

Three Dimensional Thinking – Jeff B.R. Gaspersz

Problems cannot be solved by the same level of thinking that created them – Albert Einstein

1. Quantity before quality

A regular flow of new ideas is crucial to successful entrepreneurship: they guarantee the vitality of an organisation. Ideas are the seeds of renewal. And, as in the natural environment, we need them in abundance. A single tree produces thousands of seeds, of which only a few will germinate. The same may be witnessed in the world of organisations and business markets. It appears that the successful launch of a new product takes about three thousand ideas. Thus, it would seem that ‘quantity’ has to come before ‘quality’. For this reason, the challenges lie in generating as many ideas as possible with a focus on issues that truly matter to an organisation. We can then make a selection and subsequently pick out the gems.

Generating large numbers of new ideas requires very specific strategies of thinking. Such strategies are a prerequisite in trying to get off the beaten track in our reasoning processes. Let us consider a particular case here. Just imagine that for the past fifteen years you have been cycling to work along one and the same route. And let us suppose that one fine morning you find this road blocked and you are forced to find an alternative route to get to work. Then, for the very first time, you discover this beautiful road leading you through a park. You decide that this is the road you will select from now on, since it will allow you to consider events for the day ahead equally well as the original route did. You also realise that you would probably never have found out about this road if the first had not been blocked. This is precisely the effect that many creative-thinking techniques generate. They force you to explore new and promising avenues of thinking, sometimes even by blocking traditional routes.

Our firmly established thinking patterns, well-taught by experience, lead us to limit ourselves to secure and familiar solutions. Old answers are all that we have, even when new challenges loom. Many entrepreneurs have fallen into this trap, thus discovering only too late that their market successes have become obsolete and have to be discontinued. Still, when an entrepreneur is able to think creatively, he or she can rest assured that a host of new opportunities will present themselves. One very powerful method to kick-start our thinking processes is what I am calling ‘three-dimensional thinking’. This article will discuss this method and present a series of practical examples. We shall conclude our chapter by offering advice on how to assess your own creativity.

2. Three-dimensional thinking

Three-dimensional thinking supports your thought movements in pursuit of new ideas. What you do is consider which new ideas emerge when you broaden, deepen or shift your thinking concerning a certain problem, a certain challenge, a trend or an event. In explaining the method we shall focus on the generation of new ideas to formulate answers to a certain problem.

1. Broadening the thinking. We search for a range of characteristics and angles related to a certain problem.
2. Deepening the thinking. We try to detect a problem's underlying concepts and assumptions.
3. Shifting the thinking. We view the problem in a context that is completely different from the one in which it originated.

These three thinking dimensions are presented in the figure below.

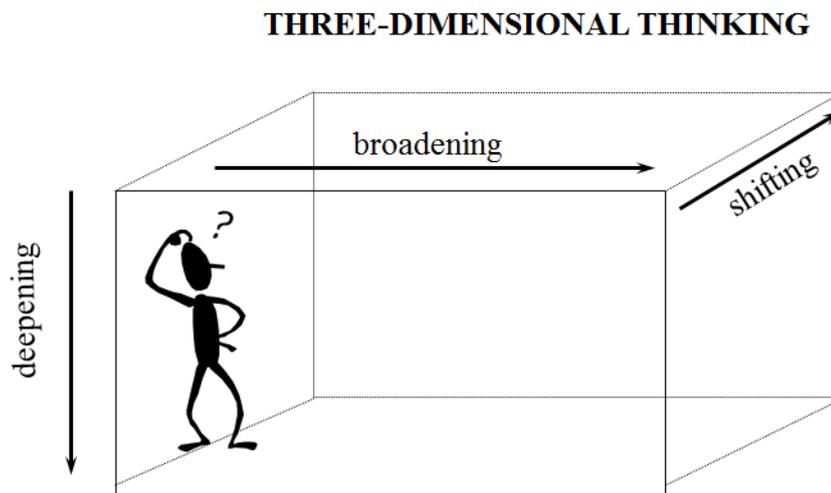


Figure 1: Three-dimensional thinking

Thinking along three-dimensional lines guarantees what is known as divergent thinking: a problem is approached from various angles. Three-dimensional thinking prevents you from moving into the realm of convergent thought, a form of problem-solving thought. Three-dimensional thinking provides you with a format with which you can develop and orient your thoughts, thus leading to new ideas. We shall discuss these directions of thinking below.

Broadening the thinking

By broadening our thinking, we consciously aim to place a certain problem or a challenge in a wider perspective. We study alternative opinions, points of view and solutions. By broadening your thinking about a certain problem, you first attempt to gather more information and then you formulate a particular choice or opinion. The most powerful way of achieving this is by asking yourself and others questions. A question may act as an effective catalyst for the spread of knowledge and the creation of ideas. Those who always seem to know how and when to ask the right questions are thus able to boost their own creativity and that demonstrated by others.

Here we mention three ways to broaden our thinking in which questions play an important role.

a. Questions from different perspectives

A common yet powerful technique in addressing any problem is asking as many W-questions as possible:

- Why does this present a problem?
- Why does it require a solution?
- Why should it be me who solves the problem?

- Which other, related problems exist?
- Which problem elements can be distinguished?
- Which aspects of the problem look familiar?

- Who actually 'owns' the problem?
- Who will ultimately be faced with this problem?
- Who can help me find a solution to the problem?

- Where will the problem occur?
- Where can I find more information?
- Where can we find organisations that experience similar problems?

- When (in which circumstances and in what period of time) will the problem become urgent?
- When can we make a first step towards a solution?
- When is the right time to call in outside help?

- What will happen if no solution is found at all?
- What extra information do I still need?
- What other problems are linked with this specific problem?

On the basis of these W-questions, a long list of other questions may be compiled. Additionally, How-questions may also lead our thinking in many different directions:

- How did the problem arise?
- How can I solve it?
- How fast do we need a solution?

b. Questions to delay judgement

Using a checklist - like the one presented below - is a fairly simple technique to induce us to delay our judgement concerning a proposed resolution, a policy option or a certain vision. Once it has become a permanent habit to broaden our thinking *before* making a decision or expressing an opinion, we shall no longer need such checklists since we shall then have internalised the technique.

What is positive about this?	What is negative about this?	What does my experience with earlier propositions tell me?	What is my gut feeling?	What is interesting about it?	What alternative will be available if I say 'no' to this?
1.	1.	1.	1.	1.	1.
2.	2.	2.	2.	2.	2.
3.	3.	3.	3.	3.	3.
4.	4.	4.	4.	4.	4.

Figure 2: Questions checklist to delay judgement

The power and the effect of these questions enable you to keep an open mind with respect to the array of characteristics related to anything you find yourself faced with. You are offered a chance to broaden your thinking first, before you respond or make a choice. And precisely this openness gives creative thinking a wide berth.

c. Questions requiring a change of perspective

Our thinking can also be broadened by viewing a problem, its possible causes and the ensuing results from various different angles.

Some examples of useful shifts in perspective include the following:

- Viewed from various levels, what are the problems/causes/results at the level of the individual, the organisation and (inter)national society?
- Viewed from other fronts, how would this problem (or proposed resolutions) be seen from perspectives prevalent in board rooms, in works councils, among (various categories of) employees, shareholders, clients and competitors?
- Viewed from a different time perspective, how shall we look back on this problem ten years from now? Could we have predicted this problem five years ago? If not, then why not? What will be its short-term, mid-term and long-term effects?
- Viewed on the basis of various (system) characteristics demonstrated by the organisation, which causes/consequences can be distinguished with respect to
 - o Organisation processes?
 - o Organisation structure?
 - o Organisation strategies?
 - o The human factor within our organisation?
 - o The level of knowledge available in the organisation?
 - o Our business communication?
 - o Our business environment?
- Viewed on the basis of various (inherent) characteristics related to a certain event, a certain problem or a certain development:

- What could be the ensuing opportunities?
- What threats may result?
- What gains and losses may be involved (short-term, mid-term and long-term)?
- How urgent and how important is the matter at hand?
- Viewed from the propelling factors underlying a problem, is the problem a matter of ability (or inability), will power, authority, daring or knowing?

Naturally, many other examples may be given enabling you to broaden your thinking processes. Perhaps you always use your own checklists, charts and categories to add an extra dimension to your thinking.. The most essential factor here is a continued awareness on your part of an active involvement in the mind-broadening process, as the next challenge is to *deepen* our thinking.

Deepening of the thinking

Suppose one of your colleagues were to state that: ‘Our organisation’s staff members generate an insufficient number of good ideas.’ You may then immediately volunteer your own opinion and state that you agree (or disagree) on the basis of your personal observations. However, you may also broaden your thinking and judgement by asking your colleague certain questions, such as: ‘Precisely which employees do you mean? Does your statement refer to all staff members or specific categories? Perhaps staff members do in fact generate a considerable number of ideas, but perhaps these ideas are not considered to be good enough. Or do they truly generate an insufficient number of ideas? Are we talking about structural matters, or are we dealing with a unique situation?’ With the help of appropriate and well-directed questions you first broaden your thoughts *before* you actually formulate your response to the statement. We discussed the associated benefits in the previous section.

In deepening our thinking, we try to define the underlying assumptions and concepts that may shed new light on the issue. Deepening the thinking is one of the most powerful methods of paving the way for new lines of thought - and thus prepare the generation of new ideas.

When you deepen your thinking concerning the statement that ‘our organisation’s staff members generate an insufficient number of good ideas,’ one of your considerations refers to the underlying (tacit) assumptions that lie at the very heart of this statement. Figure 3 depicts this as an iceberg. An iceberg presents a highly instructive image of multi-level thinking, since it has a visible tip above sea-level and an invisible part remaining below the surface. Our observations, opinions and policy decisions belong to the visible part. Possible assumptions laying the foundations for problem formulations can be found below the surface.

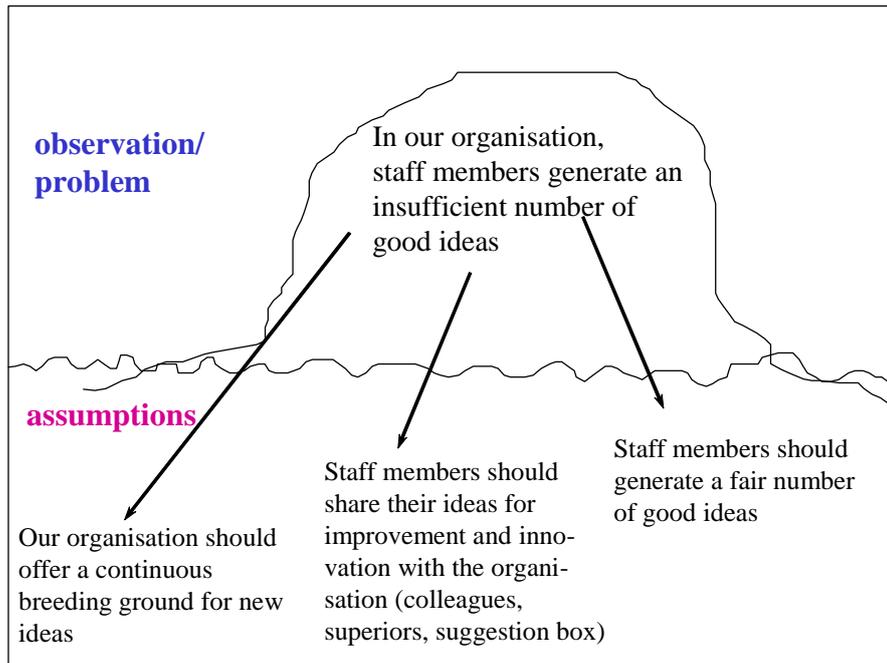


Figure 3: Deepening the thinking – the iceberg principle

It is of great importance to consider these assumptions carefully (and to apply reality checks) since a change in any one of them may shed a completely different light on the issue at hand. An assumption that staff members should annually generate a series of useful ideas may - on second thoughts – well prove to be less than realistic, or even undesirable. It could turn out after careful reconsideration and following discussions within an organisation’s management team that the true assumption in fact relates to the notion that it should be a matter of course for each employee to generate ideas and offer suggestions for improvement. If these contain promising ideas, there will be no problem, but if they do not they may still be much appreciated as evidence of a proactive attitude and a willingness to further a good cause. Seen from such perspectives, the original ‘problem’ (an insufficient number of good ideas) no longer remains an issue.

Apart from studying underlying assumptions, one may also try to define certain concepts and standards that underpin visions, policy options and problems. Just imagine you are attending a conference held by a major international enterprise which acts as one of the most innovative in its field. You are impressed by the company’s well-considered approach, but you nevertheless assume that you have not heard enough to apply in your own small organisation of 200 employees. And what is more, your organisation operates in completely different markets. Still, you would be able to extract many useful ideas from the presentation if you deepened your thinking and if you could avoid feeling overly impressed by all the sophisticated measures initiated by a major player in the field. Rather, you should study the concepts behind the measures. You will most likely discover that the lynch pin is formed by concepts such as knowledge-sharing, cross-fertilisation, diversity, time and freedom (for creativity). This perspective will allow you to consider, for the good of your own organisation, how to construct certain measures on the basis of these concepts and

how to tailor them to your organisation's needs in order to enhance business innovation. So, by deepening the thinking and by nourishing multi-level thinking you will discover an abundance of inspiring examples.

Another fruitful technique used to deepen the thinking is the use of paradoxes. A paradox is a statement that is seemingly contradictory, but which is in fact true. It often generates deeper insight into a certain issue. A paradox is created by stating opposites. When, for instance, a business is facing high staff turnover rates, the following paradoxical statement may be formulated: 'We shall make staff feel more committed to the company by offering them many exit opportunities.' Initially, this would seem to make no sense at all, but it does in fact enable us to deepen our thinking. A closer inspection of the paradox reveals the way ahead, leading to a highly sophisticated staff management programme in which the organisation permanently invests in comprehensive career opportunities for its staff members, internally as well as externally. Employees will remain loyal to the company since they will become aware that their value on the external job market will increase. They are given opportunities to leave, but will not use them as their current organisation offers them all the career opportunities they need.

Shifting the thinking

A third route to follow in moving our thinking is shifting it to other realms, such as the world of sports, music, science or the natural environment. So, in effect, we shift our thoughts to a realm where similar problems (may) occur and we look for answers that have already been generated there. For example, an analysis of the slime on a shark's skin may prompt a paint manufacturer to develop a synthetic version, blend it with his paint and use it on ships to improve their floating properties (by reducing water resistance levels). Alexander Graham Bell studied the workings of the human ear and invented the telephone. So, other worlds may contain solutions to certain problems: all that is needed is a shift in thinking and the ability to make observations.

If we visualise problems encountered in an organisation as an orchestra faced with a conductor who is unable to synchronise the music, we avail ourselves of a metaphor. One of the advantages of using metaphors lies in the fact that they offer us a context, often familiar to all concerned, in which we can ask related questions that in turn may clarify certain other problems in our own organisation. Thus, an out-of-sync orchestra may engender questions that run parallel to similar questions raised in our own organisation. That way, we continuously shift our thought from the orchestral world to the world of our own organisation.

<i>Questions for the orchestra</i>	<i>Questions for the organisation</i>
Are all the members of the orchestra playing from the same sheet music?	What constitutes the (sheet) music in our organisation? Is it rules and procedures? Is it a client-oriented approach? How important is it that everybody should play the same 'music' in our organisation?

<p>Is the conductor able to conduct the orchestra sufficiently clearly and unambiguously?</p>	<p>Is our top management in fact able to communicate well enough? Does the organisation actually listen to what is being communicated?</p>
<p>Are all the members of the orchestra sufficiently skilled and adequately equipped to make orchestral playing a success?</p>	<p>Do our staff members make sure they remain sufficiently skilled and ready for work? Do we have too many soloists in our organisation ever to build a proper team?</p>
<p>Are some members of the orchestra perhaps playing out of sync on purpose because they are given little room for their own interpretations?</p>	<p>Do our managers grant staff members enough room for manoeuvre when it comes to introducing their own ideas? Do managers show sufficient appreciation when staff members present their initiatives for improvement?</p>

All these questions, which may support us in the analysis of our own organisation, stem from a shift in thought through the use of a metaphor to a world that many of us know. This shift enables us to transgress the borders presented by the frameworks that we have erected ourselves and that may restrain our thoughts. The level of genius witnessed in Albert Einstein, Leonardo da Vinci and Alexander Graham Bell proved to be particularly sophisticated and strong in that it allowed them to make extensive use of metaphoric thought and thus to shift their thoughts between various worlds.

When we learn to broaden, deepen and shift our thinking in a well-aimed manner, we shall acquire the type of mental flexibility that is required for the permanent generation of new perspectives related to a certain problem. An invaluable skill would then not be an ability to solve problems, but rather an ability to move our thoughts related to that specific problem. When Albert Einstein was once asked what had stood him in the best stead in developing his theory of relativity, he gave the following surprising response: *“Deciding on how to think about the problem.”*

About the author

Jeff B.R. Gaspersz is professor of innovation at Nyenrode Business Universiteit. (The Netherlands). He is also advisor in the field of innovation management. He supported a variety of organizations in finding and realizing new ideas for innovation. He has written several books about innovation and creativity.

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