regular back and forth as the kinks in the programming get hammered out. For others with a consistent schedule like KISSsoft, this means that at some point, there needs to be a hard cutoff where the company focuses on testing and prep-

ping all the already developed features for release, often months before the actual release date.

"This is something customers don't always understand is that we have to stop very early so we have time to test things," Beermann said.

But in the end, the situation is stacked in your favor: gear design software developers want your feedback. They want to build the best product they can, and they've found that the best way to do that is to cater it to their customers' needs.

"If we start somewhere and work our way through, we will never be finished," Beermann said. "If the customer has a request, we know exactly what to do next. At least one person will be happy. It really helps everyone in the process."

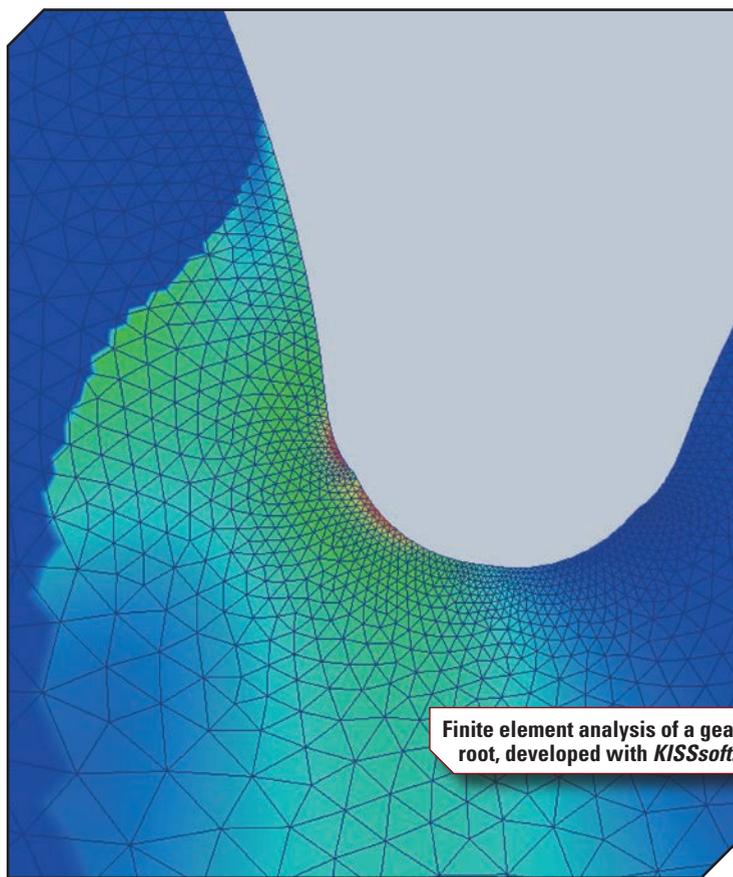
And when the customer is happy, everyone wins. 

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Finite element analysis of a gear tooth root, developed with KISSsoft.