

Applying "mass customisation" manufacturing principles to solve technical communication problems

Overview

This article discusses how organisations can resolve the conflict between the need to produce bespoke, customer-specific, technical communication and the need to re-use as much information as possible. It begins with a description of the conflict and resulting trade-off and then compares it to the field of manufacturing, which has found ways to deal with a similar issue. Universal information modules are introduced as the solution - these allow the manufacturing principle of mass customization to be applied to technical communication. The article ends by outlining the requirements needed for supporting tools in order to adopt this solution.

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The fundamental trade-off between re-usable and customized communication

Do more, faster and with less money

Today, technical communication departments face the challenge of coping with a relentless increase in the amount of technical documentation they have to produce. Indeed, as organisations accelerate the pace of new product launches in response to changing market and competitive forces, so technical authors must produce more content, more quickly.

In addition, users are not a uniform group. They have different product knowledge, different backgrounds and they may have different reasons for using the product. As such, they need specific, personalized documentation rather than a standard one-size-fits-all document. As companies expand their product offering into new markets and strive to broaden the product offering and stretch the lifecycle of existing products, so the producers of the technical information must manage, simultaneously, more than one edition of their documents.

Globalization intensifies the burden even more, with their associated translation and localization requirements. Simultaneously, technical communication managers have to combine this ever-increasing workload with a constant pressure to cut costs: "Do more, faster and with less money" is today high on the agenda of every technical communication manager.

Avoiding writing the same information twice

In order to cope with the intensifying burden, many documentation managers have realized that it makes sense to avoid writing the same information twice. They need to promote re-use of existing content.

Instead of writing lengthy singular documents, technical authors have started to break down their document into pieces or modules, which they then aim to re-use within different documents. This works well, provided that these modules are written in a way that makes them applicable for a broad set of purposes.

For example, to write a module on a car dashboard that is applicable to several car models, the author should describe all the possible dashboard options. The generic module can be deployed in every

manual. No matter which car models or options are concerned, the relevant explanation is available somewhere in the document.

Weaknesses in re-using content

This approach allows the technical authors to maximize the re-use of content and helps them cope with the increasing volume of technical communication. However, it does not provide the ultimate consumer of the information with a workable solution.

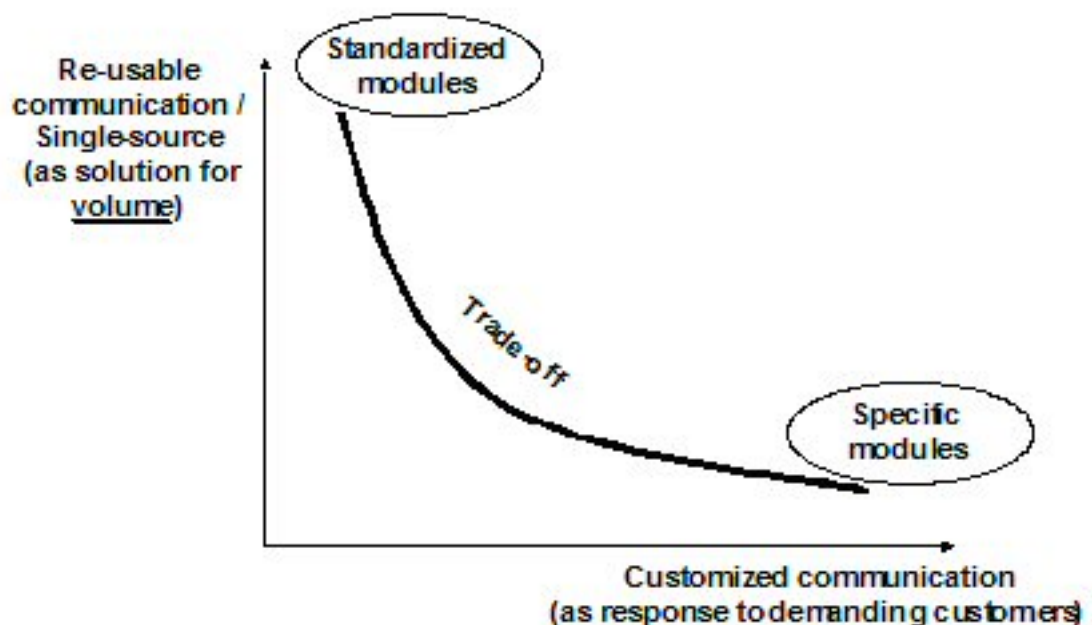
Consumers then face the burden of searching and scanning through lots of information that is often irrelevant to their product - they simply do not have every option included in the documentation. Imagine the frustration you experience when you have to program a DVD recorder for the first time using a manual that provides lengthy explanations on buttons and functionality that are simply not available on the product at hand.

Things get even worse if that product is an industrial product, such as a machine or truck, where up-time is critical. In these cases, the repair engineers should have specific information at hand for the product they are dealing, so they don't waste any time searching through irrelevant information.

The trade-off

So, today, organizations face a fundamental trade-off between re-usable and customized communication: either they produce standardized, easy to re-use modules which are not customer specific or they produce specific information modules which are not suited for re-use. Illustration 1 depicts this trade-off.

COMPANIES FACE A FUNDAMENTAL TRADE-OFF BETWEEN RE-USABLE AND CUSTOMIZED COMMUNICATION



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Breaking the trade-off: adopting the trend in manufacturing

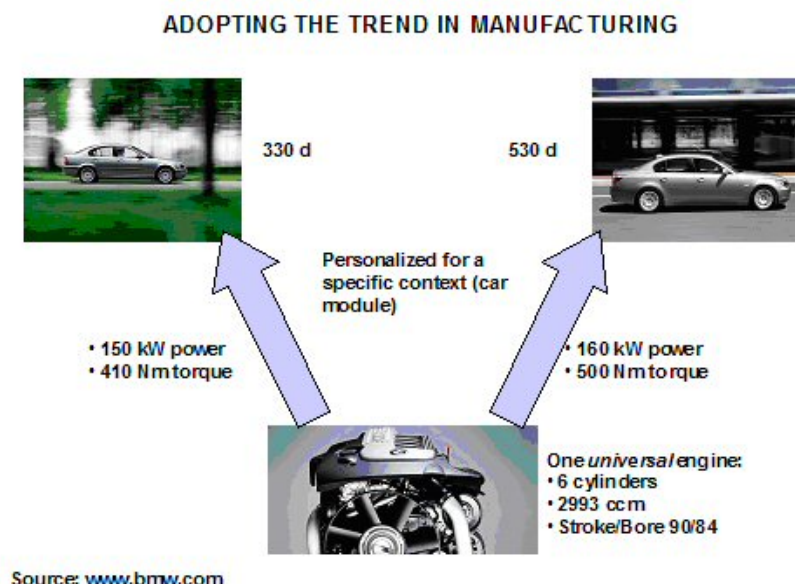
The trade-off between keeping something re-usable and simultaneously having the ability to make it specific is not new. In the field of car manufacturing, for example, companies struggle with the same trade-off. In their need to produce large volumes of car components to realize economies of scale, car manufacturers aim to re-use the same car components across broad ranges of car models.

Standardization of product components is the key enabler for this re-use. At the same time, car manufacturers aim to differentiate their car models in order to reach a broad customer base. Car users are not a uniform group; they have different transportation needs, different budgets and might be appealed by different product characteristics. This is the reason why marketers segment their target market and develop a specific, *personalized* offering for each of the identified segments.

Mass customization in manufacturing

Car manufacturers have found ways to break the trade-off between standardization and personalization. They have enabled *mass customization* by using standardized components that can be personalized at the very end of the production chain. In fact, what they do is add intelligence to the car component so that it can be personalized to the specific context (i.e. the car model) in which it is used. A good example of this approach is how a car engine can be re-used across various car models (see illustration 2). In order realize economies of scale, the same physical engine (e.g. in terms of number of cylinders, capacity, stroke/bore.) is deployed for two different car models. Yet, as these models target different customer segments, the power and torque are set differently for each car model. This is made possible by adding intelligence in terms of software components to the mechanical engine so that it can be tuned to the specific needs of the context (the car model) in which it is deployed. This way, marketers can still differentiate the end product (e.g. in terms of power the engine can produce) and market it correspondingly.

This approach effectively breaks the trade-off between re-use and personalization: one *universal* mechanical engine is re-used across different car models while its performance characteristics are personalized for the specific context in which it is used. It truly enables *mass customization*.



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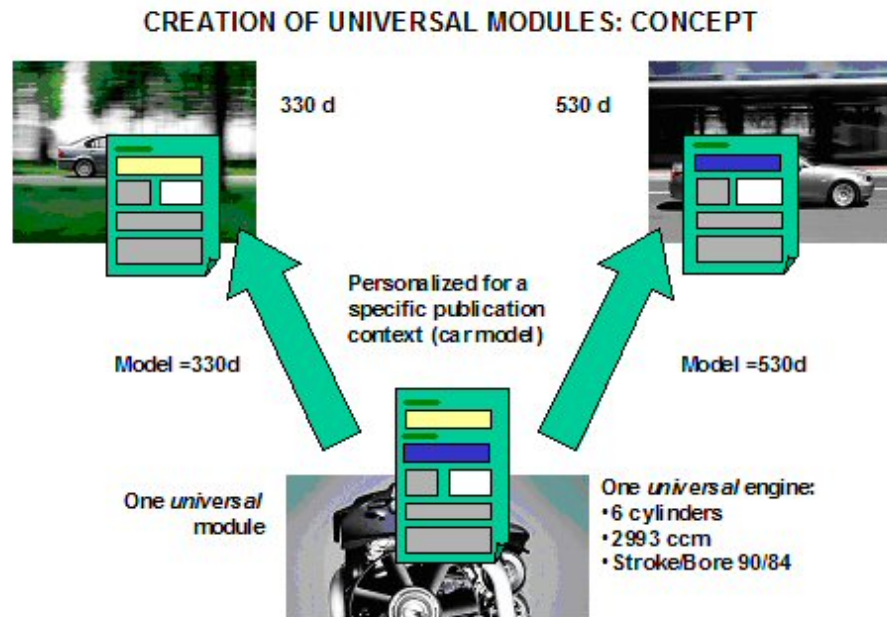
Creating universal modules: concept and benefits

We believe technical communicators should adopt the mass customization strategy already applied in manufacturing in order to break the trade-off between re-use and personalization. Indeed, by adding

intelligence to the information modules, technical communicators can also produce universal modules that can be re-used easily while keeping the option to personalize the modules.

The key enabler for adding intelligence to documents

In technical communication, the key enabler for adding intelligence is XML. Technical communicators can add intelligence to the modules by means of XML conditions, where specific information can be put in a conditional structure. When re-using the module in a specific publication context, the non-relevant information can be filtered away enabling the information module to be fine-tuned for a specific context (illustration 3).



Universal modules do not equal granules

It is important to note that the approach of using universal modules is very different from other techniques for re-use such as working with small granularity or creating siblings or clones (sometimes also called variants). This technique does not achieve real re-use, as the duplication process ultimately results in two information modules with their own version management, translation processes, etc. Working with small granularity aims to cut documents into very small pieces in order to stimulate their re-use. The idea here is that the smaller granularity of the information modules, the less specific the modules will be and the higher the chances will be that the modules can be re-used for other purposes.

The problem, however, is that as the granularity becomes smaller, the information producers will no longer be able to find the small information modules effectively and hence the desired re-use will simply not happen. Creating siblings or clones aims to break the trade-off between re-use and personalization by duplicating existing modules and then adapting them to meet specific information requirements.

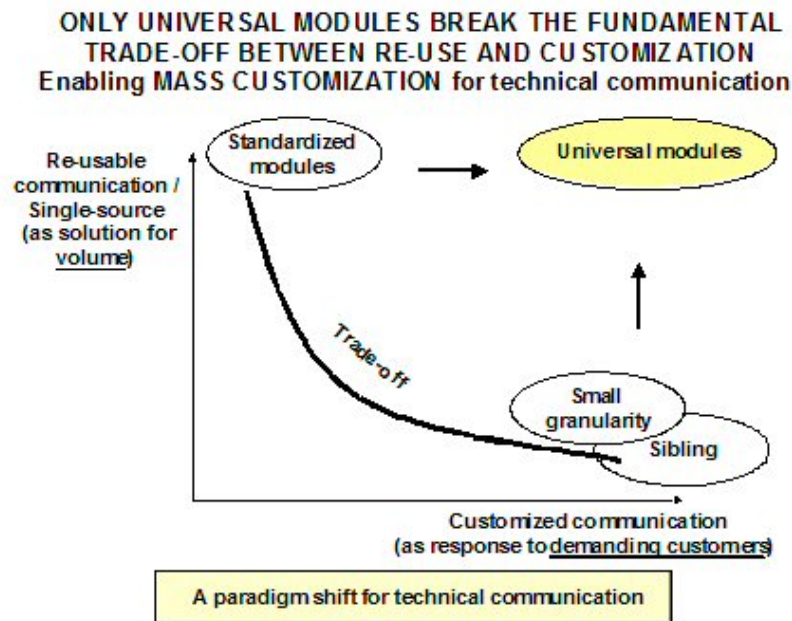
This means that only the concept of universal modules effectively breaks the fundamental trade-off between re-use and personalization: the real shift for technical communicators. Indeed, through this approach, technical communicators can really start producing universal modules and consciously design them for re-use. They do not have to compromise on the specific information needs of their audience as specific information can be added to the universal module in a conditional structure.

There is no need to cut the modules into small, un-controllable pieces or to duplicate the modules.

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Benefits

The benefits are clear. Since only one universal information module is created, the technical communicator will more easily retrieve and manage the information and maximize its re-use. Also, users are satisfied as they do not have to scan through lengthy, standardized documents with tons of irrelevant information. Universal modules break the fundamental trade-off between re-use and personalization. Universal modules enable *mass customization* for technical communication (illustration 4).



Implications for your technical communication system (TCS)

The basic requirements for a good technical communication system remain valid for those applying a strategy of using universal modules. The tools must provide technical communicators with powerful single-source repository management, version management, workflow, publication management, localization capabilities and so on. In addition, creating universal modules requires the supporting tools to have to specific capabilities:

- As the technical writers have to add conditions in the XML modules, these tools must provide the authors with an easy-to-use mechanism to create valid and consistent conditions. If not, there is a real risk that a random set of inconsistent conditions would emerge within the information modules that ultimately do not make any sense and are not applicable for any valid publication context. A powerful condition management tool can ensure that all conditions are consistent and relevant.
- Also, the supporting tool must be able to interpret and resolve the conditions. It has to know the context in which the information module is used and apply this context automatically to all conditions.

Although the notion of universal modules is still new for technical communication, supporting tools are already available. Contact me if you want to know more about such tools. Also, I would appreciate receiving any feedback on how, today, technical authors experience and deal with the trade-off between re-use and customization.

Next: About the author (on page **Error! Bookmark not defined.**)

About the author

Yves Rombauts is Director of Business Development at Trisoft, a Belgium-based independent software vendor that commercializes InfoShare, a packaged software solution for Technical Communication Departments (Technical Communication System), enabling them to efficiently create, translate, personalize and publish their technical product information such as user manuals, service manuals, training material and on-line help.

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