

Problem Solving Methodology (PMS)

Steering a problem solving process initially requires the definition of the problem, to separate it from personal beliefs and to comb out weaker elements from the stronger ones. This occurs in consensus and responsibility oriented decision processes. The simple formulas stimulated by many methodologies are of no more help than a ladder when attempting to go to the moon. Problem solving, in practice, involves tackling the brains of the many individuals involved, facilitating the production of ideas and safety considerations and securing excellent communications by dampening loud and encouraging quiet participants. This requires well informed, broad minded personalities with excellent managerial skills. Special methodological elements assist in finding ways to achieve the best results with minimal effort, to engage entrepreneurial decision makers and to gear time framed problem solving with the defaults of knowledge management and business processes.

The importance of good problem solving procedures increases with the complexity of business processes. Everyday tasks bring together ten or more specialists around a table. Brainstorming first ideas is easy, but bringing a new venture to a satisfactory end is usually a tough process with many hardships. Tackling different opinions, deciding on variants, finding workarounds for unexpected developments, avoiding time and cost overruns are the hard chow of entrepreneurial problem solving. Different professional backgrounds, responsibilities and personal opinions make entrepreneurial problem solving a challenging task, often aggravated by weak decision making.

First, try the easy way

Often a problem solver loses valuable time in first defining and starting an elaborate problem solving process. No one knows off-hand how complicated a given problem situation will develop. This is reason enough to begin, even in complex problem solving situations, with a short and simple brainstorming activity involving the main players. This enables one to pose informal questions about individual sights of persons concerned or affected by the situation. Doing this with people representing different levels ranging from higher management to basic operations often produces surprisingly new important insights. It is specially fruitful to let such a team think about ideas of "how to

accomplish the task in the shortest possible time" and under the premise "if all went extremely well": what would be the best goals to be reached? This takes the focus off the immediate worries and transposes the thinking towards a still to be reached idealistic future. It also offers the opportunity to find an easily memorable definition of the problem. Like this, the problem gets anchored in the brains of the participants. Thinking processes continue during sleep and leisure time and new insights might surface unexpectedly. Experience has shown in many cases, that such a tour d'horizon at the start of a problem solving process is fast and easily done, and not only does it produce important insights, but it also motivates. It is an excellent lead towards an elaborate methodical problem solving process.

Analyze your own problem solving

Someone has to take the lead in a problem solving situation. If it is you, your very personal approach will influence both process and results. Do you see the whole networked relationship? Or do you act primarily out of your professional knowledge? Do you recognize entrepreneurial, financial and psychological connections? Do you consider chances as well as risks? Our brain has the bad habit of forcing simple individual sight patterns on to a problem situation, in particular when under stress. First reactions are therefore often inadequate, either in a simplifying or aggravating way. The problem solver usually finds himself in a surrounding field of different views, reflecting more or less professional skills, expressed with more or less communication ability. In such situations, optimized behavior counts. We know people with a natural winning identity and others who easily lose control. Analyzing your own problem solving behavior and knowledge opens possibilities to optimize your actions and reactions even in tricky situations. This, together with putting your heart in to it, produces an excellent climate of understanding and trust. A precondition for success!

The role of methodics

Google shows in 2004 nearly 7000 entries on "Problem Solving Methodologies". Some claim a "holistic approach", others a "360° view", creativity, innovation and problem solving proceedings. Applying methods to a specific problem situation can have a positive or negative influence. There is no guarantee that a solver oversees all the networked relationships and does not omit important elements possibly hidden at first sight. This is the reason for proposing to start any problem solving attempt "the easy way", to involve "other brains" and to be attentive to one's own brain behavior. Experience shows that once a process has started, the load of the process itself tends to blur the view of the problem situation and the goals to be reached. Therefore, it is important to compare results

reached with goals set many times during the process. Experience also shows that these “outer factors” in which a problem solving process is embedded, are at least as important for success as a particular problem solving method selected. Almost none of the big inventions were done by applying methodics alone. Most of them emerge from an unforeseeable illogical course. Before proceeding with methodics such as system analysis, brainstorming, synectics, applying analogies or morphological schemes etc., a team with the necessary knowledge spectrum must be selected. Also, time and personnel resources to produce initial results should be fixed. From experience, the following five considerations can help to bring a problem solving process to a good end:

1st, the inner perspective of the problem situation itself. Different methods of analysis and creativity can be applied to the problem situation, also with the help of hand-crafted modeling or computer simulation. This perspective represents the usual approach. 2nd, the view to the problem situation from different standpoints of the people concerned. Namely technical, entrepreneurial, financial etc. This is best explained by the definition “stakeholders”. Problem solving involves different professional aspects and hierarchical levels. This often creates opposite perspectives: a financial manager might want to minimize risks, a marketing manager might pledge more than what a product can fulfill. Many times, entrepreneurial decision making lacks sharpness and deserves closer attention. 3rd, consider the individual thinking processes of the people involved. This is “looking from other angles at the problem situation”. Time and effort needed to transfer information into the brains of others and the time conceded to think over a new situation is commonly underestimated. This produces frustration with all its negative side effects. The proceeding described under “Business process integrated problem solving” with a series of predefined meetings, offers adequate time to think and also explicit dialogue possibilities. 4th, the problem solver has to carefully monitor his own thinking processes. He designs and steers the whole process and has to bring it to an optimal end. He has to have a holistic understanding of the problem situation, needs to be methodically informed and has to be a good communicator in order to facilitate process and decision making. Since he is operating in a creative work field, he has to constantly explore the problem situation from all professional, methodical, personal and hierarchical perspectives. He has to know strategies to speed-up, deepen, broaden or minimize problem solving processes. 5th, the important “View from outside”. Even the best problem solving team gets blinkers from the moment it starts its process. Therefore, the teams should expose findings at regular intervals to people monitoring the process from outside. They can be management colleagues from similar business units or from nearby hierarchical levels. The proposed “Business process integrated problem solving” provides outsiders, as well as entrepreneurial decision makers, “live” insight by means of short presentations.

Business process integrated problem solving

Optimized business processes, information systems support, knowledge management rules and virtual collaboration tools define today's work surroundings. Logically, problem solving methodics (PSM) should fit seamlessly into this framework. At first sight, this seems hardly possible, since PSM involves phases with creative work. By definition, it is impossible to predict how much time creative work takes. But defining and strictly adhering to an in time and effort defined process turns this peculiarity into a strong advantage. First, it takes an easy understandable formulation of the problem to be solved, together with a team well-tailored to the problem situation. The methodologist designing the process has to evaluate in which minimal time frame his team can produce initial results. Even complex business problems can be brought a big step forward in three to six weeks. Some participants will lead the process and their work capacity will be heavily absorbed. Others, will be invited for professional advice, for decision making or for information purposes. To make the process productive and to gear it to the organization frame, all meetings have to be scheduled well in advance, have to be kept short and should never be postponed. This can be done by separating "milestones" (they wander in time with the appearance of results) from "communication slots". This means a series of meetings of fixed length (one to two hours) and with time gaps of one to three weeks. Logically, such meetings (communication slots) need careful preparation and moderation. The time gaps give the participants enough time to think the situation through and to prepare their input for the next scheduled meeting. The series of meetings allows process adjustments. Externalizing condensed information in a team process combining hierarchical levels with short and pregnant meetings brings direct insights, sponsors fast decision making and generates trust.

Technical Cybernetics, the dynamic way to explore problems

What was this actually all about that the founder of Cybernetics (Norbert Wiener), of the Game Theory (John von Neumann) and many other equally important scientists (John F. Nash, Stafford Beer) developed in the middle of last century? They defined, improved and developed a new view of physics going beyond Newtonian mechanics, statistical methods for problem analysis, feed-back theories for dynamic steering, bridging systems analysis to living organisms, and mathematical modeling to make complex systems dynamically predictable. This combines knowledge of basically all scientific categories and therefore defines Cybernetics as a "holistic" approach, bringing theoretical and practical approaches closer together. With today's available computing power, "Technical Cybernetics" opens a new field of understanding, simulating and improving technical, business and economical processes.