

Case B: The Practice Intervention

Situation

A consultant was invited to 'intervene' in the operations of a partnership in the building services professions. The partnership was comprised of engineers with a variety of specialisms: heating and ventilation; elevators and escalators; power distribution systems; and so on. The business was surviving, but not flourishing; a recently joined partner encouraged the idea of bringing in a consultant to help identify and sort out the problems.

The consultant had had no previous dealings with the partnership, and knew nothing of them. He decided that, before visiting the organization and conducting any sort of intervention, he needed to know more. He elected to explore the issue facing the partnership initially off-line, using the rigorous soft method, which he would apply on his own, to probe the psyche of the group and to clarify his thoughts. He asked for, and received, the organization's marketing materials, and he also asked for each of the partners to write down a single response to a question. Each partner was asked to complete the question: 'How can we. . . ?'

Using this information, the consultant sought to establish what was going on in the organization, at least in structural terms, before he came face to face with them all during a more formal intervention.

There are, then, three parts to this case:

- The first part shows what the consultant received by way of answers to the 'How can we. . . ?' questions, and how he used the rigorous soft method to investigate further, but in a 'hands-off,' off-line manner.
- The second part shows the intervention in action, with nominal group technique, idea writing and interpretive structural modeling in action.
- The third part compares the first two, to see what they separately revealed, together with weakness and strengths.

Off-line Informal Investigation using the Rigorous Soft Method (RSM)

After a short delay, the consultant duly received the marketing and publicity materials and the ‘How can we. . .’ questions; these are tabulated at Table B.1, together with the consultant’s observations about each questioner, as revealed by the nature of the question.

The issue facing the partnership was fairly evident, or so it seemed, from the questions — each of which came from a different partner. The general tenor of the questions was one of concern, not about the performance of individuals, but about the manner of their working as a cohesive, coordinated, integrated group. So, the issue might be stated as:

Concern over the Practice’s ability to remain viable and survive the current economic recession

The next stage in the off-line analysis — the whole of which took about half a day — was to turn the responses to the questions into symptoms; this is an almost trivial process as shown in Table B.2

The next stage in the RSM process (see page 195) is to use each symptom as a ‘probe’ to investigate the probable cause(s) of dysfunctional behavior within the system (in this case within the partnership). Within the RSM method this is done in a formalized manner using several techniques which are best explained by example.

Figure B.1 shows a crude example — the consultant’s first attempt whilst at home, before breakfast (!) The procedure employs a standard proforma. At top right is entered the symptom to be explored — in this case, low efficiency: wherever practicable, the symptom is described using pejorative terms. A so-called laundry list of possible causes for low efficiency is then drawn up, also using pejorative terms — we humans are much more skilled at criticizing using pejorative

Table B.1 Exploring the problem space — looking for symptoms

The ‘How can we. . . ?’ questions	Consultant’s observation
How do specialist activities on the periphery of general building services design integrate within an organization to form an efficient functioning unit. . .	Despite requests for consultant partners to ask only one question each, this partner sought to ask two questions in one. Both indicate disquiet about whether, or not, the enterprise is one system or a collection of separate, nonintegrated parts.
. . . and how can effective management communications be achieved?	Concern over management, or lack of. . .
How can the diverse talents and personalities within the practice best be brought together to maximize performance in the present economic climate?	Again. Concern that lack of cohesion and coordination between individuals is prejudicing business performance of the whole
How can we market our experience?	Limited marketing know-how
How can we achieve common aims?	Lack of integration
How can we keep afloat in these trying times?	Tear-jerking — is someone messing about?
How can we obtain maximum benefit from our assets to sustain growth, success and profitability?	Good question — the real issue?

Table B.2 Turning questions into symptoms.

Core question	Symptom
How can we take advantage of our different specializations within the practice?	<i>Poor specialist variety cohesion</i>
How can we become more efficient?	<i>Low efficiency</i>
How can we improve management communications and coordination?	<i>Ineffective management communications</i>
How can we optimize our business performance?	<i>Non-optimal business performance</i>
How can we best market our experience?	<i>Ineffective marketing of experience</i>
How can we achieve a common aim?	<i>Lack of common aim</i>
How can we use our capabilities to maximize performance?	<i>Ineffective application of assets to maximize performance</i>
How can we present out varied specializations to customers?	<i>Poor unfocused self-image</i>

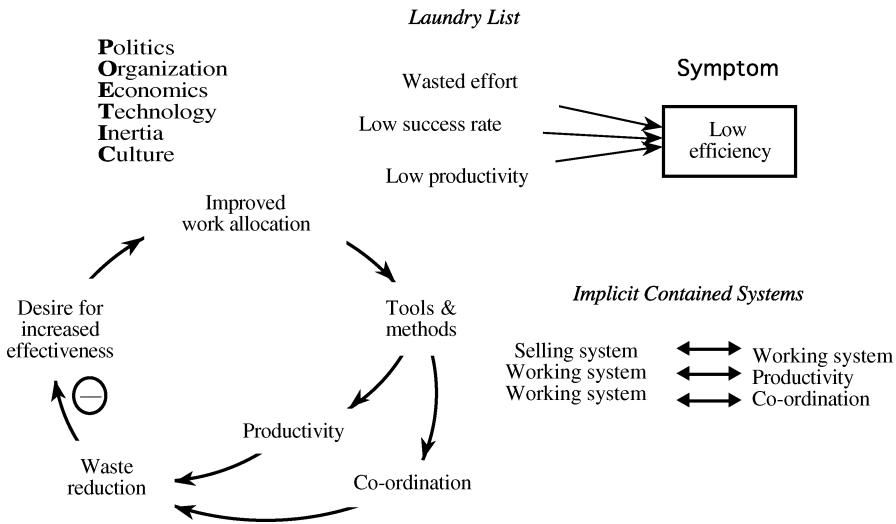


Figure B.1 Locus of probable causes — low efficiency.

terms than praising using positive terms — this propensity to criticize is turned to advantage in this technique, called ‘negative assertion.’

Note that the causes of low efficiency could only be guessed at in this instance. The acronym POETIC is presented on the proforma to remind investigators of the likely causal factors.

Given a list of possible causes, it is reasonable to assume that they are related, since they all refer to the same system. Next, they are formed into a causal loop model, bottom left, dropping the pejorative terms in the process, but adding additional elements to support the essential logic in the loop. In this particular case, the consultant also interpreted the list of possible causes, and used his experience to form a causal loop model that made sense in the particular context of low efficiency.

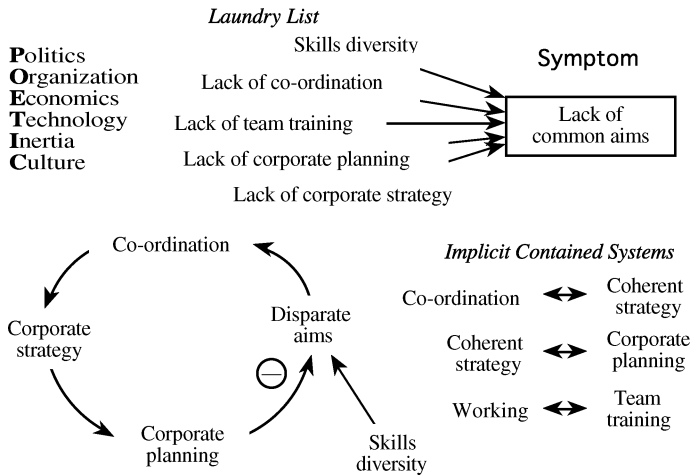


Figure B.2 Locus of probable causes—'lack of common aims'.

In so doing, he created something of an Ideal World model, showing what might be expected in an efficient organization. This method, even although not strictly executed in this case, has seemingly magical abilities to form Ideal Worlds from pejorative, real world symptoms.

Lastly, at bottom right, the consultant wrote up the implicit contained systems that must exist, and that had imbalances resulting in Low Efficiency

The next symptom to be tackled was 'Lack of Common Aims'— see Figure B.2. It follows the same plan: pejorative symptom, top right; pejorative laundry list, top center; CLM bottom left; Implicit Contained Systems, bottom right.

The consultant's coffee was having some effect by this stage; he identified possible causes of the symptom, and recognized that they were all related. The CLM, bottom left, dropped the pejoratives and left a CLM that indicated an Ideal World in which disparate aims were brought together under the mantle of coordinated corporate strategy and planning. This led to the Implicit Contained Systems at right, which evidently must be dysfunctional; else, the symptom at top right would not have emerged. . . .

The next symptom looked more to the heart of the issue facing the practice: poor, unfocused self-image. The laundry list of possible causes required some thought, and the CLM was rather more complex than usual. This arose because the practice was comprised of a number and variety of specialists, each considered expert in his own domain. It was not surprising, perhaps, that there were problems with the image of the whole. The CLM, at this point, switched from being simply analytical, and moved toward suggesting potential solutions — shown in the dashed, arrowhead lines, which suggested themselves while examining the CLMs for the first two symptoms.

By this stage, the consultant was beginning to see how the various symptoms, although they might appear quite different, were tending to point in broadly the same direction, and indeed were identifying the same implicit systems as being imbalanced (or nonexistent as it turned out — see later.)

The next symptom confirmed his view — see Figure B.4, nonoptimal business performance. Forming the pejorative laundry list was not difficult, but the nonpejorative, Ideal World CLM proved a little less tractable. Eventually, he created a double loop CLM, with the left-hand loop

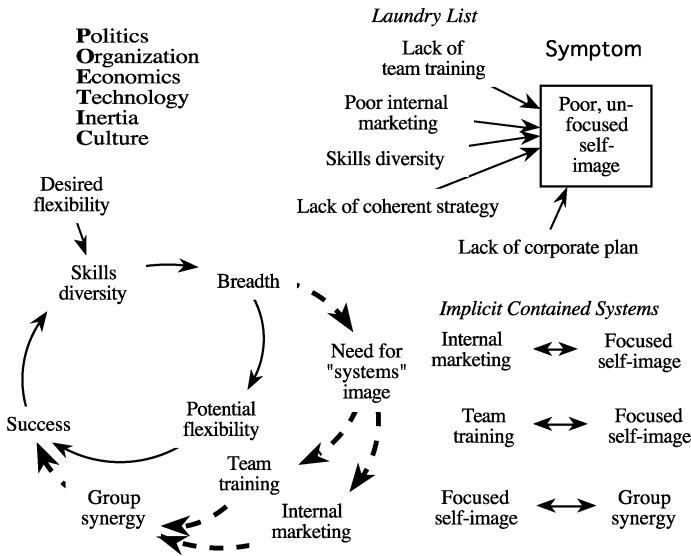


Figure B.3 Locus of probable cause — unfocused self-image.

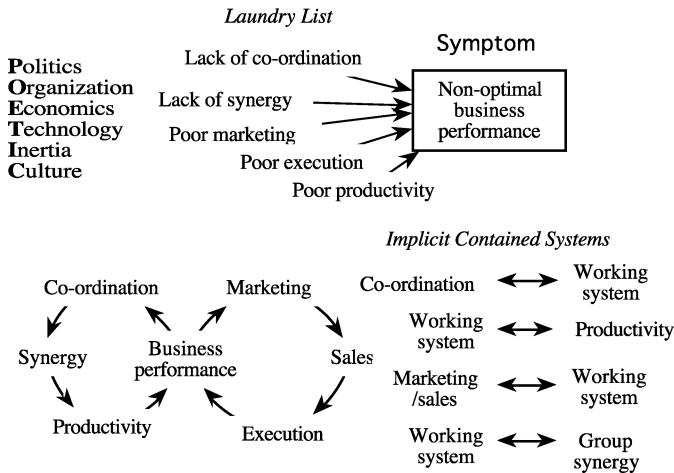


Figure B.4 Locus of probable causes — 'non-optimal business performance.'

concerned with what went on 'inside' the practice, while the right-hand loop was focused on relationship with 'outside' the practice. The consultant finished off the remaining symptoms in the same manner, and then drew up a list of all the implicit contained systems: see Table B.3.

The table was then used to form an N^2 chart, Chart B.1. This a straightforward process, in which all the entities — the implicit contained systems — are selected as the leading diagonal elements in the chart, and the interactions between them are recorded in the chart at the appropriate

Table B.3 Symptoms and implicit systems.

Implicit contained system A for. . .	Symptom	Implicit contained system B for. . .
Focused self-image	Poor specialist variety cohesion	Business performance
Self-interest	Poor specialist variety cohesion	Mutual self-reward
Team training	Poor specialist variety cohesion	Self interest
Selling	Low efficiency	Working
Working	Low efficiency	Productivity
Working	Low efficiency	Coordination
Office management	Ineffective management communications	Procedures
Procedures	Ineffective management communications	Discipline
Office management	Ineffective management communications	Coordination
Managing skills diversity	Ineffective management communications	Procedures
Coordination	Nonoptimal business performance	Working
Working system	Nonoptimal business performance	Productivity
Marketing/sales	Nonoptimal business performance	Working
Working	Nonoptimal business performance	Group synergy
Focused self-image	Ineffective marketing of experience	Marketing strategy
Marketing strategy	Ineffective marketing of experience	Marketing investment
Marketing investment	Ineffective marketing of experience	Promotion methods
Promotion methods	Ineffective marketing of experience	Self-image
Skills diversity	Ineffective marketing of experience	Focused self-image
Coordination	Lack of common aims	Coherent strategy
Coherent strategy	Lack of common aims	Corporate planning
Working	Lack of common aims	Team training
Coherent strategy	Ineffective application of assets to maximize performance	Corporate planning
Corporate planning	Ineffective application of assets to maximize performance	Coordination
Skills diversity	Ineffective application of assets to maximize performance	Focused self-image
Internal marketing	Poor, unfocused self-image	Focused self-image
Team training	Poor, unfocused self-image	Focused self-image
Focused self-image	Poor, unfocused self-image	Group synergy

locations. If the relationship between a pair of implicit contained systems comes up twice, then it is recorded as '2,' otherwise as '1.'

The N^2 chart contains no new information — it is simply a different way of representing the same information as that in the table. However, the chart can be reconfigured to reveal structure within the group of entities; this can be done by hand or, as in this case, using a simple computer tool — see Chart B.2. The chart shows three so-called Implicit Containing Systems, which have been identified in two ways:

- First, the various implicit contained systems have associated with those others to which they are functionally connected, so automatically forming functionally interconnected groups
- Second, the interfaces between the blocks have been selected so as to 'cut' very few inter-group links, i.e., to recognize loose coupling

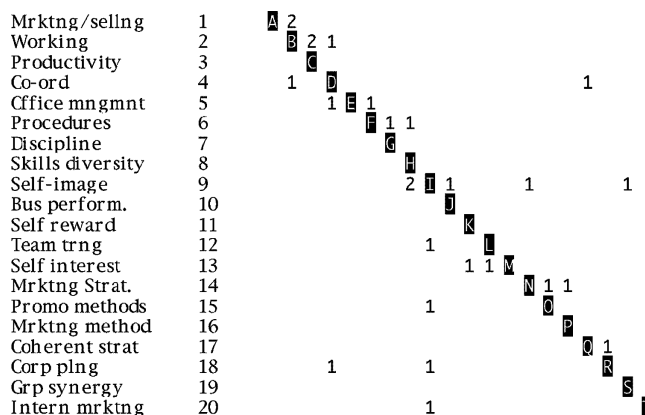


Chart B.1 Unclustered N^2 -squared (N^2) chart printout, showing relationships between implicit contained systems. N.B. The tool used to accumulate the N^2 chart has truncated the names in the left-hand column: the full titles can be seen by reference to Table B.3.

These three groupings are indicative of three ‘problem themes:’ ‘group organization and method,’ the analysis suggests, is dysfunctional; so, too, is the ‘group business development system;’ and, less obviously perhaps, there appears to be a dysfunctional ‘motivation system,’ which concerns itself with self interest (motivation), team training and reward. Note that all three of these containing systems/problem themes refer, not to individual partners, but to the system/practice as a whole. Note, too, from the chart that there are clear nodes (signified by cross patterns formed from the interfaces) indicating the sensitivity of (Method of) Working and Coordination in the upper block, Group Organization and Method, and (Lack of) Focused Self-image in the Group Business Development System.

The N^2 Chart B.2 may be presented as a Causal Loop Model, making it easier to understand the interactions dynamics between the problem themes — see Figure B.5. The three causal loops

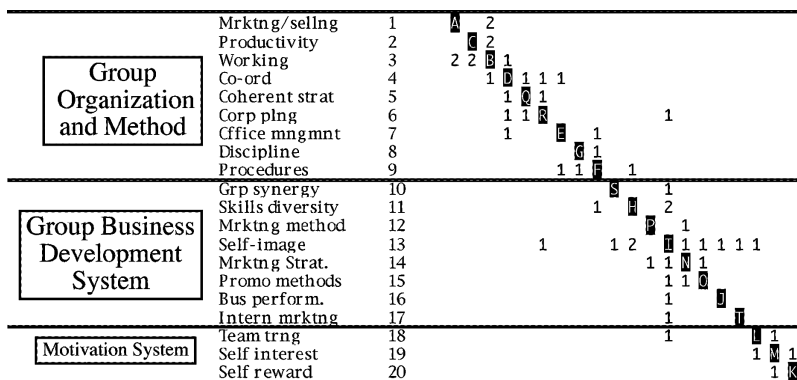


Chart B.2 Clustered, N^2 chart, showing implicit containing systems in the left-hand column. Making the chart symmetrical about the leading diagonal also makes the interface patterns more evident.

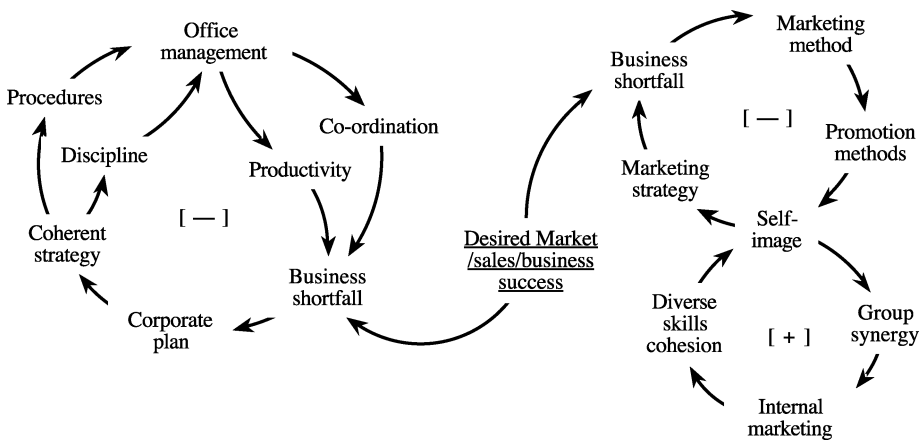


Figure B.5 CLM developed from Chart B2.

represent the three groups from Chart B.2, which in turn represent three so-called problem themes. The left-hand loop is about straightforward management of business operations — organization and method. The top right loop is about marketing, including the promotion and projection of self-image. The bottom right loop is also about self-image, but this time it is about internal marketing, i.e., about convincing the staff that their very diversity is their strength. . . .

The first two loops present as control loops, with control directed towards reducing business shortfall — clearly a concern to the practice. The third loop is a self-reinforcing loop (positive feedback) and this has the potential to either ‘spin up,’ in which case self-image will rise and the top right loop will operate freely, or ‘spin down.’ In this event, the current poor self-image will deteriorate further, preventing the proper operation of the marketing loop and effectively scuppering the practice.

Using the ‘How can we. . .’ questions and the marketing material as inputs, and applying RSM albeit somewhat crudely, the consultant now had a reasonable idea of what might be going on — sufficient, at least, to know what to look out for.

Note. It might be thought that the same conclusions might have been reached simply by examining the original ‘How can we. . .?’ questions. Using RSM has enabled the consultant to lay out his thoughts, his rationale, and his ideas clearly on paper, as an audit trail from which he has learned, and with which others may agree, or disagree — but at least they ideas are out in the open for discussion.

In the event, the consultant did not show his simple, ‘rough and ready’ RSM analysis to the partners, preferring instead to see if the results of the ensuing intervention confirmed his suppositions, or not. . . .

Hands-on Intervention — using NGT and ISM

The consultant later met up with the members of the partnership on ‘neutral ground,’ in the nearby city center. The atmosphere was somewhat frosty, and it became evident that there was some hostility within the group to the whole ‘intervention exercise.’ Surprised, but unperturbed, the

consultant introduced himself by stating that he knew little about them as an organization, and certainly did not know sufficient to advise them about their business. Instead, what he proposed to do was to introduce them to Auto-Intervention: together they would undertake a Voyage of Discovery into Self-Consultancy. At the end of the session, which might stretch over a day or two, they should have learned enough never to need him, or any other external consultant again. The consultant observed that he now had their attention.

He then outlined his plan: to so conduct an intervention that the group effectively conducts its own analysis, and develops its own strategy and plan. His approach was to adopt the traditional facilitator rôle, but at the same time to present several interactive methods to the group so that the group chose both the method and the direction of the sessions.

The consultant presented three optional 'trigger questions' which, he observed, seemed to address the issues of concern:

1. What objectives would you like the practice to achieve over the next 5 years?
2. What do you consider to be the attributes of a successful partnership?
3. What do you consider are the most important tasks/projects that you should undertake within the practice?

As he hoped and expected, the group unanimously chose the first trigger question: this jibed with his RSM analysis.

Next he offered them a choice of addressing the trigger question using either brainstorming or idea writing, which he described as follows:

- *Brainstorming.* The group is given some creative tasks, e.g. 'conceive as many ways as possible to move water uphill'; once the creative juices are flowing, the subject of interest is introduced. *Pros:* simple, quick. *Cons:* easily dominated by individuals, good ideas can be ridiculed, difficult to maintain positive-only attitudes, creates internal group dissension
- *Idea writing.* Group members write their answers to a trigger question on a sheet of paper. After a short time, group members are asked to pass papers to the person next to them. Recipients see providers ideas and add more of their own. Procedure repeated several times. Resulting ideas then presented one at a time, in turn from each member. *Pros:* suppresses dominance, generates wide range of ideas, hides 'owner' of ideas. *Cons:* large number of ideas requires handling by facilitator and group.

There was some discussion, after which the group chose idea writing. This led into a session using nominal group technique, with the generation of a host of objectives, followed by an allocation of scores to end up with a ranked list of group objectives — see Table B.4.

It became clear during the discussion of the table that one of the senior partners had contributed objective 27 with a view to disrupting and discrediting the process, with which he did not agree. On observing that objective 27 had received only one vote (not from him!) he had reconsidered his view, and was now less inclined to dismiss the process.

The group then agreed that they need consider only those objectives that had received a score, and they elected to drop the rest.

Next, the consultant introduced them to interpretive structural modeling, and the group entered into an ISM 'session,' with a view to developing an intent structure (see Warfield's interpretive structural modeling (ISM) on page 191).

Table B.4 NGT: table of group objectives with scores.

Serial	Group objective	Score
1	Achieve standing within the industry and with clients	29
2	Identify what we are selling	20
3	Develop an organization with recognized acquisition value to others	11
4	Financially secure practice	27
5	Short-term survival	27
6	Establish wide client base to weather difficult times	30
7	Growth of wealth	35
8	Establish how we are going to sell	30
9	Provide a basis for developing a second career	
10	Continual improvement in technical competence	11
11	Remove the work pressure on individuals which adversely affects their private lives	11
12	Concentrate expertise into new client base	1
13	Establish a niche market	12
14	A means of widening expertise	
15	Develop structured approach to projects	8
16	Increase the number of disciplines in the practice	
17	Quick access to general information	2
18	Improved financial control	17
19	Establish how partners and associates team	
20	Better quality accommodation	6
21	Identify focused self-image	22
22	Join A.C.E.	
23	Coordinated, effective communications	6
24	Retirement in 5 years	
25	Improved standard operating procedures (SOPs)	3
26	Establish R&D capability for solving design problems	
27	Take over another practice	1
28	Develop export markets	
29	Introduce office automation	
30	Improved staff training	
31	Understand our market	21

For each of the objectives taken in pairs, they were asked the question ‘does objective A help to achieve objective B, or is it the other way round, or do they both help each other, or is there no relation?’ There were four possible answers to each pair: responses were accumulated in a matrix, as shown in Chart B.3; and an initial practice intent structure was drawn from the chart, Figure B.6. The whole process took several hours, and was accompanied by much discussion between the participants (protagonists?), during which there was a discernible development of understanding and consensus within the group.

The initial intent structure was developed on a whiteboard, using sticky notes for objectives and colored pencils to draw the lines: this allowed the group to consider changes to the results. The group did, in the event, change a number of entities, before creating the final result at Figure B.7.

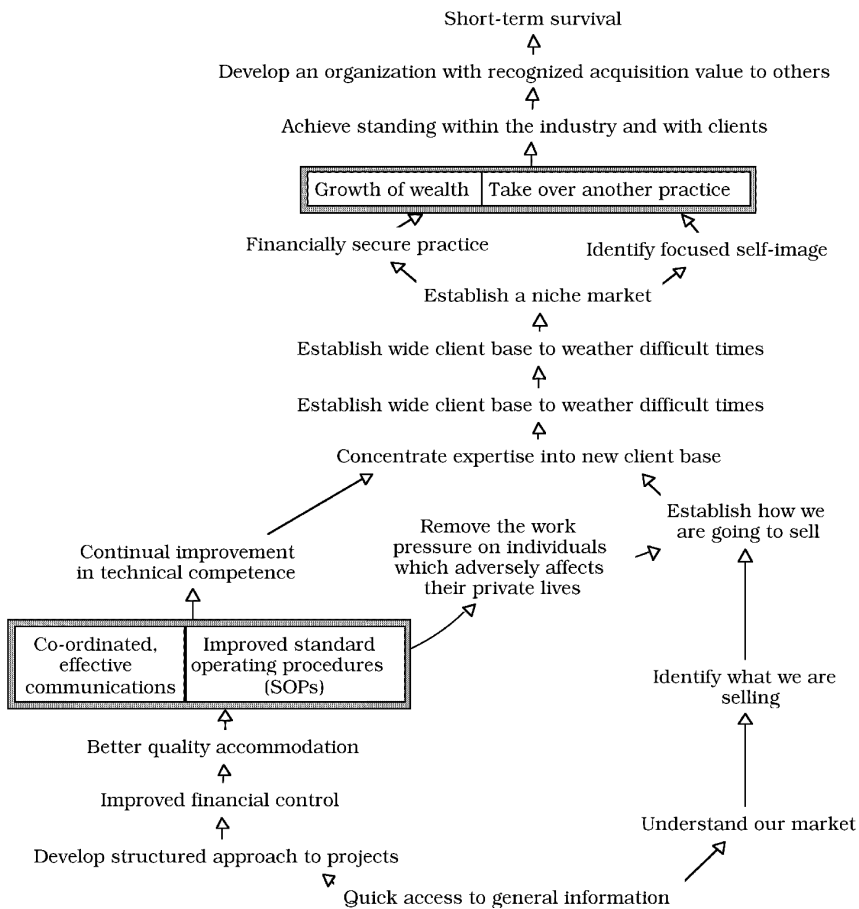


Figure B.6 Initial practice intent structure drawn from Chart B.3.

objective. This simple process of switching between negative pejoratives and positive assertions is surprisingly powerful.

A further advantage of developing the CLM is that the process promotes completeness and closure: it will often be found that the items in a laundry list are insufficient to develop complete, logical, closed loops; additional elements have to be added to complete the logic, and these turn out to be items that should have been in the laundry list had it been complete. In this way, the laundry list can be enriched and completed.

The group then went on to develop a range of strategies by working from objective to laundry list and omitting the causal loop model, seemingly unaware that they had, in effect, reverted to the first method. . . . These included:

- CQI — continuous (business) quality improvement;
- Corporate plans — annual, budgeting, forward investment, setting market targets, etc., which had not been previously done;

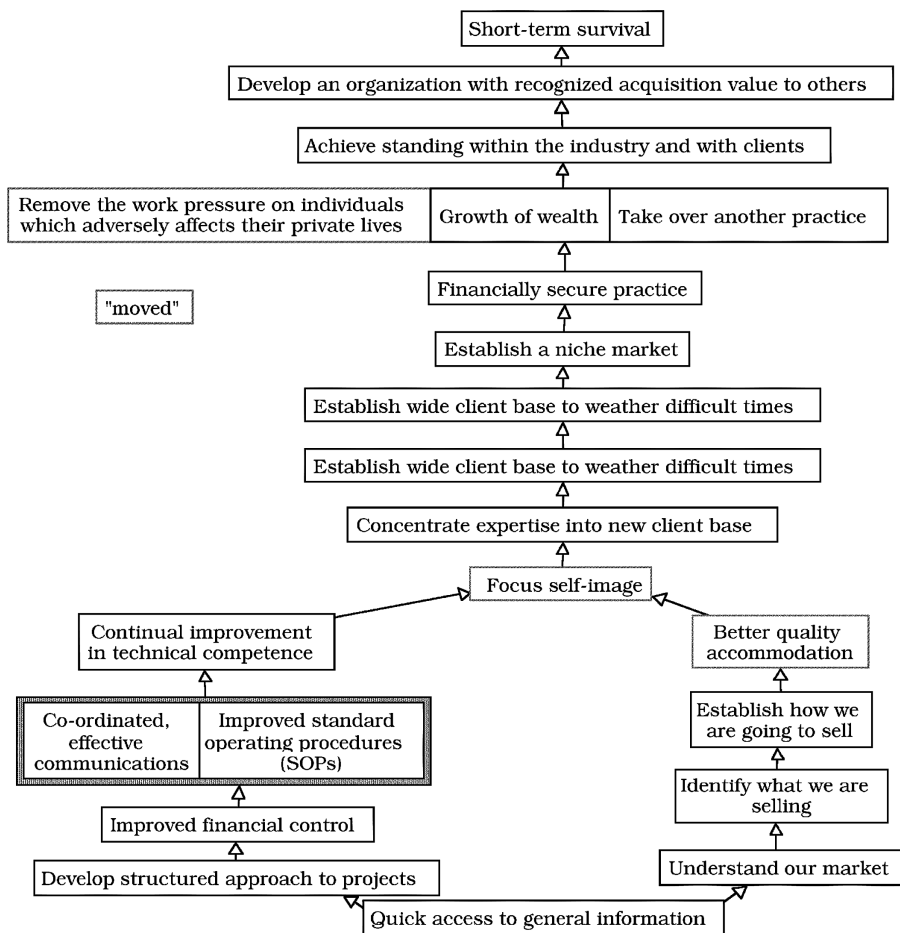


Figure B.7 Modified final practice intent structure.

- Partners’ meetings — every week without fail! It seemed that there had been no regular partners meetings;
- Monthly project business reviews. Each member, in turn, each month, presents a project for peer business review.

A table of strategies was drawn up, bringing together all of the ideas; see Table B.6.

The group now had a number of self-generated strategies to achieve the pervasive or systemic objectives from the lower half of the intent structure. Some members of the group expressed concern that strategies were all very well, but . . . would the group implement them, or would the whole exercise be forgotten in a few weeks time, leaving them as they were at present?

The group asked for a further exercise so that the strategies could be developed into a plan, which could be held by everyone and checked for progress at the partners’ meetings that had

Table B.5 Developing strategies to overcome threats to achieving objectives.

Objective	Threat	Strategies
Quick access to general information	<ul style="list-style-type: none"> • Poor information sources • Poor retrieval systems • No dedicated resources • Plenty of data, less information 	Beef up office management internal technical marketing
Understanding our market — parallel working and assessment of satisfaction	Engineers like solutions rather than finding and meeting needs	Positively research clients needs — respond! Develop 'needs' questionnaire — use with clients to establish their perception of practice Follow-up post-job to determine client satisfaction/shortfall

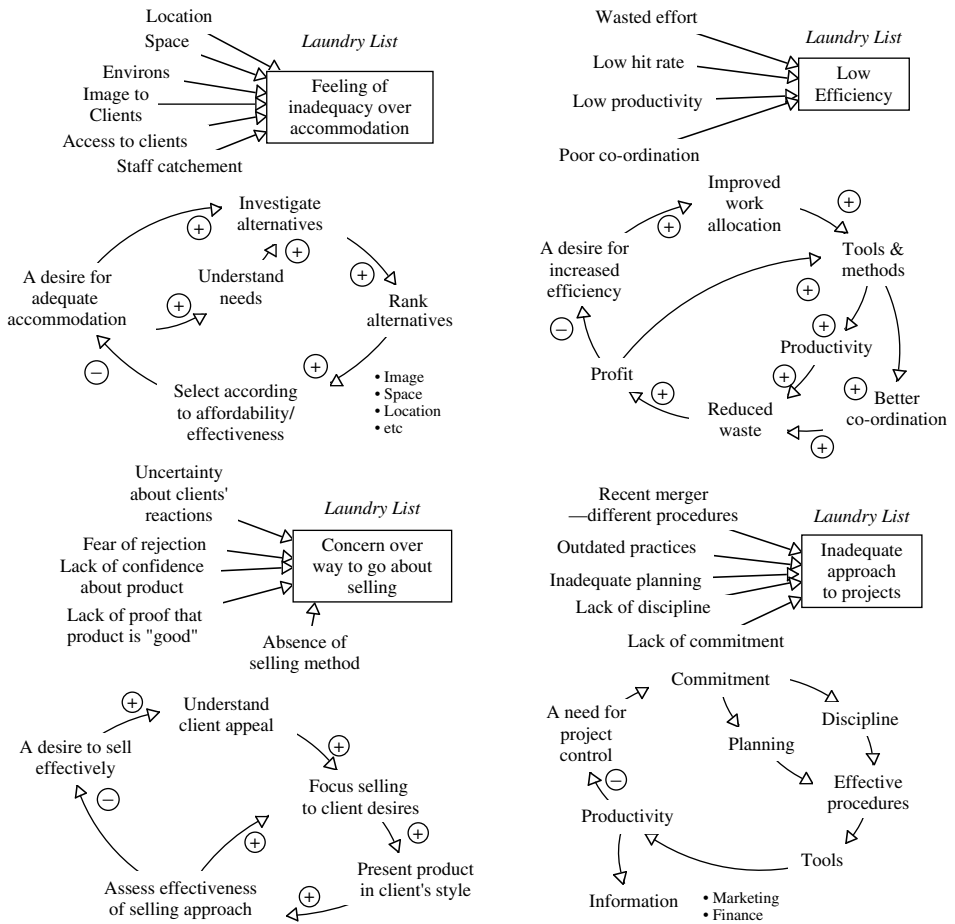


Figure B.8 Four CLMs developed by practice partners to identify strategies to achieve objectives.

Table B.6 Proposed practice strategies to be adopted to achieve objectives from intent structure.

Serial	Strategy
1	Beef up office management
2	Positive research of clients' needs
3	Seek client feedback
4	Improve work allocation
5	Improve office productivity
6	Focus selling on to client appeal
7	Assess selling effectiveness
8	Explore cost-effectiveness of new accommodation
9	Improve project procedures
10	Generate focused self-image
11	Improve financial control
12	Instill commitment and discipline
13	Introduce corporate planning
14	Introduce partners meetings
15	Introduce project reviews

been proposed. The consultant, who had thought his work done, fired up the ISM program and facilitated the development of a precedence network, which used as its trigger question: 'does strategy A precede strategy B, or is it the other way round, or must they coincide, or is there no relation?'

The resulting precedence network was drawn out into an outline strategic plan at Figure B.9. Several junior partners then developed the precedence network into a time-based strategic plan, which they drew up and printed off using their in-house facilities. They purchased some boards and

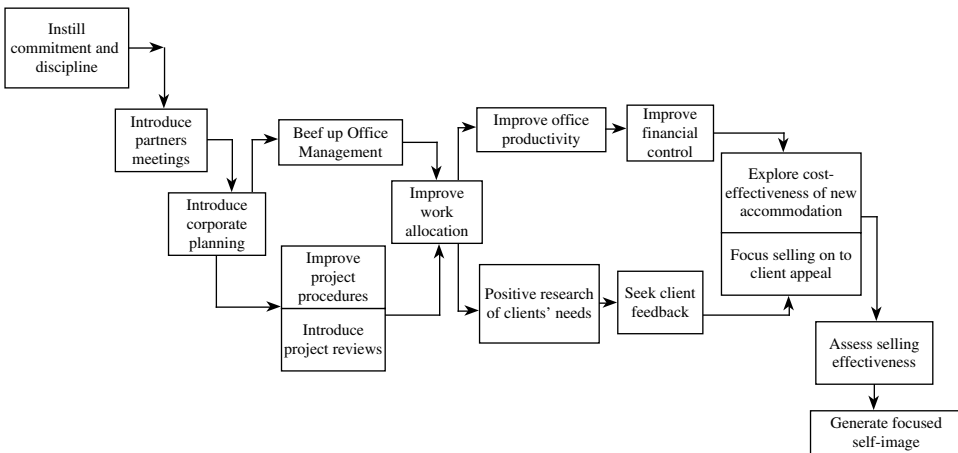


Figure B.9 Precedence network for practice strategies to achieve objectives. The network served as a basis from which to develop a time-based strategic plan/GANTT Chart to implement the various strategies.

pinned the process plan on the boards, adding a ‘time now’ marker, which was initially set at zero. The plans were then mounted on the walls in the senior partners offices, a further indication — if one were needed — that the junior partners expected the senior partner to ‘drive’ the plans forward.

Group discussion followed. The original intent structure (before adjustment) and the precedence network both showed that Image, which they felt ought to be a systemic objective, consistently emerged as an end product. Was it symptomatic of their heritage as engineers? Was it a problem? Should they recognize the networks as correct, indicating group ‘emergent properties’? If the group was exhibiting ‘undesirable’ emergent properties, should they/could they do something about it?

(At this point, the consultant considered the ‘auto-intervention’ to have been effective, and took no further active part. The group was now actively involved in system thinking.)

Comparing the Hands-off RSM Investigation and the Hands-on Intervention

The RSM enquiry was conducted using only responses to questions and practice marketing literature provided, without visiting the organization. It gave remarkably good insight into structural and functional group deficiencies, as revealed later during the Intervention. However, it gave little insight into ways to improve performance that would be acceptable to the practice — particularly with respect to group motivation

The intervention was quite different; for a start, it operated with the hidden agenda of developing a group dynamic towards consensus. The process revealed structural and functional deficiencies that the RSM investigation had suspected, but added the dimensions of team building and gave the group a plan for improving their situation in which all had *participated* and to which all were *committed*. The intervention thus affected what RSM could only identify: group motivation.

- RSM helped to understand the problem in surprising depth, and particularly how problem elements interact;
- RSM provided a sound basis for modeling present situation and proposed changes;
- *Intervention*—as practiced in this instance — developed a potential solution to the problem, perhaps with less understanding of the internal structure, but with commitment to the plan through participation in its formulation;
- The two methods are complementary. The plan developed during the intervention could usefully be modeled using the Ideal World structure developed under RSM.

Note that at no time did the consultant inject his own knowledge or experience into the proceedings. He did, however, use insights gained from the RSM exercise to formulate appropriate questions to focus the group’s attention on issues of relevance during the intervention. In this manner, he used only the knowledge and experience derived from the group to determine and introduce the solution to their own problems. His role as consultant, facilitator and moderator rolled into one, was to help them recognize and organize their own knowledge and experience, and particularly to overcome the interpersonal boundaries inside which each of them, as specialist consultants, operated.

He also helped them to develop a practice self-image, not as a collection of specialists, but as a whole, integrated system in which complementary variety within the parts was an essential ingredient. So, they moved intellectually from a viewpoint where their different specializations

were a problem, to a viewpoint where their specializations fitted together to provide a complete set/system. From this new perspective, it became clear to them that they needed a few more specializations, rather than less, and they proceeded to develop expansion plans.

Summary

The case study concerned itself with a minor intervention in a consultancy practice. The members of the practice, the partners, were each expert in their own specialized fields, yet the enterprise as a whole was not performing well in business terms.

The consultant conducting the intervention prepared beforehand by asking for, and receiving, answers to a carefully selected question: each partner had to separately complete the question ‘How can we. . .?’ The purpose of the question was to reveal, either each partner’s aspirations, or each partner’s concerns, or both. The use of the pronoun ‘we’ encouraged the partners to respond in the context of ‘we, the whole practice,’ as opposed to ‘I, the individual.’

In preparation, the consultant applied the rigorous soft method, using the responses to the questions as ‘symptoms’ of the issue facing the practice. This informal, hands-off exercise provided a clear view of the problem themes facing the practice, together with an Ideal World model of how it could and should be working. Although based on a seeming paucity of corporate information, the output from applying the RSM was sufficient to provide the consultant with some confidence that he understood where the dysfunctions within the practice might lie.

The hands-on intervention was unusual, in that the consultant elected to show the partners how to conduct their own ‘intervention,’ such that they would need no further outside assistance. He introduced them to several methods at each stage of the proceedings, letting them choose which method to pursue. In the event, the group started with a choice of trigger questions, explored the chosen trigger using idea writing, moved on to nominal group technique and then to interpretive structural modeling, creating an intent structure for the practice. The group then proceeded to develop a strategic plan for implementing the intent structure, without any further assistance from the consultant. He had achieved his objective: they were thinking for themselves as a group.

Reviewing the whole exercise, is it not unreasonable to label it as ‘systems engineering?’ An optimum solution to the issue facing the practice had been conceived, designed and was in course of being implemented. True, there was little in the way of technology: there were no shiny new products or artifacts, but the structure of the practice/system as a whole had been revised, new functions and process improvements introduced, with synergy evident as the partners started to pull toward common goals. Essentially, a group of virtually separate parts had become an optimum, integrated system operating as a unified whole — achieving that is surely systems engineering.