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What Is Systems Thinking?

A problem arises that's costing your company a lot of money. Every day that the problem persists, the losses mount up. What do you do: do you quickly find a solution, or take the time to identify the cause of the problem? Systems thinking helps us deal wisely with dilemmas like this.

Systems thinking is all about realising that there are moments when you have to postpone the doing and think. It's about those situations that require a shift from learning to improve on what you are already doing (single-loop learning), to realising that you have to learn something completely different (double-loop learning).

It's a way of introducing insight into the complexity of organisations, or in a broader sense: of social systems. Social systems are defined mainly by fixed patterns of which we are often simply unaware. We're so used to them, so bound up with them, that we can't even see what's happening right before our eyes, like the proverbial fish that doesn't know what water is.

This is often why organisations can be taken completely by surprise by events that outsiders have often seen coming for a long time. For the organisation concerned, it seems that business has imploded all of a sudden, whereas in fact the process has been going on for quite a while.

And you build these patterns together with your environment. If everybody around you sees the departure of customers as a normal part of business, it becomes part of your frame of reference, and you are unaware of it. One customer goes away, and then another and another, and suddenly the bottom falls out of the business. People within the organisation have failed

to see the pattern, because they see each event as a separate incident: “Who cares? It’s just one customer...”

Systems thinking is a tool to help you identify patterns like these, so that the organisation can face the assumptions they have about their environment and begin to tackle them.

Looking at the Whole Picture

A very simple example of systems thinking is the analysis of how people manage workload. It happens in all organisations: the workload suddenly goes up. A short while ago you could comfortably manage your work, but suddenly it spills over your desk and it’s getting worse. You don’t have the time to properly finish your tasks and you cannot meet deadlines, just like everyone else, who is also overloaded. The problem is often discussed within the group, in a bid to find a way out, and usually it ends with a solemn promise to stick to agreements and deadlines. Agreements are identified as the action point, because that’s the most visible part of the problem. Wherever you see notice boards in conference rooms with: agreed = agreed, you can be sure that the reverse is true

In systems thinking you factor in the overall context and the situation looks more like Fig. 2.1. The various phenomena are all probably related in one causal relationship. If we’re aware of the relationships, we can think about more nuanced solutions and increase the opportunities for interventions. Insight into the relationships between phenomena enables us to intervene more effectively. In this case it’s probably smart to agree on the priorities and stick to the priorities that have been agreed upon. It’s an example of changing from working harder the way you used to, to working differently.

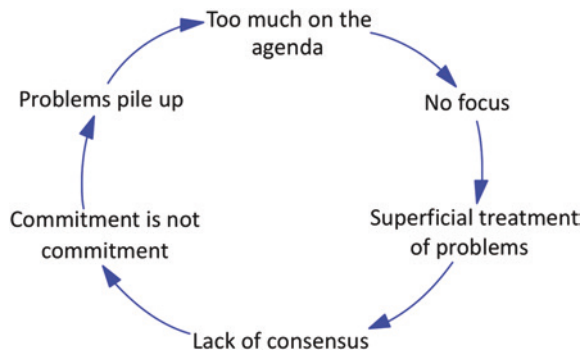


Fig. 2.1 Analysis of work load

Unintended Side Effects

In the foreword we cited Imtech as an example of a company that lurched from one problem to the next. In fact Imtech used quick fixes all the time: they acquired 80 companies in 10 years! The quick fixes of acquiring another company had the opposite effect of what was planned; instead of growing stronger, they pushed the company to the brink of failure. Imtech made the problems worse by deploying the sort of faulty reasoning to which we are all prone: this is a problem; we have to deal with it now. They were probably thinking unconsciously in terms of steps 1–6 in Fig. 2.2.

But they did not foresee that acquisitions could have all sorts of unintended side effects in the longer term, as shown in Fig. 2.3.

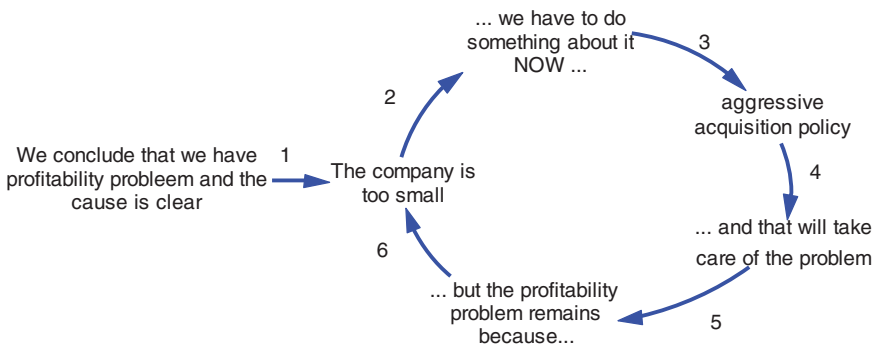


Fig. 2.2 Six steps in Imtech's thinking

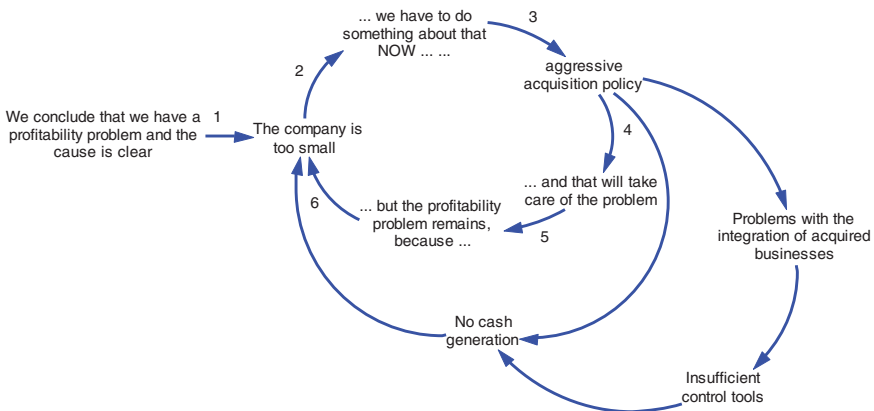


Fig. 2.3 What they failed to take into account

Like many other organisations that fail to think systemically, Imtech went bankrupt. Once again this example highlights the need for a change in thinking rather than improving on what you think you know. The straw that broke the camel's back was a quarrel between the lenders and a refusal to supply an additional amount of money. One can but wonder about the quality of leadership throughout the whole process—not so much of those that were brought in to save the company, but of those who let the situation drift in the first place.

Uncover the Underlying Dynamics

Systems thinking is about recognising patterns at work and in our daily life. It represents an extensively researched method of discovering and charting the dynamics that cause tenacious and recurring problems in complex organisational contexts. It's an important tool for creating a shared image of a situation through involving other participants with other viewpoints in the process of clarifying underlying patterns. During that dialogue with participants, a picture may arise that shows a changed environment, which may in turn require an adaptation.

With that shared image of the situation, clear action priorities can be formulated to move ahead.

Looking Below the Surface of the Lily Pond

Systems thinking can be illustrated with the metaphor of a lily pond. With a lily the largest part is hidden under the surface of the water. The beautiful flowers and lily pads catch our attention and on the surface of the pond they seem to be the only things there. But they can only be there because of an integral system of roots, stems, and nutrients in the water and the soil that makes the lilies grow and surface.

If we content ourselves merely with cutting away the flowers and the pads to clear the surface, we will always be reacting at an event level and will not change anything structurally, because the underwater part will keep pushing new lilies and pads up. If you don't take a step back to investigate the underlying structure, events will go on dominating your attention and force you to keep on fighting the symptoms without tackling the causes. While reacting to what keeps coming at you will teach you to improve what you already know how to do (i.e. single-loop learning), exploring the causes of what is coming at you may teach you completely

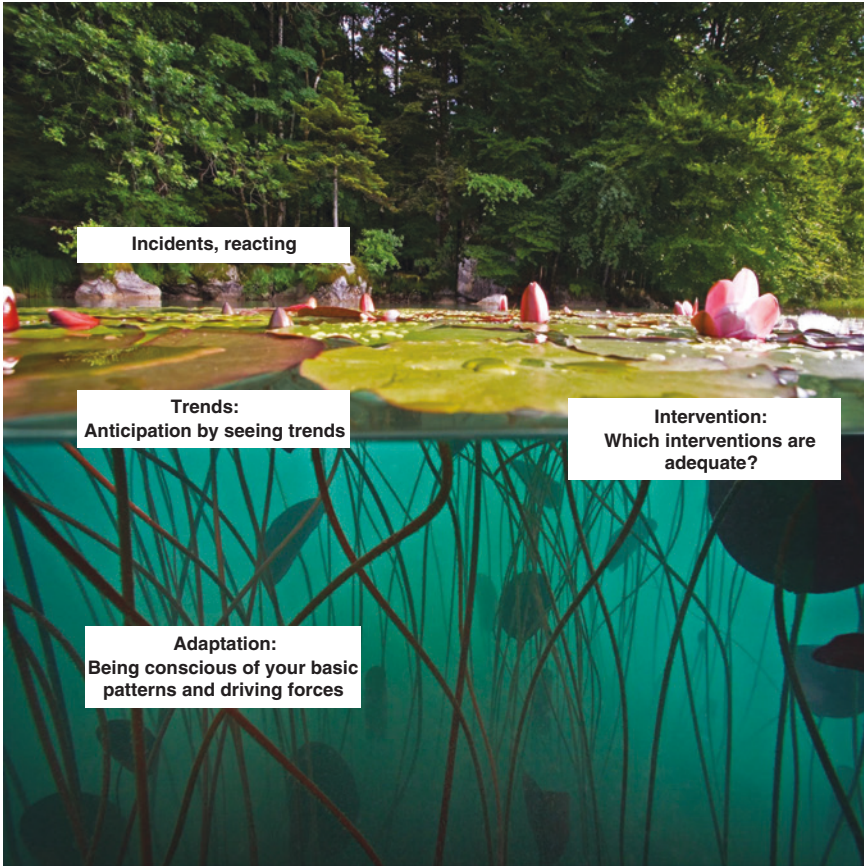


Fig. 2.4 The lily pond and intervention levels

new skills that will enable you to adapt to the changing environment (i.e. double-loop learning) (Fig. 2.4).

It's certainly worth spending some time exploring what goes on under the surface of the water, because that's where you can make lasting changes. It can take you from reacting to events to addressing underlying causes and adapting your organisation to the changing environment.

Reacting

Reacting is the primary reflex of most individuals and organisations to challenges. Actions are formulated on the basis of existing routines, handbooks, guidelines and the current interpretation of the situation. If solutions don't work, other solutions are sought within the same frame of mind, via trial

and error. The reactive mode drives us into a rat race of problem, solution, problem, solution, ad infinitum, and our lives become a series of responses to crises within the same framework of rules and guidelines. Like the lily pond, we only take care of the flowers and lily pads but forget that they are nurtured by an integral system under the water, whereas in fact we should be looking at what lies beneath the surface.

If we take one step back, we often see that events form a pattern with a recognisable trend. That enables us to anticipate coming events. This is already a real improvement on reacting, especially if the future is comparable with the past. We can make plans and anticipate events. Trends and patterns are an expression of an underlying structure.

Some aspects of the structure are easy to recognise, such as physical layout, policy, procedures, reported relations between persons and departments, allocation of means, reward systems and information systems. Other structural aspects such as culture, customs and unwritten rules tend to escape observation.

Anticipation is the awareness of patterns and trends from the past and their projection onto the future. You suppose a trend will continue in the usual way and act to prevent the event from being repeated.

But looking at trends does nothing to change the course of events. This way of thinking in terms of reacting to events—even if they form trends—is entrenched in single-loop learning: learning to do better what you already know how to do.

Adapting

Systems thinking requires a period of reflection; it invites you to take time to look at the system as a whole; but—more importantly—to look differently at the system. Aspects such as culture, convictions, mental models, interpersonal relationships, role flexibility or unwritten rules that are hidden much deeper under the surface often escape observation. Those aspects however are the drivers of the current situation and the reason of resistance to change.

To cope with changes in the environment we may have to change our mental models (or ‘glasses’). Our current mode of thinking may be based on a reality that no longer exists or the basis of some of our assumptions may have changed. Rather we need to investigate those assumptions that underlie our procedures and single-loop learning ‘solutions’.

If we become aware that our old ways (single-loop learning) can no longer help us survive in a changed environment, we become open to fundamental change. This can hurt, because we have to relinquish the certainties we grew up with, and with it a part of ourselves. Interventions at this level involve redesigning the structures and questioning the concepts we've been working with. We have to learn new behaviours to adapt to the changed reality. Adaptation therefore requires a much broader scope of definition of the problem.

The result of adaptation may be that you fundamentally change the concept you have been working with. For example, when digital timekeeping became very reliable and cheap around 1980, the famous Swiss watchmakers came to the conclusion that they were no longer in the business of time-keeping but in the fashion or lifestyle business. They changed their mental model in time to save a considerable part of that industry.

Adaptation in a general sense challenges mental models concerning the social function of an organisation. Is the mission of our organisation still a valid concept in this day and age? Should we not redesign the whole organisation and develop a completely new concept?

The deeper we descend into the pond, the more the power of our interventions increases.

Making Better Decisions Using Systems Thinking
How to stop firefighting, deal with root causes and
deliver permanent solutions

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