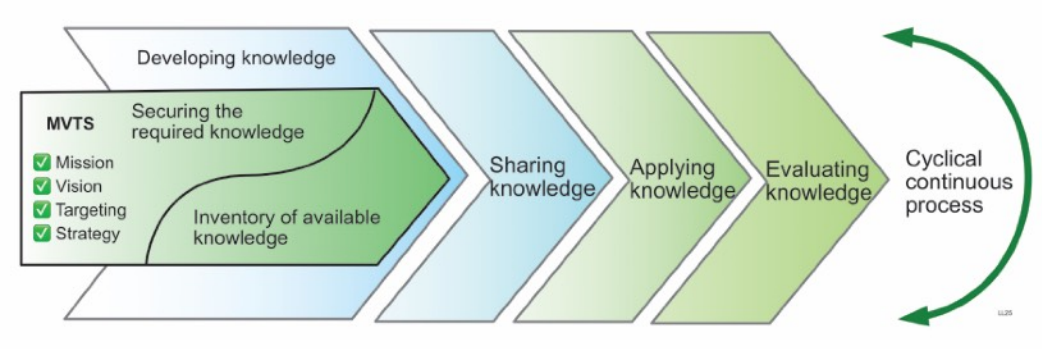
The value of knowledge in your organization.

Imagine that you arrive at your company tomorrow and no one is there!

Imagine that one of your best employees, who is essential to the business operations, announces that he will retire in a month!

Or imagine that this employee announces that he will go to the competitor!

These are, especially the last two, realistic scenarios.
How can you, as a company or as an organization, protect yourself against this?



MVTS knowledge model

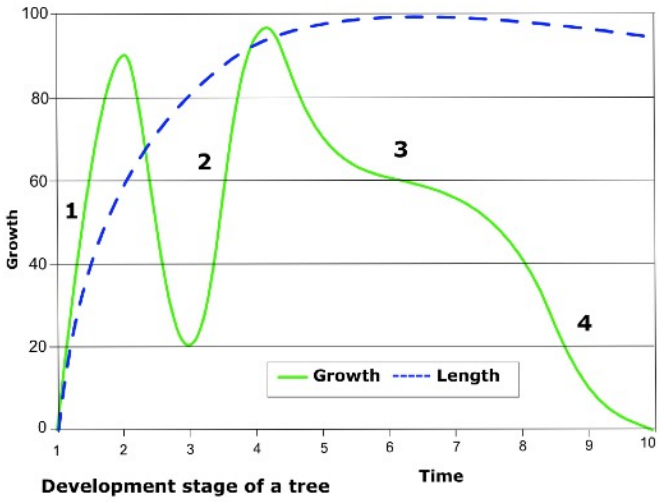
Summary

This paper argues how to track knowledge in a company or organization and why it is important to share knowledge. One of the basic elements of an organization is knowledge. Knowledge is used to realize the goal of the organization. This available knowledge is self-evident for many companies. People don't think about it. The knowledge or lack of knowledge only becomes visible when it is missing for one reason or another. Only then does one become aware of it. To increase this awareness, it is important to know what phase your company or organization is in. Just like in nature, there are different phases in the life of a company or organization. Each phase has its own problems and challenges. After determining which one is in, it is necessary to develop a knowledge model. After all, reality can only be investigated if it is compared with a model of reality. With the outcome of this investigation, concrete measures can then be taken to make the organization or company more robust. One of the methods to do this is to share existing knowledge. After all, by giving knowledge, new valuable knowledge is also received. In this way, the natural growth process of your company or organization gets a boost. Of course, the intention is not to give away your crown jewels. By determining what knowledge there is in the company or organization, it is also easy to determine whether they are your crown jewels. Crown jewels that you have to be careful with. The target group of this paper is the manufacturing industry.

Contents

Growth

Every organization, every organism needs a certain robustness to survive. In nature, it is linked to growth. Take a tree as an example. The tree, just like an organization, has a number of stages in its existence.



The diagram shows the growth stages of a tree.

Stages 1: The Light of Life.

The seed or fruit of a mature tree falls into a favourable environment and germinates. Life awakens. The germinated seed begins to multiply, roots are formed, leaves appear and a young shoot emerges. The internal energy that the seed contains is used up and must be replenished as quickly as possible from external sources. Growth at this stage is very explosive and occurs in fits and starts.

Life is tender, there are many fruits that do not survive this first stage. This is characterised by the downward line, at the end of the 1st phase in the graph. The young shoots that do survive go on to the next phase.

Stages 2: Growth phase

The root system has developed sufficiently to provide the organism tree with sufficient energy to make this growth phase possible. At the beginning of this phase, growth is very explosive. This explosive growth decreases later, in this phase, and is converted into a steady, continuous growth process. There are fewer and fewer growth spurts. The environment, storms, drought, diseases and animal predation have less and less influence on the organism tree. The tree becomes settled and moving it becomes increasingly difficult. The speed of growth will decrease more and more and the tree will start to bear its first fruits.
The organism tree has become an ecological unit and will be virtually insensitive to competition with other trees. The tree glides almost unnoticed into the next phase in its existence.

Stages 3: Adult phase

In this phase, the tree organism is being considered. Growth will decrease almost unnoticed and the available energy of the tree will be used in this phase to form fruits. These fruits ensure that the tree organism survives as a species. The fruits in turn are at the beginning of the same cycle that the tree organism has already gone through.

At the end of the adult phase, functional parts will, initially, occasionally fail. The final phase is approaching.

Stages 4: Death phase

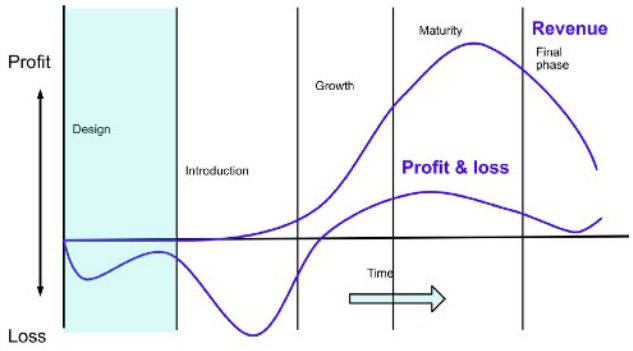
If some functional parts of the tree fall away, the remaining parts will try to take over these functions. If the number of parts that fall away is not too great, the tree will still succeed. If, as is inevitable, more and more functional parts fall away, the tree dies.

If we can ensure that a system or organism continues to grow, then in principle its lifespan can be extended indefinitely. In the case of trees, this can be achieved in part by pruning them. Pruning stimulates the tree to continue growing.[1]

What phase is your company in?

Whatever phase your company is in, it is important to organize a number of things well. This is to achieve the turnover targets and thus guarantee continuity. Securing and sharing knowledge is of vital importance hereProduct life cycles

Every product or service in a company has a finite lifespan. Therefore, it is important for a company to have a continuous flow of new projects in the pipeline. This is important for continuity in the long term. Designing a new product or service is, as the graph shows, very expensive. Therefore, it is very important here to use the raw material knowledge effectively.



Life cycles of a company.

Methodical design process

In the methodical design process[2], the design specification[3] is the foundation of the design. All knowledge about the future design is collected in this. Creating a good design specification is a profession in itself, but without collecting all available knowledge from all stakeholders, this is not possible. For the writer of the design specification, the recipient of knowledge, it is important to empathize with the perception of the givers of knowledge. Communication plays an important role in this. Without communication, there is no transfer of information and no transfer of knowledge. In her book (Dixon, 2000[4]) she refutes three myths: build a knowledge sharing system and the rest will follow automatically, technology can replace more personal contacts and you must first create a learning-oriented culture[5]. She also establishes that there are different types of knowledge transfer: serial, close, distant, strategic and specialist transfer of knowledge.

What is essential in any case, in effective knowledge transfer, is the will. Without the will, there is no knowledge transfer at all.

The assumption in this writing is that one, the organization or the company wants this. That one wants to share knowledge to achieve a common goal. Having or obtaining a common goal is a story in itself. If this condition, having a common goal, is met, then the next question naturally arises: how are we going to do this?

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[1] Lieshout, L. v. (2014). Een duurzame toekomst in harmonie of expansie? (*(A sustainable future in harmony or expansion?).* mijnbestseller.nl.

[2] Lieshout, l. (2022). Methodical design explained. Insights into the methodical design process as it is applied in companies. ISBN: 9789403679723

[3] White paper: The art of making a design specification 2018 Laurens van Lieshout ! /! Rev. 1 / https://lieshoutconsultancy.nl/?page_id=81

[4] Nancy M. Dixon, (2000), Common Knowledge How Companies Thrive by Sharing What They Know, ISBN 9780875849041.

[5] Given the rise of artificial intelligence, it is questionable whether this is still valid. ‘Every company is feeling the impact of AI and will integrate AI into all its activities.’

Problem solving model

To detect a problem, in our case detecting existing or missing knowledge in an organization or in a company, we need to know how to detect and solve a problem in a structured way.

How do you detect and solve a problem?

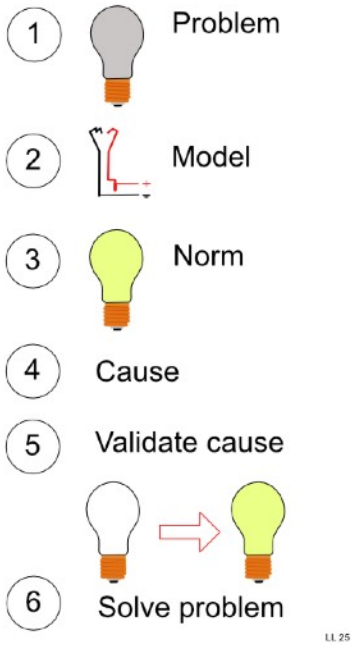
The example below explains in simplified form the process of detect and solving a problem.

To clarify the problem-solving model, the old-fashioned light bulb has been used. If the filament of the light bulb is broken, then the light bulb is broken. It is easy to determine that the filament is broken.

The right figure shows a schematic representation of the problem-solving process.

1.Define the problem. (Problem)

Usually, having "insufficient knowledge assurance" only becomes visible to a company when it is too late. Take for example that one of your best people now announces that he or she is leaving. Only then does thought begin to be given to the importance of this knowledge for the organization. Often, ad hoc measures are then taken to try to secure this knowledge.



In the example of the light bulb, the lack of light is the trigger that there is a problem.

How do you know if you have a potential problem? To know this, having a model and what it should be is important.

2. Model reality. (Model)

In the old fashioned light bulb, a mental model of how the light is generated will help. If you understand that light is generated by electrical heating of the wire is sufficient.
For the potential problem of 'insufficient knowledge' it is also important to have a model for it. In lean manufacturing theory there is a simple model that you can use to verify that you have a robust knowledge system.

> **1-3 Rule**
> The 1-3 rule (also known as the 1 & 3 / 3 & 1 principle) is a simple concept that revolves around strengthening cross-functionality within an organization[6]. The principle is that each task can be managed by more than one person, while each person is competent in more than one task.

3. How should it be. (Norm)

If a task within your organization can only be completed by one or two people, then there is a potential problem that needs to be solved.

4. Why isn't it so. (Cause)

The cause of the problem 'insufficient knowledge retention' can be very diverse. Usually the organization itself knows why it is so. This fact is also the basis for possible solutions.

5. Verify the assumptions.

By using tools such as a competency matrix to implement the 1-3 rule, organisations can easily identify skills knowledge gaps.

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[6] Stability concept used in the lean manufacturing model https://commons.wikimedia.org/wiki/File:Lean_manufactory_house.png

6. Solve the problem.

"A Problem Well-Defined is a Problem Half-Solved", Albert Einstein is quoted as having said that if he only had an hour to save the world, he would spend 55 minutes defining the problem and only 5 minutes solving it.[7]

Knowledge

As discussed above, when determining existing or missing knowledge, it is important to have a clear definition of knowledge. What is knowledge?

Thanks to Mathieu Weggeman who made a model for this in his book (Weggeman, 2003[8]). The model he made consists of a formula.

The knowledge formula,

$$K = \int (I + E.S.A)$$

Knowledge = is a function **∫** of (**I**nformation plus **E**xperience times **S**kill times **A**ttitude)

K = Knowledge

Knowledge is a catch-all term. A concept without a sharply defined meaning that the user can flesh out in more detail.

Some definitions:

- Knowledge is an awareness of facts.

- Knowledge is that which is known, what is learned (and stored) and that which an individual has insight into.

- Knowledge includes information, descriptions of it, or skills acquired through experience or education.

- …

To get the definition for the **detection of knowledge** pure, we have to delve into the other side of the = equation.

∫ = Function

Knowledge is a function of... In the literature I have not yet come across a good definition that expresses the value of knowledge in money[9] [10].

There is a contradiction here. If I have knowledge of something and no one else knows it, what is the value of it? Or if certain knowledge is generally known and public, what is the value? Apparently it is necessary to share part of the knowledge that gives it value. This is discussed in more detail in the detection and classification of knowledge.

Some quotes about knowledge and money:

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[7] Source: https://quoteinvestigator.com/2014/05/22/solve/

[8] Weggeman, M. (2003). Kennismanagement de praktijk. In M. Weggeman, Kennismanagement de praktijk (p. 38). Schiedam: Sciptum.

[9] Lieshout, L. v. (2021). Anti-informatie. In L. v. Lieshout, Anti-informatie (pp. 164,165). Mijnbestseller.nl.

[10] Pritchard, Duncan, John Turri, and J. Adam Carter, "The Value of Knowledge", The Stanford Encyclopedia of Philosophy (Fall 2022 Edition https://plato.stanford.edu/archives/fall2022/entries/knowledge-value

'If the Western world wants to maintain its level of prosperity, it must realise that it must continuously contribute to the creation of value. (Zijlstra, 2021)[11].' In other words, the creation of knowledge.

'The liberalisme models are based entirely on measurability and ownership. Everything that cannot be included on the balance sheet does not exist. In that way of thinking, solidarity has no value, social cohesion is nonsense, integration and participation are wasted money and corporate social responsibility only becomes important if it generates money. Without money, property and publicity, there is no power.'[12]

If we want to maintain our prosperity here in Europe, we need to strengthen our strengths even more. It is more efficient to build a lead than to catch up.

What we are strong in Europe is:
- Having a variety of business models that take into account the interests of all stakeholders. This is in contrast to the American standardized shareholder model.
- Having a network economy. Entrepreneurs who work together with mutual trust to achieve results.
- Open innovation. Exchanging knowledge of the market and exchanging knowledge with other companies in other sectors. In this way, it is relatively easy to obtain knowledge for innovation.
- A culture that not only thinks in terms of 'you' and 'me' but also in 'we'.

I = Information

Information is data to which a meaning has been or is given. This attribution of meaning is only done by people. Take 100,000 and 200,000 as an example. These are symbols. We humans have given these symbols a meaning, a number. This is information. Information, in this is also if the numbers stand for turnover data. Turnover data for the first and second quarters, in euros of a company.

E = Experience

Experience is a form of knowledge or insight that has been learned through experience. Gaining experience is closely intertwined with gaining knowledge. In this writing, we will discuss this in more detail. Without taking in knowledge, it is not possible to gain experiences.

V = Skill

Skill is the ability to perform a certain action competently. Competent here means: skilled, good at his profession. Sometimes this is substantiated with a diploma or a certificate.

E.V = Competence

Competence is being proficient or proficient in a particular field. It is the sum of experience and skill. For a company, it is the ability to realize an assignment. There is also a certain component of intelligence in competence. *'No matter how hard he tries, he will never learn.'* The intelligence of the company or organization determines the speed of becoming proficient in (a new) competency.

A = Attitude

Attitude is a mental and emotional entity that characterizes a person, company, or organization. It is also the culture of an organization. After all, the culture of an organization is determined by the sum of individual expressions.

I want ... = > Attitude. I know ... => Knowledge. I can ...=> Experience.

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[11] Zijlstra, W. (2021). The economic value of knowledge is declining faster and faster, 2021. https://zbc.nu/management/kennismanagement-management/de-economische-waarde-van-kennis-daalt-steeds-sneller/

[12] Zijlstra, W. (2021) Value creation more important than money and power, https://zbc.nu/management/kennismanagement-management/de-economische-waarde-van-kennis-daalt-steeds-sneller/

Problem definition

Finding knowledge.

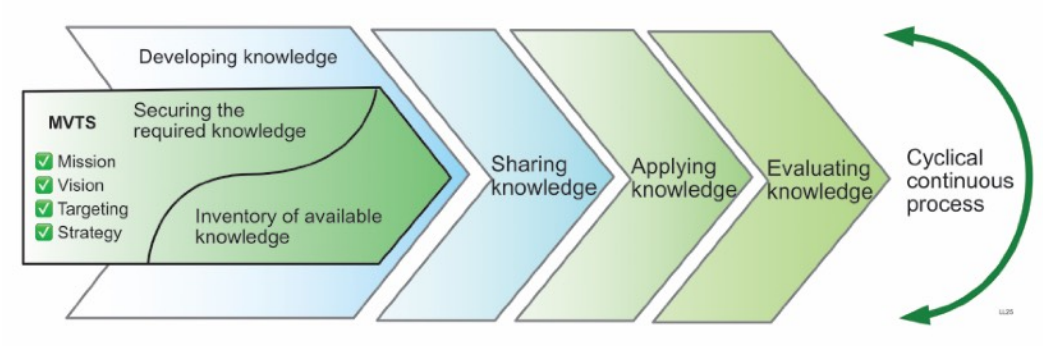
Now that we know what knowledge is, the next question is: What is the problem? In our case: how do you track down knowledge in an organization? How do you find knowledge in an organization?

Targeting

What should reality look like? Before looking at causes and solutions, a good analysis of the problem is necessary. Why are we engaged in this exercise? (Detecting knowledge) What was the reason we were doing this research again?

The goal

The goal is (should be) to develop knowledge in the company or organization in order to ... The flow diagram of (Weggeman, 2003) can be helpful to keep an eye on the bigger picture. Everyone in your company or organization knows what the goal is. If I ask a random person from your company or organization: what is the purpose of your company or organization, will I get unanimous answers?



Being an organization that has knowledge as an asset is at most a derivative goal.

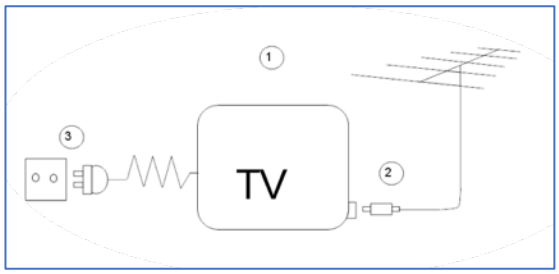
Having a mission, vision and strategy is important for an organization. But what's even more important is the ability to learn. To continue to exist as an organization, it must adapt to an ever-changing environment. To adapt an organization to a changing environment, an organization must have the ability to learn. One of the goals could be; to make the organization more robust because important knowledge will soon disappear, to achieve efficient growth because new opportunities arise in the market, because the market has different requirements for our product or because….

In this letter, it is assumed that the ultimate goal of the organization is known and that detecting, securing and sharing knowledge is a very important tool to achieve that goal.

Detecting knowledge

We have described above what knowledge is. It is important to have a model for detecting knowledge. Having a model of the company or organization. With the help of a model, we can test reality. This testing is done by systematically testing all elements of the model. To give an example: the TV model.

The TV Model



Many of us don't understand how a TV works exactly. Yet everyone has a TV model in his or her head. The TV model that most people have in their head looks like this.

1.the TV or the screen.

2.the antenna or internet connection.

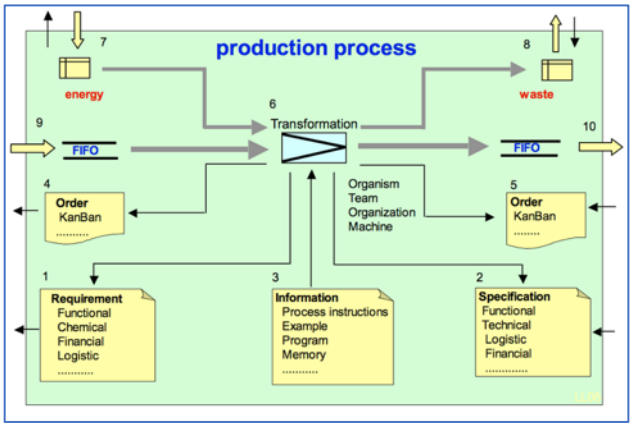
3.The power outlet.

The operation of the TV can be described using the TV model as follows: The TV (1) draws from the socket (3) the energy necessary to convert the signals coming from the antenna connection or internet connection (2) into the signals visible to humans.

If one understands this model, then it is easy to explain why a TV set cannot work if the plug is not in the socket (3). It is not necessary to have knowledge of the splitting of the antenna or internet signal into a video and an audio signal.

The following law applies to modelling: The simpler the model, the more reliable the predictions that can be made with the help of the model. In other words, one can also argue that the operation of the TV can be better understood the simpler the model.

Business Model



The model below applies to every company or organization. The production process model[13].

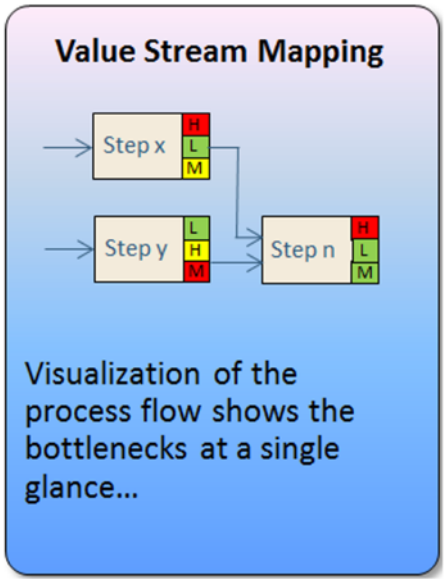
Every natural or artificial production process can be described as follows: Information (3) and raw materials (9) are transformed (9) into specified (2) products (10).

The production process requires energy (7) and waste (8) is released.

The transformation process (6) stops due to: external information (5) and (4) and/or in the event of an interruption of the material flow (9-10). It also stops if the energy supply (7) is interrupted or if the waste stream is blocked (8).

This model is also called the basic form of an organization.

Value Stream Mapping



Another commonly used example for modelling the company or organization is the: Value Stream Mapping model. This is one of the 'Value engineering' tools. It is a method used to map the value of each process step (flow) in a company or organization. Whichever model is used is of less importance. It is important that the model is complete.

External help

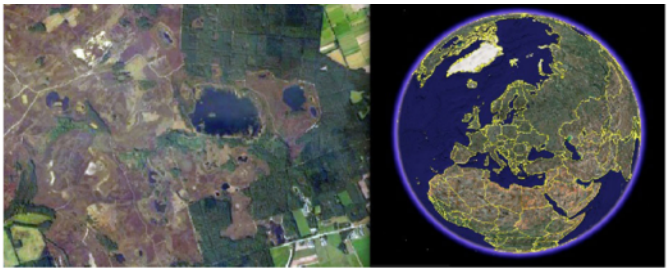
Strange eyes see more. In practice, it turns out that it is more effective for a 'stranger' to help track down knowledge in a company or organization. An external person looks at the

[13] https://commons.wikimedia.org/wiki/File:Production_process_model.png

company or organization with fresh eyes, and with a different perspective.

Perception

The world around us is made up of relationships, not of separate facts, separate things, or isolated events.



In both figures below, the position on the earth, the Strabrechtse Heide (1° 24 ' 0 "N, 5 ° 37' 3" E), is the same. The only difference between the two figures is the height. These two figures show that what we see depends on the point of view.

The person in the middle of the company is usually blind. Blind in the sense that his perception is coloured. That is why it is recommended to have someone from outside help you find the available or missing knowledge within your company or organization. The 1+1 = 3 principle applies here.

How to track down knowledge?

Finding the available or missing knowledge in a company or organization is done by systematically testing the reality against the model used. Because this is very specific, a detailed description of this is not possible in this writing. Experience shows that this usually requires several sessions. During the structured research, for every activity that adds value to something, it should always be asked: What information or knowledge is required for this? Who possesses this information or knowledge and how is it recorded? Naturally, the activities for which insufficient or no knowledge is available will then be discussed. Missing knowledge is a 'back box', as it were. In this black box, value is added to something of which it is unknown how this happens. Possibly (usually) this information or knowledge is known to someone else.

Classification of knowledge

When searching for knowledge within the company or organization, it is recommended to classify the available information and knowledge, as well as the missing information. This classification can be done in a fairly simple way by giving the information and knowledge a label.

An example of a category classification is:

Added value step

Identify each value-added step. In the transformation of something, information and/or knowledge is necessary. The Value Stream Mapping model can be used very well for this.

Knowledge description

Brief description of the knowledge. As an example, operating machine X. Making a quotation. Compiling a recipe.

Knowledge carrier

Is it intrinsic knowledge, undocumented knowledge? Or is it knowledge that is in people's heads. Or is this knowledge recorded in a manual on the company intranet? Is it knowledge that only one person possesses or is it several people who possess this knowledge?

Knowledge value

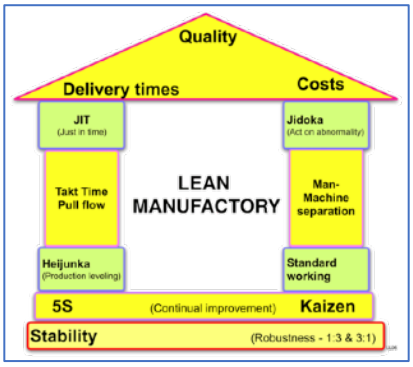
Is the knowledge easy to acquire? Are there schools or training institutes that offer this knowledge? Is the knowledge freely available on the market? Is this knowledge essential for your organization or company? Can this knowledge be shared publicly?

As described, in the explanation of the knowledge formula, knowledge is only valuable if it is (partially) shared and known to others. When classifying, it is advisable to also indicate whether this knowledge is publicly known.
Many companies and organisations think that much of their knowledge is unique[14]. However, in practice, after some detective work, it appears that this is not the case. By (partially) sharing this unique knowledge, it becomes valuable.

Prioritizing

Now that the knowledge or missing knowledge has been identified, the next step is to determine the priority.

Which (missing) knowledge is most important to achieve your business goal? With this information, an action plan can then be made to formalize the knowledge or to spread this knowledge over several people in your company or organization. When spreading knowledge over several people, a useful rule of thumb is 1:3–3:1. If knowledge is known to three people within your company or organization, then there is a robust organization[15]. The 1:3 in this rule of thumb means that every employee in your company or organization should be able to perform at least three tasks. This is especially challenging for small businesses or organizations. If it is not possible to record the knowledge in several people, it is worth considering formalizing the knowledge.



Sharing knowledge

Knowledge can be shared with other people in different ways. In her book (Dixon, 2000) she describes five types of knowledge transfer:

1. Serial transfer
Knowledge is applied in another similar process or task.

2.Near transfer
Knowledge is applied in a similar process.

3.Remote transfer
The knowledge is applied in another team.

4.Strategic transfer
A team is given a task, which aims to acquire essential knowledge for the company.

5.Specialist transfer
Internal or external specialist knowledge is applied to perform a certain task.

In the context of this letter, it is not possible to go into this in more detail. Given the many variables and unique situations, the advice here is to consult (external) knowledge on how to share knowledge.

Sharing knowledge in-outside

Why would you want to share knowledge as a company or as an organization?
How does an outsider of your company or organization know what unique knowledge you have?

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[14] Lieshout, L. (2022) IP-cultuur in het MKB Hoe kennis te delen, zonder je kroonjuwelen weg te geven? https://lieshoutconsultancy.nl/wp-content/uploads/2025/05/White-paper-IP-cultuur-in-het-MKB.pdf

[15] https://commons.wikimedia.org/wiki/File:Lean_manufactory_house.png

The target audience for this writing is the manufacturing industry. Below is therefore a summary of the added value for sharing knowledge, seen from the point of view of the manufacturing industry. The arguments mentioned also apply in other sectors.

Unknown makes unloved.

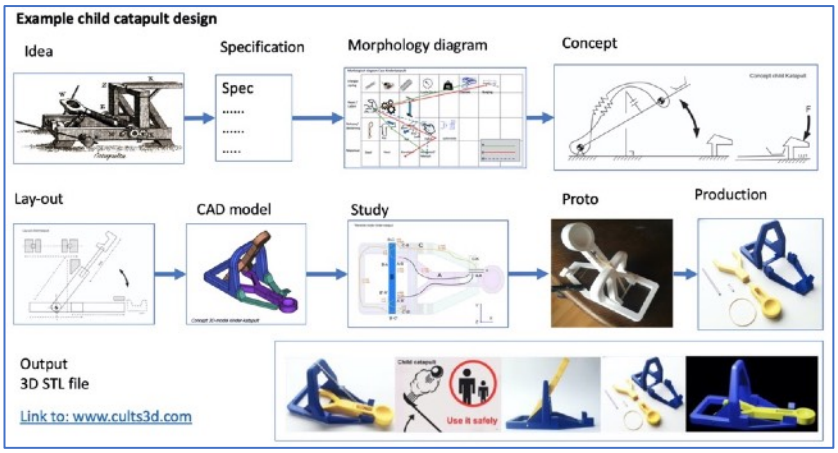
In principle, this proverb says enough.

If you are not known, no one will do business with you.

During the (methodical) design process, it is important for the inventors of products to have generalist knowledge of all manufacturing processes. It is also important to know who has this knowledge.

Below is a simplified flowchart of the design of a children's catapult. This diagram shows a number of steps in the design process. The makers are usually only involved when the design is ready and production has to start. This is the final stage of the design process.

In the communication between the OEMs and the manufacturer, there is often also an intermediate layer in the form of sales-purchase contact. The result of this inefficient way of communicating is that; the product as specified is difficult or impossible to make, that both parties are frustrated as a result, that the design often has to be changed and that production cannot be realised against the required targets. In the ideal situation, there is already contact, between the inventors and the makers, at the beginning of the design process.



In the diagram[16] shown above, there is already contact when drawing up the specification. When drawing up the specification by the designer, knowledge of the manufacturing process is necessary. After all, the specification must state requirements that can be realised.

Given the multitude of manufacturing processes and the lack of imparting this knowledge through education, it is impossible for the inventor, the author of the specification, to acquire all the knowledge of all manufacturing processes. It is possible for the creator to 'spar', to exchange knowledge with the potential creators. This is a challenge for the makers, the producers, to be known to the creators.

Branding

How do you ensure that you, as a maker, are known to the creators? What makes your company or organization unique? Is having this unique knowledge known to the authors of the specification?

In the past, in the design process, it was often the case that the designers were not allowed to have knowledge of the cost of something. This was jealously concealed by the purchasing and sales departments. One of the causes for this behaviour was the KPI culture in the companies and organisations. Nowadays, people are more aware that we have to do it together. Together means that in the design process, the makers must be involved in the design at the earliest possible stage. This creates 'common interest'.

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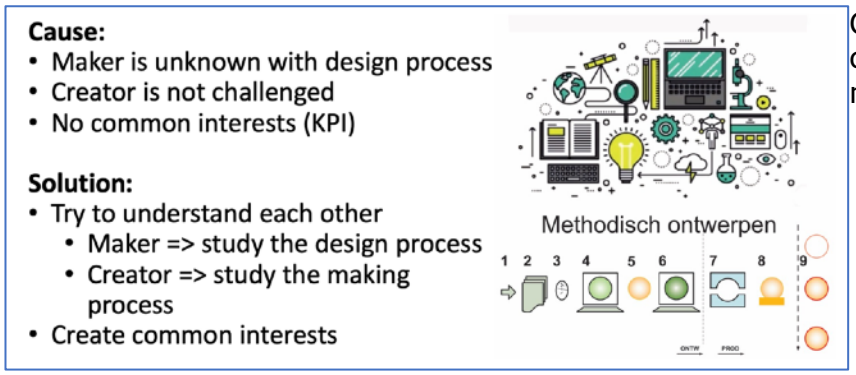
[16] https://lieshoutconsultancy.nl/?page_id=70



Cause and solution of the communication problem between the makers and the creators.

Externally communicating knowledge.

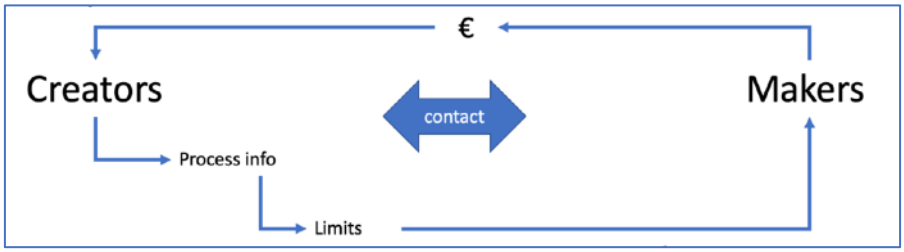
What knowledge can or should a company or organization communicate? Who needs what knowledge and why? The diagram below shows the 'business contact' model between the creators, the creators and the makers.

Perception makers

The makers want/have to earn money to secure their knowledge and skills in the long term. Every business or organization must generate enough profit to continue to exist in the future. That is why the creator needs to have contact with the inventors of new products or services. In the past, and often still today, this contact was exclusively through the sales and purchasing departments. Unfortunately, this still happens today. The trend is that there is more and more direct contact between the specialists of both companies or organizations. This happens especially in companies that have open innovation as their DNA. There is then intensive contact between the specialists of both companies or organizations.

Perception of inventors

The inventors need someone to be able to 'spar' about the design. It is preferable to have this directly with the specialist. The intervention of multiple communication layers, such as purchasing and sales, only makes communication more difficult. The inventors need process information and in particular the limits of the process. What is the accuracy? What are the dimensions that the machine can handle. If I change the design in this way, is it easier to make? And more such questions. This information is usually not available on the website of the company or organizations.



Threat

Is knowledge sharing a threat to the company or organization?

GMT-benelux BV.[17] '
.... At first, we wondered whether it is not a threat to share knowledge. In the end, we have come to the conclusion that part of our knowledge know-how is not IP related. A lot of knowledge is actually general knowledge that can be shared. The big advantage of this is that our customers and especially developers have access to knowledge about vibration and rubber metal technology. This makes it easier to gain and apply this specialist knowledge when developing new products. If the knowledge is better recorded and easily accessible, it can be applied to build knowledge among our customers and within our company….

Accountability

This white paper has been created to highlight the importance of knowledge sharing for the manufacturing industry. This letter was written by Laurens van Lieshout. https://lieshoutconsultancy.nl He is a member of the https://www.kscacademy.nl/ . The aim of the KSC academy is to provide support to companies and organisations in the above area.

Published in 2007 in te Dutch dutch language.

Laurens

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[17] Thanks to Roy van Tervooren where knowledge sharing is successfully applied. linkedIn contact