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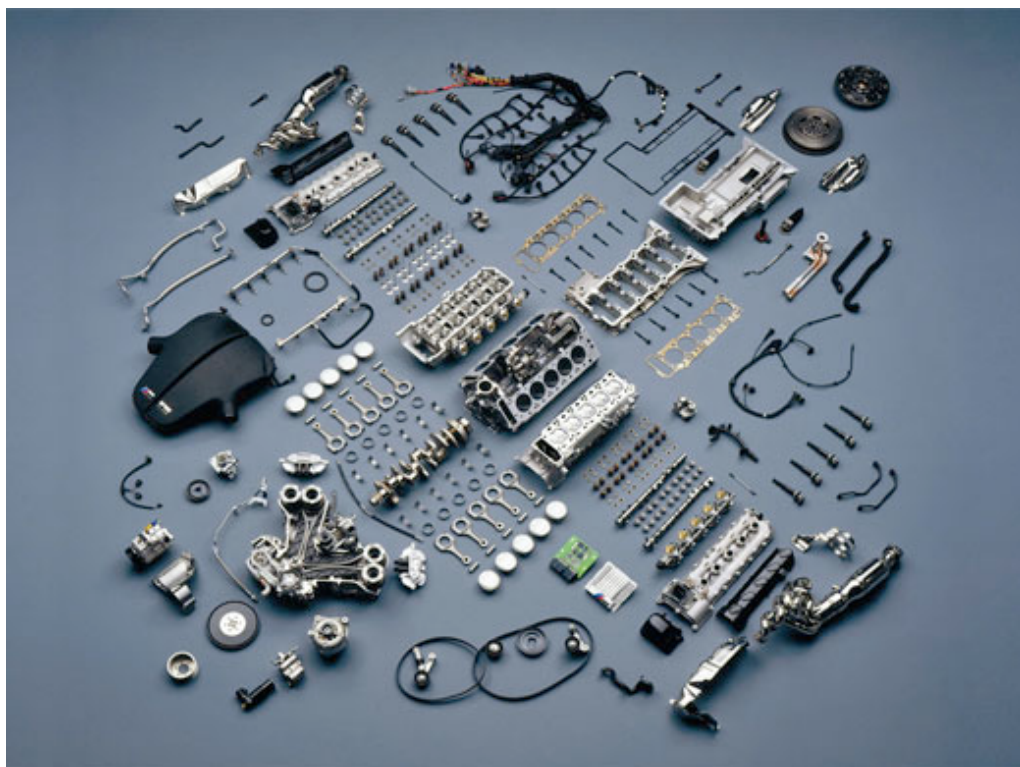
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The Ever Evolving Product...

By Jim Phillips

A previous [frog Design Mind article](#) discussed the design complexity of technology systems, and how more sophisticated systems aren't always great for consumers.

But not every additional layer of intricacy is a net negative for end users. That's especially true when designers create systems that enable products to keep evolving, even after they've left the factory floor.

Take the latest BMWs to roll off the assembly line in Bavaria. They feature TeleService, a system that uses an embedded phone in order to stay connected to an authorized service provider. The auto shop can thus be alerted when signs of trouble are brewing, giving its mechanics ability to predict failure before it happens. The BMWs automatically send their vital information to a service advisor who will then call you to set up an appointment. This may seem a bit big brother-ish, but when you consider that BMW is offering four years of free maintenance on its cars, there is certainly an advantage to the company in keeping tabs on that responsibility. It may well become the standard for luxury cars in the near future.

Another example is Rolls-Royce's product service bundle for its jet engines, called TotalCare. Rolls-Royce guarantees trouble-free engine operation (or flight time) based on an hourly rate. Rolls-Royce has designed a diagnostic system that continually monitors the performance of the engine; it communicates to a central Rolls facility via a satellite network, to spot engine performance issues before they adversely affect uptime and costs. Rolls-Royce is now number two in commercial jet engine sales, which is pretty impressive considering company's engine division was in a death spiral just a few years ago.

While both TeleService and TotalCare are good examples of product-service couplings that ensure customer happiness and loyalty through trouble free use, they can only engender evolution in the product once it is back in the hands of a skilled mechanic. The next level of evolutionary product being replicated in the consumer electronics space can remove the human factor



entirely, in a scheme similar to Over-the-Air Provisioning in the wireless handset world. OAP allows a wireless handset user to permit the network to push down software updates or new software that can fix problems, or can add features or improve a product's interface.

Look at Sony's PlayStation Portable, which offers integrated WiFi so gamers can battle each other while in close proximity. That connection also offers a way for the device to receive network updates to the firmware, or plug security holes that allow tinkering hackers the ability to port games to the platform outside of the formal channels. I've downloaded a few updates for my PSP. The most substantial was a web browser which significantly increased the usefulness of the PSP to for a non-hardcore gamer like myself.



Another form of evolution we'll undoubtedly see more of is TiVo's adaptive technology. Anyone familiar with the pioneer video recorder knows that it features a very effective system for receiving software updates, which regularly tweak the user interfaces for the better—though it's probably better known for merely downloading the next



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day's schedule of programs. Adaptive systems by nature monitor the product's use and environment, and alter their behavior to best accommodate those changes. While

TiVo's adaptive nature is primarily limited to suggesting and recording content, the system could be capable of deeper forms of adaptation in the future. Although a tricky proposition, an active area of research is an adaptive UI that optimizes to your personal patterns and habits.

All of these systems eventually lead to discussion about privacy concerns, and for good reason. It's an Achilles heel for the product-service coupling, especially when offered into the consumer market. A manufacturer or provider that inadvertently compromises the confidentiality of its users can do lasting damage to the company's public image and bottom line. Ultimately these concerns will not stop the super-functionality these systems can offer, but it is a responsibility that manufacturers obviously cannot take lightly.

Does ever increasing product complexity mean that we should shun fixed physical interfaces that can't evolve? No. While there is arguably little or no physical interface for TeleService and TotalCare, the physical nature of a product is still very important. Increased system design complexity forces deeper collaboration between designers, technologist, and partner companies. To me that means easier to use products that stay fresh and useful longer. Given that, I'd say we are rapidly heading towards the day when connected ever-evolving products become the standard rather than the exception. That's good news for gadget junkies like me.

Jim Phillips is Director of Innovation Processes in frog's Palo Alto studios.

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