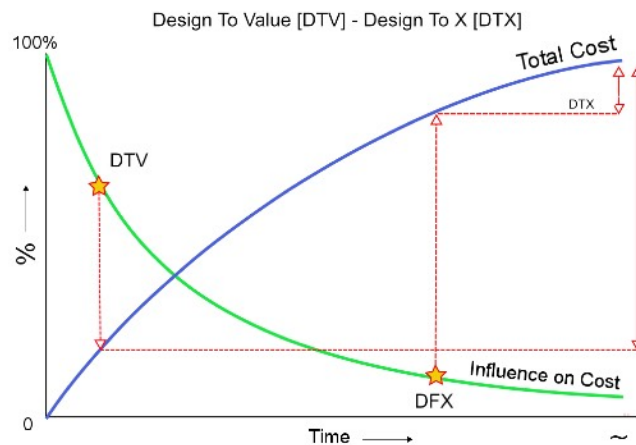


# Design to Value [DtV].

When to use the Design to Value [DtV] approach?

Always prefer using DtV in favor of DtX. With DtX only small benefits can be realized. Unlike DtV where there are significant benefits to be gained.

Design to Value [DtV] is the way (manufacturing) organizations approach product development and design iterations.



*Influence DtV versus DtX on Cost.*

This white paper emphasizes the use of Design to Value, rather than the Design to Cost approach [DtX].

Design to X [DtX] is the way manufacturing organizations approach optimizing the production process. DtX uses models, analysis, prioritization, and measurement to increase productivity. This optimization includes equipment, staging areas, inventory protocols, facility layout, conveyance, and more. DtX, the X stand for: Design to cost [DtC], design for assembly [DFA], design for manufacturing [DFM], 6 Six Sigma improve manufacturing quality [6 $\sigma$ ], Lean Manufacturing, Total cost of ownership' [TCO], Total Productive Maintenance [TPM], KanBan, Workflow analysis, Industry 4.0 technologies and more.

The most successful manufacturing companies understand that DtV is superior to DtX.

What is the significance of the Design to Value [DtV] and Design to X [DtX] concepts?



*Why put energy into a product that has no function<sup>1</sup>?*

By starting with DtV, you avoid putting unnecessary energy into the wrong things. If a (partial) function of a product has no added value, why put energy into it?

<sup>1</sup> © <https://ourobengr.com/2015/01/useless-gate-memeware/>

Value design approaches do, in their methodology, not greatly differ from more traditional design approaches. The main difference between traditional design approaches and design to value approaches lies in the focus on creating value for the customer.

## ***When to use DtV.***

Below are some reasons to consider the use of the DtV, in favor of the DtX approach.

### **● *New products.***

When developing a new product, everyone understands how important it is to create value for the customer. When you need to start a new design by making copies of existing products or product families, it always makes sense to start with DtV. You can also copy the wrong functions in the concept.

### **● *Existing products.***

#### **● *When the buyer demands a cost saving.***

Often, at purchasing products from T(n) suppliers, only the price is taken into account. *'You get the contract if 10% is deducted from the price.'* This is a typical example of the traditional way of buying products. In this case, the buyer assumes that there is *'air'* in the selling price. He or she is aiming for the margins used to be too high. However, if the relationship between the B2B partners would be good and they would be completely open and transparent to each other, then they would know the margins used. Then there would be no need to demand more savings. Often, at the risk of generalizing, the buyers are people with a commercial DNA. They assume that the others also think like them. They assume that the margins charged by the supplier are too high. Buyers also often have personal KPIs that need to be achieved. An example of such a KPI is the annual list of 5% cost price year over year. To break this bad communication, in the supply chain the DtV approach can be helpful to create trust between the partners.

#### **● *User are not using features.***

##### **Features don't provide benefits to the consumer.**

Features are great but if they don't provide an actual benefit to the consumer they end up contributing additional cost without added value. Shortly after launch, you start getting notifications that users are submitting reviews that are very positive but only seem to mention some of the key features of the product. In this case, it could be possible that the wrong priority has been given to features over the benefits.

#### **● *Reviews are terrible.***

##### **Bad quality issues.**

Nobody intends to make a bad product. There are a lot of causes when it comes to bad quality. Unforeseen uses, quality issues, supplier issues etc. Even sometimes a bad product is a bad product from the beginning.

#### **● *Competitors offer shaper products.***

Suddenly, you find out that the competition is offering a **similar product that is cheaper** than yours.

When was the last time you actually took a hard look at your competitors' products?

● **Only one customer contact.**

In the organization of the customer, normally you have contact with members of the QLTC<sup>2</sup> team. If you don't have contact with the several members of the team, your product will be categorized as a commodity<sup>3</sup>.

● **A commodity.**

If your product is a commodity then you have to **compete with other manufactures.** Your product or service may not be distinctive enough. It may have a lot of added value for the customer, but so is the competition. What makes your product unique compared to the competition? Is it the quality or is it the price?

● **No knowledge of the application.**

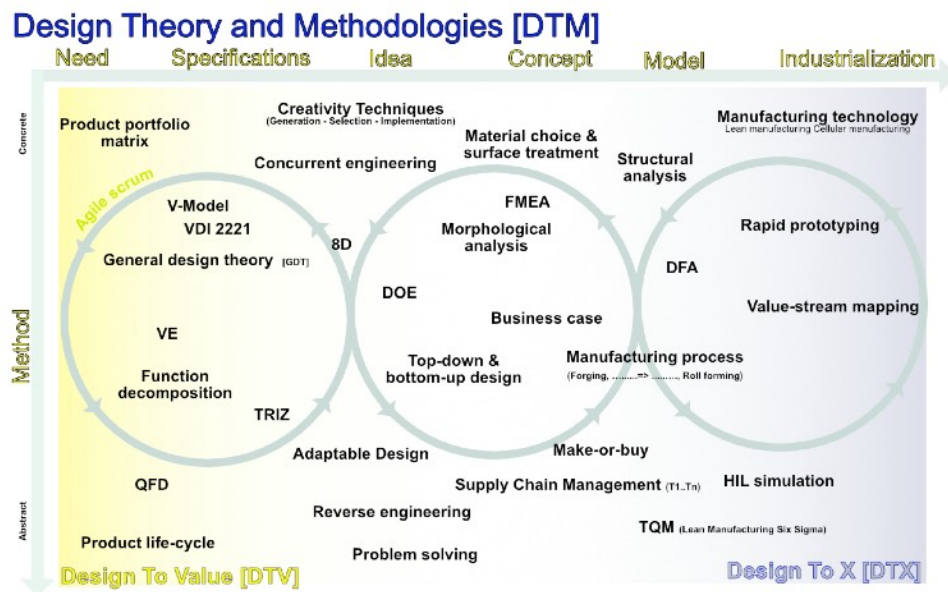
Is it known in the organization **what the product is for?** Has the manufacturing process been optimized for this?

● **Price too high.**

Is the price too high in relation to the desired value? Is this so or is this assumed?

**DtX approach.**

There are several approaches to optimize the production process. In the design process, two important faces can be distinguished. The first phase in the design process is to come up with a design that meets the user's requirements. In other words, designing according to the function DtV. And the second phase is industrialization. It is economically efficient to produce a product DtX.



*DtV-DtX Design split.*

In the table above the DtV methodology is placed on the left side. The DtX methodologies are placed on the right side.

In the book 'Methodical Design explained<sup>4</sup>' the split in DtV and DtX will be extensively discussed.

<sup>2</sup> QTLC is the abbreviation from Quality, Technical, Logistic and Cost team. In (big) companies this team is reasonable for all aspects of their product.

<sup>3</sup> Commodity is an economic good, which is full or partly interchangeable.

<sup>4</sup> [Methodical Design explained](#) Insight into the methodical design process as it is applied in companies. ePUB ISBN 9789403729435 Hardcover ISBN 9789403679723

With the DtX approach the influence on cost is minimal. See then Picture 'Influence DtV to Cost' in the beginning of this white paper. Therefore we will focus in this paper only on the DtV methodology.

**DtV approach.**

DtV is a fact-based methodology that focuses on three key aspects of a product: consumer insights, competitive insights, and supplier insights.

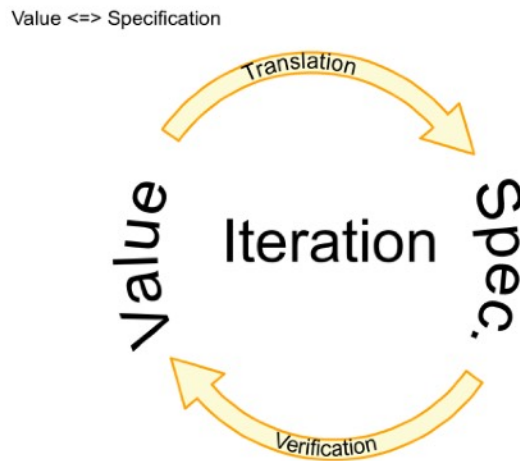
**Consumer insights.**

Satisfying the needs of customers is the source of sustainable value creation. This is why a consumer should buy your product or use a service.

How to understand the customer? This is not an easy task.

**Know your customer.**

If you know your (future<sup>5</sup>) customer than, the next step is translating the needs of your customer into a good specification.



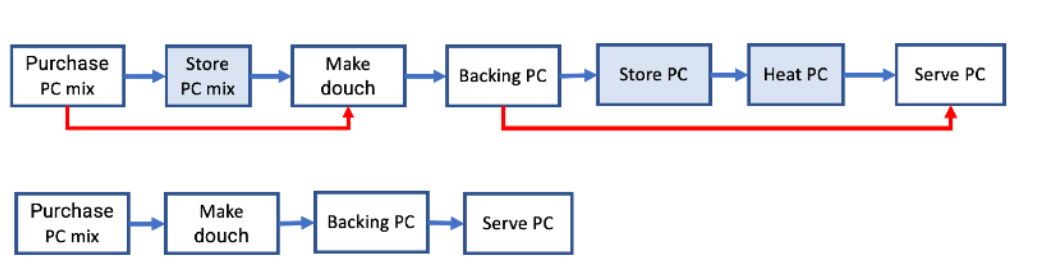
*Study customers needs.*

Study the behavior of a (potential) customers' by observing. It doesn't matter whether they are children playing or elderly people in a nursing home. One of the DtV tools is the value stream mapping tool. In this tool, all actions are divided into process steps and analyzed. One of the common used tools is Value Stream Mapping [VSM].

**Value stream mapping [VSM].**

In essence the mapping tool is modeling the existing process. Recording how something is done. The methodology used here is to name an activity. Values are then assigned to this activity. The values can then be analyzed.

Value stream backing a pan cake [PC].



<sup>5</sup> To find a potential customer of a non existing product is challenging. This writing does not go into this in more detail. In any case, it is essential that it solves a problem or makes it possible to do what has added value for the costumer.

*Value stream backing a cake.*

In this example, backing a pancake, the process steps are simple representations like a simplex box. Within the process box, a lot of detailed activities are needed to make the process work. Normally, in practice, you start top-down. Starting with the intention of the process. Later, the process steps can be detailed.

It is important that you map the processes in such a way that it reflects reality. The Value Stream Map should reflect how the process is **currently** going.

**The VSM process.**

In a nutshell the VSM process consists of the following steps:

**1. Build a cross-functional team.**

The VSM is a team effort.

To understand the design decision criteria from different stakeholders you need a cross functional team. A DtV process owner, Customers (if possible), Product Marketing, Controlling, Quality and Regulatory Compliance, Operations, Sales, Product Development, ...

**2. Define your (potential) customer.**

To find a potential customer of a non existing product is challenging. This writing does not go into this in more detail. In any case, it is essential that it solves a problem or makes it possible to do what has added value for the customer.

As an example, take the wheel chair. Who is the customer? The user, the healthcare worker, the insurance company?

**3. Define the needs or wishes.**

Understand customer value. Start capturing customer (B2B) or consumer (B2C) insights. Find out quantitative and qualitative data. If there are competitors' products on the market, study them in detail. Store all data in a collective accessible database. You need survival cross-functional workshops to find the right trade-off between customer requirements, functions and cost.

Summary the needs and wishes in one document. This will be the input for (design) specification.

**4. Make a Value Stream Map [VSM] diagram.**

By making a VSM all findings in step 3, 'Define the needs or wishes', are made visual for studying and evaluating. Find out which steps in the **existing** process add value.

Qualify, depending on the customers need: quality, speed, cost, etc, the added and not added value.

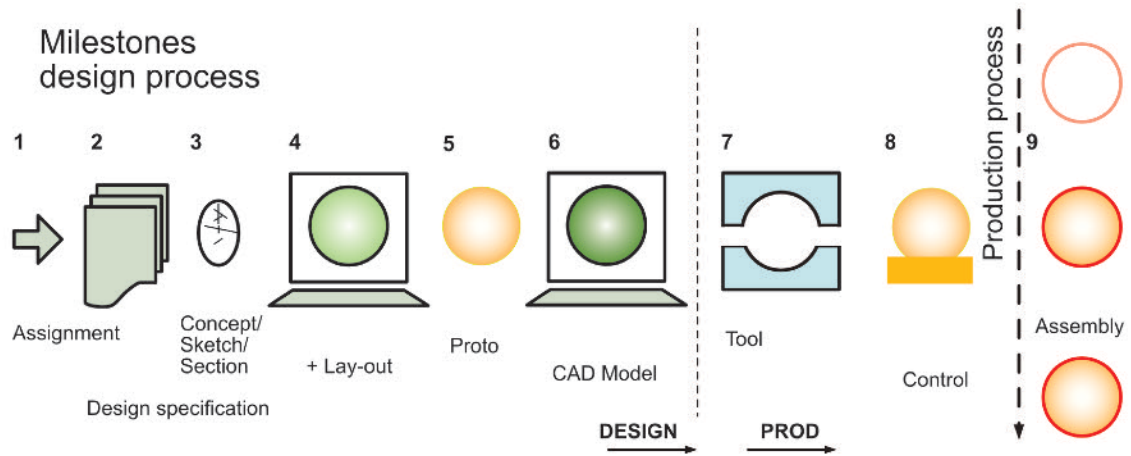
**5. Modify the VSM, by eliminating the Non value steps.**

This way you use the VSM as a simulation model to modify the existing process.

**6. Industrialize the findings.**

Regardless of whether it is an existing or new product, it always starts with the (design) specification.

Below is an overview of the development process steps to follow.



## Summary.

When should I use the Design to Value [DtV] approach?

Always prefer using DtV in favor of DtX. With DtX only small benefits can be realized. Unlike DtV where there are significant benefits to be gained.

DtV is always a team effort. You can't do it alone. Together with a multidisciplinary team, it is possible to apply effective DtV. In the White paper, various reasons are given when it is worthwhile to start the DtV process. In almost all cases, the DtX is a consequence of the DtV process. In other words, DtV makes it possible to apply DtX effectively.

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