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Thought and action

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Chapter 6 Managing Organizational Change³⁴

6.1. Introduction

By this stage, we have determined the point of departure, which was described in **chapter 4** and **chapter 5**: *phase one* of the thesis. With this point of departure in mind, we can start to follow the ‘travel’ of the pharmacy manager to the customer mix. It should be remembered that the central theme in this part of the study, this current *phase two*, was to answer the main questions of this thesis. The main questions were: ‘What problems does a pharmacy manager face if he/she ‘travels’ to the customer mix?’ and ‘What is the role of the support structure in the organizational change to the customer mix?’. Before we start to discuss these questions in further detail, let us take a closer look at the work which has been accomplished so far. At the beginning of this thesis it was assumed that it would be convenient to know where we are now if we intend to ‘travel’ with an organization to a new position. Consequently, a theoretical study was done in order to describe the point of departure and the destination of pharmacy organization. As a result, in **chapter 3**, we modelled three pharmacy mixes: the product mix, the process mix and the customer mix. However, this was an analytical description. What were the pharmacy mixes in practice? It was shown in a pre-pilot study that the pharmacy managers perceived all three mixes as being very important. A distinction therefore was made between *thought* and *action*. The methods for *thought* related to what mixes of actions were perceived as being the most important by the pharmacy manager, and the methods for *action* related to what mixes of actions were actually performed by the pharmacy manager. In **chapter 4**, some methods were tested in a pilot study in order to be able to analyze the existence of the three pharmacy mixes in the community pharmacy sector in the Netherlands. Two main methods were selected and applied in a survey, which was described in **chapter 5**. The results of the survey were used to refine the analytical and empirical description of the three pharmacy mixes. Consequently, seven clusters of pharmacy mixes for *thought* and five clusters for *action* were found. This analysis showed that most pharmacy managers in the Netherlands stress the importance of product and customer actions, but actually perform product and process actions.

Since we now have defined a point of departure in the ‘travel’ to the customer mix for *thought* and *action*, we can introduce the main questions again: ‘What problems does a pharmacy manager face if he/she ‘travels’ to the customer mix?’ and ‘What is the role of the support structure in the organizational change to the customer mix?’. A longitudinal comparative approach was used because we were interested in

³⁴ Parts of this chapter will be published in: Mobach MP, Werf JJ van der, Tromp TFJ. APOM-project: managing organizational change to the customer. *Pharm World Sci*, accepted April 1999; Mobach MP, Werf JJ van der, Tromp TFJ. SSM scrutinized in community pharmacy practice. *Syst. Res. Behav. Sci.*, submitted May 1999.

a change over time, since most organizational changes take some time. A period of one-and-a-half year was selected in order to determine problems in the organizational change. Soft Systems Methodology (SSM) was applied as a main framework to collect and analyze data from 31 pharmacy managers. Furthermore, observations and questionnaires were used in various combinations with these pharmacy managers and 32 additional pharmacy managers, who were all participating in the first survey. In contrast with **chapters 4 and 5**, in this chapter the term 'activity' will be used most. We refer to the modelled world, where, in the context of this chapter, activities relate to the modelled customer activities by the pharmacy manager. In some cases control action of the pharmacy manager was described in response to the implementation of the modelled activities. This chapter contains an explanation of the methods applied in 6.2. and the results in 6.3. Finally, in 6.4. the conclusion is presented.

6.2. Methods

By using SSM in interviews, organizational change to the customer mix and related problems and solutions were described for 15 pharmacy managers of stichting VNA and SAL Apotheken (VNA/SAL pharmacy managers) and 16 independent pharmacy managers. For VNA/SAL pharmacy managers, the role of the support structure in the organizational change was described through a mix of qualitative and quantitative methods: interviews, questionnaires, observations, and surveys.

6.2.1. Activity-realization methods

The interviews were conducted at time t_1 (October 1996) and t_3 (September 1997) with pharmacy managers. In the interviews, customer activities and monitor activities were modelled at t_1 . These models were later evaluated at t_3 : problems and solutions of the implementation process were described for 15 pharmacies of stichting VNA and SAL Apotheken (VNA/SAL pharmacies) and 16 independent pharmacies. SSM was used as a methodology to structure the interviews. Shortly after the interviews at t_1 and t_3 , all interview texts were offered to the pharmacy managers for correction.

The interviews at t_1 contained seven steps. The seven steps comprised a discussion of the results of the survey, a list of intended or planned main customer activities for a period of a year, a root definition, a CATWOE, an activity model, a detailed description of the required customer sub-activities, a description of criteria for effectiveness, efficiency and efficacy, and a detailed description of the required

monitor activities.³⁵ The discussion of the results of the survey was reported in writing by the researcher, all other items were written by the pharmacy manager. Specific terms from SSM were translated and some help was provided in making an activity model.

The first step consisted of a discussion of the results of the survey with the pharmacy manager. The following questions were asked: ‘What do you think of the results?’ and ‘Do you agree with the results?’. It provided a link between the quantitative survey results and qualitative interviews.

For example, the results of the 1996 survey for case 239 showed that the pharmacy manager was in the cluster with product-customer-process for thought, and in the cluster process-product-customer for action. Product actions were perceived as being the most important issue, however, process actions were actually performed. She agreed with the results for thought; she would like to stress product actions and customer actions. The pharmacy manager argued that process actions are important for action because she bought the pharmacy one-and-a-half year ago. Therefore she is experiencing time pressure and financial actions are considerably important. In another example, the results of the 1996 survey for case 1015 showed that the pharmacy manager was in the cluster with customer-product-process for thought, and in the cluster product-customer-process for action. Customer actions were perceived as being the most important issue, however, product actions were actually performed. This pharmacy manager also agreed with the results for thought. He would like to stress customer actions and product actions. However, the results of the survey for action showed a more positive result than he expected. His perception was that he expected to perform more process actions than product and customer actions; he was dissatisfied with this situation and would like to perform more customer actions and product actions, for example, processing accounts, following up debtors, discussing purchasing policy with colleagues etc. In his perception, process actions, in contrast with the results of the survey, were the main thing for action.

In the second step, the pharmacy manager described a list of intended or planned major customer-oriented activities for the coming year. Perceptions of pharmacy managers with respect to the content of customer-oriented activities were collected.

³⁵ Above in **chapter 3**, we described that a root definition of SSM is: “a system to do X by Y in order to achieve Z” (Checkland and Scholes 1990: 36). “The CATWOE relates to Customers, the victims or beneficiaries of T; Actors, those who would do T; Transformation process, the conversion of input to output; Weltanschauung, the worldview which makes T meaningful in context; Owners, those who could stop T; and Environmental constraints, elements outside the system which it takes as given” (1990: 35). An activity model is “a representation of a set of activities linked together to make a purposeful whole” (Checkland and Holwell 1998: 15). “With the question ‘is T meeting the longer term aim?’ the criterion for effectiveness is monitored. With the question ‘does the means work?’ the criterion for efficacy is monitored. With the criterion for efficiency it is monitored whether the transformation is being carried out with a minimum use of resources; ‘the amount of output divided by the amount of resources used’” (Checkland and Scholes 1990: 39). Consequently, within this model we are in need of monitor activities in order to check if the criteria were met and to be able to judge when control action is necessary.

Activities related to the Y³⁶ were collected using SSM; what means were needed in order to be more customer-oriented? Two questions were used. Firstly, the pharmacy manager was asked: ‘What customer activities do you plan for the coming year?’. These might include, for example, organize consultation, introduce KNMP self-care standards, produce brochure for foreigners, produce pharmacy brochure, and organize direct mail (**table 6.1.**). Secondly, the pharmacy manager was asked: ‘What categories can be distinguished to categorize customer-activities?’. These might be, for example, the categories oral information and written information (**table 6.1.**).

Functional area	Intended activities 1996
oral information	-organize consultation
	-introduce KNMP self-care standards
written information	-produce brochure for foreigners
	-produce pharmacy brochure
	-organize direct mail

Table 6.1. A description of the intended customer activities (Y).

In the third step, a root definition was produced based on the intended activities described. The structure and meaning of a root definition in SSM was explained in the interview. The definition of Checkland and Scholes (1990: 36) was used to clarify the structure of the root definition: ‘a system to do X by Y in order to achieve Z’. Two questions were asked about the intended activities (Y). Firstly, the pharmacy manager was asked ‘What do you actually do (X) with these means Y?’. Secondly, the pharmacy manager was asked ‘What is the related long term aim (Z)?’

For example, the root definition could be an information-shop improvement system (X) directed at oral and written information (Y) in order to hold onto customers (Z). In another example we might see that, although Z is equal to the former root definition, the root definition may have another X and Y. Such a root definition would be: a customer-care-improvement system (X) directed at service level, research and medication support (Y) in order to hold onto customers (Z).

³⁶ In SSM the Y relates to the root definition. Checkland and Scholes defined the structure of the root definition as: “a system to do X by Y in order to achieve Z” (1990: 36). Within this definition Y relates to the means in order to achieve Z.

In the fourth step, a CATWOE was described based on the root definition. Normally, the root definition is formulated by considering the elements of CATWOE. Within this study, the CATWOE was used to enrich the root definition. Checkland and Scholes (1990: 35-36) argued that a root definition formulated with attention to the elements of the CATWOE will be rich enough to be modellable. The CATWOE relates to Customers, Actors, Transformation process, Weltanschauung, Owners, and Environmental constraints. The ‘customers’ are the victims or beneficiaries of T. The ‘actors’ are those who would do T. The ‘transformation process’ is the conversion of input into output. Within this study, T related to X of the root definition; for example, an information shop transformed into an improved information shop, or customer care transformed into improved customer care (compare the former root definitions in the example). The ‘Weltanschauung’ is the worldview which makes this T meaningful in context. The ‘owner(s)’ are those who could stop T. In this study, the owner is the person who can stop T, and, in addition, formulates Z. The ‘environmental constraints’ are the elements outside the system which it takes as given. In this study, E was a precondition related to T. For example, in order to transform an information shop into an improved information shop it was necessary to have the ‘permission’ of the general practitioners (GPs), the motivation of the personnel, and a need for information by the patient. If these preconditions were not fulfilled, implementation of the transformation process was questionable. An example of the CATWOE in relation to the first root definition mentioned before would be:

<i>C</i>	<i>Customers</i>	<i>patients, GPs, environment of the patients</i>
<i>A</i>	<i>Actors</i>	<i>assistant pharmacists, pharmacy manager, patients’ associations, specialists of consultation</i>
<i>T</i>	<i>Transformation process</i>	<i>information shop→ improved information shop</i>
<i>W</i>	<i>Weltanschauung</i>	<i>it is possible to hold onto customers by increasing their knowledge</i>
<i>O</i>	<i>Owner(s)</i>	<i>pharmacy manager, assistant pharmacists, GPs, specialists, specialists of consultation</i>
<i>E</i>	<i>Environmental constraints</i>	<i>‘permission’ of the GPs, motivation of the personnel, need for information by the patients</i>

In the fifth step, an activity model was drawn. In a relative simple model of a fence painting, Checkland and Scholes (1990: 37-41) gave an example of a householder who intends to paint his fence (**figure 6.1**). This example was used in order to produce an activity model for the pharmacy manager. In this model the minimum activities necessary are assembled in order to meet the requirements of the root definition and CATWOE. Clearly, the main activity in the model will be ‘paint the fence’ (cell 5, **figure 6.1**), and this will be surrounded by other activities which fit with CATWOE. In general, they aim to express the main operations and to bring about the transformation (in the light of the CATWOE) in a handful of activities. The guideline is: aim for 7 ± 2 , this coming from Miller’s celebrated paper on cognitive

psychology in which he suggests that the human brain may have a capacity which can cope with about this number of concepts simultaneously (Miller 1968). If this seems sparse, it need not be a problem: each activity in the model can itself become a source of a root definition to be expanded at the next resolution level. Checkland and Scholes (1990) argued that the core activity 'paint the fence' will be contingent upon obtaining the necessary materials (cell 4), and this will be contingent upon deciding the colour (cell 3) in the light of the overall decoration scheme of the property (cell 1) and taking a decision on the scope or extent of the task (cell 2), since this is an amateur effort.

Root Definition:

A householder-owned and manned system to paint a garden fence, by conventional hand painting, in keeping with the overall decoration scheme of the property, in order to enhance the visual appearance of the property

- C - householder
 A - householder
 T - unpainted fence → painted fence meeting criterion in the definition
 W - amateur painting can enhance the appearance
 O - householder
 E - hand painting

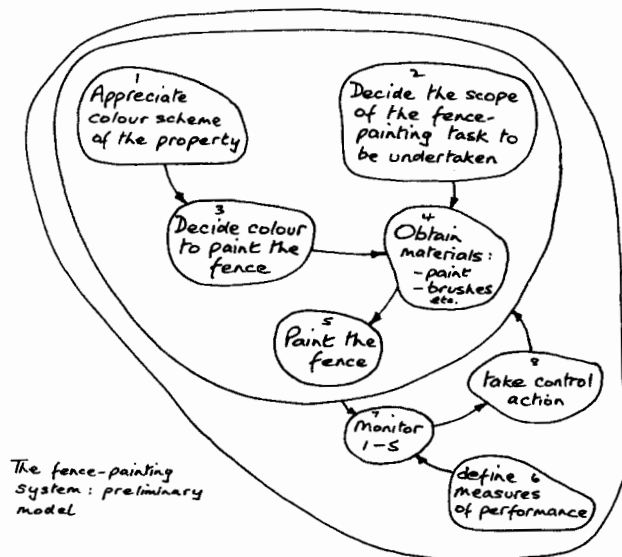


Figure 6.1. A root definition, CATWOE and a first model from root definition for a householder painting his fence (Checkland and Scholes 1990: 37-38).

These considerations yield the operational subsystem shown in **figure 6.1**. According to Checkland and Scholes (1990), because this is a system we need to also add the process of monitoring and control (cell 7). As always with such constructions, this process embodies the guarantee that the entity could in principle survive in a changing environment.

Forbes and Checkland (1987) showed that any conversion of input into output would be judged to be successful or unsuccessful on three different counts. These are the measures of performance (cell 6) and comprise efficacy, efficiency and effectiveness. With the criterion for efficacy it is monitored if the means chosen actually work in producing the output: 'does the means work?'. Within the example, this could be 'does this fence count as a painted fence?'. With the criterion for efficiency it is monitored whether the transformation is being carried out with a minimum use of resources: 'the amount of output divided by the amount of resources used'. Within the example, this could be 'was the resource use minimum?'. With the criterion for effectiveness it is monitored in what way the longer term aim, expressed by Z, is achieved: 'is T meeting the longer term aim?'. Within the example, this could be 'does the fence enhance the property?'. With the criteria defined, it can be used by the householder as a mirror during the transformation process, and, if necessary, control action can be taken (cell 8). The model of the fence painting was used as an example in order to illustrate and facilitate the modelling process of customer activities for the pharmacy manager.

*The model 'painting the fence' was used to clarify a moment in the interview. Since root definition and CATWOE were described we were in need of an activity model. By analogy with the example the main activity in the pharmacy activity model would be 'Implement activities' (cell 4, **figure 6.2**). It could be argued that the core activity 'Implement activities' is contingent upon cell 3 'Decide on information-shop improvement activities'. But what is the origin of these activities? What was the decision on which these specific activities were contingent? In the example, the selected activities related to knowledge of the patients, the policy of the insurance companies and the threat of competition. On this basis, the main part of the activity model (**figure 6.2**) was drawn. Cells 5, 6 and 7 were added as a standard procedure of SSM. All cells were clarified by the pharmacy manager.*

Root definition

An information-shop improvement system (X) directed at oral and written information (Y) in order to hold onto customers (Z).

C	Customers	patients, GPs, environment of the patients
A	Actors	assistant pharmacists, pharmacy manager, patients' associations, specialists of consultation
T	Transformation process	information shop → improved information shop
W	Weltanschauung	it is possible to hold onto customers by increasing their knowledge
O	Owner(s)	pharmacy manager, assistant pharmacists, GPs, specialists, specialists of consultation
E	Environmental constraints	'permission' of the GPs, motivation of the personnel, need for information of the patients

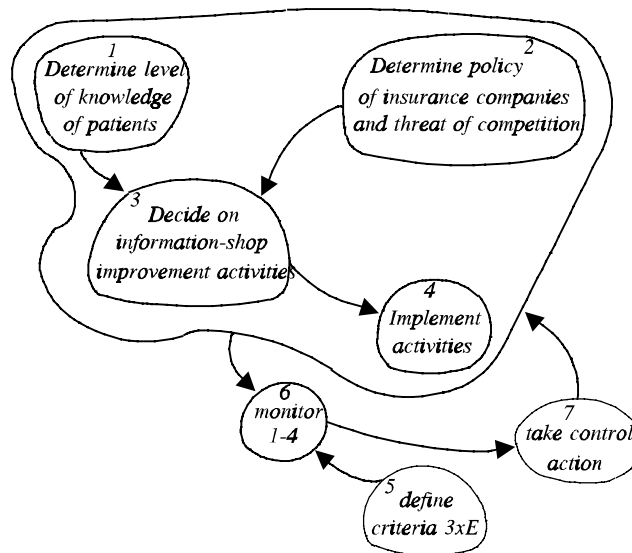


Figure 6.2. An example of a pharmacy activity model from root definition and CATWOE.

In the sixth step, a detailed description was made based on the cells of the inner part of the activity model (cell 1-4).

In the example, the pharmacy manager clarified cell 1 ‘Determine level of knowledge of patients’ in the following way: ‘The level of knowledge of patients is determined by the personnel via the counter and telephone. In addition, I am confronted with questions from the patients about the quality of certain products. The questions are asked as a result of advertising material; in some cases the products are ‘nonsense products’. The level of knowledge is mostly low. The cause can be found within the pharmacy, but also outside the pharmacy. Advertising material with doubtful information is regularly received at the pharmacy. Television programmes with a low level of quality of information are often shown. These programmes are often purely commercial, they are purchased programmes’. In the example, cell 2 ‘Determine policy of insurance companies and threat of competition’ was clarified in the following way: ‘I determine [information of] external developments with respect to insurance companies and threats of competition via meetings, commissions, department and main office of the KNMP (Royal Dutch Association for the Advancement of Pharmacy) and pharmacists’ association. The pharmacy manager also notices developments in practice. For example, patients of certain insurance companies need to collect medical devices at a centre for medical devices, and sign contracts in which devices are offered under the fixed price (taxe). General developments are: the open market and competition stimulated by the authorities; the consequences of the IWG-report (interdepartmental report of the Dutch Ministries of Health and Economic Affairs in order to study what legislation should be adapted to stimulate market action in the Dutch pharmaceutical industrial column), and more specifically, the emergence of a mail-order pharmacy run by the insurer ‘Zilveren Kruis’. In the example, cell 3 ‘Decide on information-shop improvement activities’ was listed earlier in the interview. The listed activities were: organize consultation, introduce KNMP self-care standards, produce brochure for foreigners, produce pharmacy brochure, and organize direct mail. In the example, cell 4 ‘Implement activities’ involved a detailed description of the required sub-activities. What sub-activities were necessary to organize a consultation, to introduce KNMP self-care standards, to produce a brochure for foreigners, to produce a pharmacy brochure, and to organize direct mail? The sub-activities were listed in a table (compare table 6.2.).

Functional area	Intended activities 1996	Intended sub-activities 1996
oral information	-organize consultation	-start off with colleagues -have consultation for diabetes (only during first half year) -determine target group -involve patients' association -approach general practitioners (GPs) -organize consultation once in every two weeks -seek publicity via local paper, via diabetes nurse from hospital, via pharmacy
	-introduce KNMP self-care standards	-assess possibilities by pharmacy manager -study self-care standards by pharmacy manager and assistant pharmacists -discuss methodology of asking questions: WHAM (Who is the patient and what are the symptoms? How long have the symptoms been present? Action taken; what medicines have been tried? Medication being taken for other problems?) -introduce standards -discuss new AMP results ('mystery guests': assessors pretending to be real customers) after some time
written information	-produce brochure for foreigners	
	-produce pharmacy brochure	
	-organize direct mail	

Table 6.2. An example of a description of the intended customer activities and sub-activities (Y).

In the seventh step, a detailed description was made based on the cells of the outer part of the activity model (cell 5-7). This step comprised the formulation of the criteria for efficacy, efficiency and effectiveness. With the criterion for efficacy it is monitored if the means chosen actually work in producing the output. With the criterion for efficiency it is monitored whether the transformation is being carried out with a minimum use of resources. With the criterion for effectiveness it is monitored in what way the longer term aim, expressed by Z, is achieved. In addition, a detailed description of the monitor activities was made. These measurements were described in order to be able to draw conclusion about the successfulness of the activity in the light of T and Z.

In the example, cell 5 'define criteria 3xE' comprised the formulation of the criteria for efficacy, efficiency and effectiveness. With the criterion for efficacy it is monitored if the means chosen (oral information and written information) actually work in producing the output (improved information shop); 'does the means work?'. For the pharmacy manager in the example the criteria were positive reactions from patients, positive reactions from GPs, positive reactions from

insurance company, and increased need for information by the patient. With the criterion for efficiency it is monitored whether the transformation (information shop→ improved information shop) is being carried out with a minimum use of resources; 'the amount of output divided by the amount of resources used'. For the pharmacy manager in the example the criteria were: stay within the budget; the flow of prescriptions should be in order→ it should be possible to keep the pharmacy business going. With the criterion for effectiveness it is monitored in what way the longer term aim, expressed by Z (hold onto customers), is achieved, 'is the transformation (information shop→ improved information shop) meeting the longer term aim (hold onto customers)?'. For the pharmacy manager in the example the criterion was to have the number of prescriptions at least stable. In the example, cell 6 'monitor 1-4' consisted of a detailed description of the monitor activities. These measurements were described in order to be able to draw a conclusion about the successfulness of this activity in the light of T (information shop→ improved information shop). The monitor activities were listed in a table (compare table 6.3.).

Functional area	Intended activities 1996	Intended monitor-activities 1996
oral information	organize consultation	-interest in consultation -consultation is occupied, about four visitors per afternoon
	introduce KNMP self-care standards	-pharmacy manager looks and listens -AMP results (WHAM-questions not applied yet, applied later) -discuss AMP results in discussion of progress
written information	produce brochure for foreigners	
	produce pharmacy brochure	
	organize direct mail	

Table 6.3. An example of a description of the intended monitor activities.

In the example, cell 7 'take control action' consisted of an intervention in the inner system when necessary according to the monitoring, which was defined in cell 6.

The outcome of the interviews was used as a logbook for organizational change to the customer mix for a period of a year. After a year the interviews were conducted again. In these second interviews, the models were evaluated, with a description on the one hand of the realization of customer activities and monitor activities, had the activities been transformed into action?, and on the other hand of problems and solutions involved in the implementation process.

The interviews at t_3 contained seven other steps. It should be remembered that in the design of this study (described in **chapter 2**), the interviews and a repetition of the survey were made with a group of 15 VNA/SAL pharmacy managers and a group of 16 independent pharmacy managers. With two other groups of 16 independent pharmacy managers only the survey was repeated.

The seven steps comprised a discussion of the results of the survey, assessments of the actual performance of intended customer activities, of the actual performance of intended monitor activities, and of the actual use of the criteria for effectiveness, efficiency and efficacy, a description of problems and solutions involved in the implementation of customer activities, a description of problems and solutions involved in the implementation of monitor activities, and an explanation of the choice of (non)performance. All items were written by the researcher. The model produced at t_1 was used as a starting point.

The first step, consisted of a discussion of the new results of the survey of 1997 in comparison with the results of 1996. The following questions were asked: ‘What do you think of the change in the results?’ and ‘Do you agree with the change in the results?’. It provided a link between the quantitative survey results of 1996 and 1997.

For example, the results of the survey of 1997 for case 239 showed that the pharmacy manager was in the cluster with customer-product-process for thought. In comparison with the results of 1996 (product-customer-process) customer moved from second to first position, product moved from first to second position, and process remained in third position. The results for action in the survey of 1997 showed that the pharmacy manager was in the cluster product-process-customer. In comparison with the results of 1996 (process-product-customer) customer remained in third position, process moved from first to second position, and product moved from second to first position. The pharmacy manager could identify herself with the results for thought and action. She wished to stress customer, product and process respectively. However, mainly product and process actions were still being performed. The action cannot completely work for the customer. An aspect of this is that it is not likely that customers will be attracted if the product is not good. If the product is poor you are selling ‘air’; of course you can do that, but the pharmacy manager does not want to do that. The pharmacy manager has owned the pharmacy for two-and-a-half years; that makes process actions easier than a year ago. Through additional experience she has come to know exactly what she wants, and is now going straight for the goal. That is probably why process moved from first to second position in action.

In another example, the results of the survey of 1997 for the case 1015 showed that the pharmacy manager was in the cluster with product-process-customer for thought. In comparison with the results of 1996 (customer-product-process) customer moved from most important to least important, product moved from second to first position, and process moved from third to second position. The results were of no use to the pharmacy manager. He agreed with the results for thought for 1996, but not with those for 1997. However, the pharmacy manager also notes that product and process are naturally very important: it is the basis from which you work. The results for action of the survey of 1997 showed that the pharmacy manager was in the cluster

process-customer-product. In comparison with the results of 1996 (product-process-customer) customer moved from third to second position, process moved from second to first position, and product moved from first to third position. The pharmacy manager agreed in such a way that he could explain the results: that customer had moved to the second position was the result of a lot of materials being offered by institutions and organizations. That process actions scored so well was also explicable: the pharmacy manager had become managing partner in the last year. That is possibly the reason why a lot more process actions were performed.

The second step, involved an assessment of the actual performance of intended customer activities; e.g. Was the main activity 'organize consultation' performed? Were the sub-activities, for example, start off with colleagues, have consultation only for diabetes (only during first half year), determine target group etc. actually performed? The tables of the first interviews were used and the activities and sub-activities were marked with ✓ (activity succeeded), ✗ (activity not succeeded), and ? (unknown). Intended activities and intended sub-activities were qualified separately. It was possible to qualify an activity as successful even if most sub-activities were unsuccessful, and vice versa.

Table 6.4. shows that the first activity 'organize consultation' was successful. However, the second activity 'introduce KNMP self-care standards' was not. This is remarkable since all sub-activities were marked as being successful. How is this possible? In the interview all activities and sub-activities were marked by the pharmacy manager. The criterion for the marking was the success per individual activity and individual sub-activity in the perception of the pharmacy manager. Consequently, the activities were qualified fairly separately from the sub-activities. The activities were marked before the sub-activities; the pharmacy manager firstly marked all activities such as: 'organize consultation', 'introduce KNMP self-care standards' etc. The pharmacy manager then marked all sub-activities such as: 'start off with colleagues', 'have consultation for diabetes (only during first half year)' etc.

It seems that the model was no longer an accurate reflection of reality, the real world around the manager had changed so to say. Life is obviously not static, activities change all the time. In order to keep up with reality, models have to be adapted all the time. With the help of criteria for efficacy the manager was able to do so, and to change the model whenever necessary. Vital sub-activities were seemingly missing, for example, with the activity 'introduce KNMP self-care standards' and the related sub-activities of **table 6.4.** How else could it have been concluded that the activity 'introduce KNMP self-care standards' was unsuccessful, although the sub-activities were successful? Above we presented an answer: something had happened in terms of the control action of SSM. The model appeared not to be a good representation of reality; the model might have been adapted by the manager. In general, the control action of SSM relates to the process in which the activities of the

model are monitored with criteria 3xE, and also relates to the process in which the consistency and usability of the model itself is monitored. The information of **table 6.4.** suggests that the structure of the model had been adapted. This table shows that additional and not-planned sub-activities were vital for the introduction. For example, if the KNMP standards had been introduced, this might have led to problems experienced by assistant pharmacists with their actual use. Also, not all of the activities relating to the organizational change could have been planned in 1996. To avoid a situation in which vital information was missing, the pharmacy manager was invited to indicate whether an activity or sub-activity was unsuccessful (✖) or unknown (?). This explanation will be described in the forthcoming fifth step (**table 6.6.**) and sixth step (**table 6.7.**). However, careful analysis of **table 6.4.** in conjunction with **table 6.5.** shows that the pharmacy manager in the example had additional information. The fifth sub-activity ‘discuss new AMP results (so-called ‘mystery guests’: assessors pretending to be real customers) after some time’ shows that the results were discussed successfully, but nothing more than that. In addition, **table 6.5.** shows that the actual AMP results were poor. As a result, the pharmacy manager had the perception that the second activity ‘introduce KNMP self-care standards’ was unsuccessful (**table 6.4.**).

Functional area	Intended activities 1996	Intended sub-activities 1996
oral information	✓1-organize consultation	✓2-start off with colleagues ✓3-have consultation for diabetes (only during first half year) ✓4-determine target group ✓5-involve patients' association ✓6-approach general practitioners (GPs) ✓7-organize consultation once in every two weeks ✓8-see publicity via local paper, via diabetes nurse from hospital, via pharmacy
	☐1-introduce KNMP self-care standards	✓1-assess possibilities by pharmacy manager ✓2-study self-care standards by pharmacy manager and assistant pharmacists ✓3-discuss methodology of asking questions: WHAM (Who is the patient and what are the symptoms? How long have the symptoms been present? Action taken; what medicines have been tried? Medication being taken for other problems?) ✓4-introduce standards ✓5-discuss new AMP results (mystery guests) after some time
written information	✓1-produce brochure for foreigners	
	✓produce pharmacy brochure	
	☐1-organize direct mail	

Table 6.4. An example of a description of the successfulness of intended activities and sub-activities.

The third step, involved an assessment of the actual use of the criteria 3xE; criteria for efficacy (does the means work?), efficiency (what is the amount of output divided by the amount of resources used?), and effectiveness (is the transformation meeting the longer term aim?). The criteria were marked in the same way as the success of intended activities and sub-activities: ✓, ☐ and ?. A minimum requirement was that all unsuccessful activities or activities in which the outcome was unknown were clarified by the pharmacy manager.

In the example the applied criteria were:

- Efficacy:*
- ✓-positive reactions from patients
 - ✗-positive reactions from GPs→ GPs do not refer to the diabetes consultation in the pharmacy and do not refer to the leaflets for foreigners
 - ?-positive reactions from insurance company→ no reaction received
 - ?-increased need for information by the patient→ hard to compare with preceding years, because there is more material at the moment; there is a demand for material
- Efficiency:*
- ✓-stay within the budget
 - ✓-the flow of prescriptions should be in order→ the pharmacy business should be kept going.
- Effectiveness*
- ✓-the number of prescriptions at least stable

The fourth step, involved an assessment of the actual performance of monitor activities; e.g. Were the monitor activities related to ‘organize consultation’ performed? As with the activities, the tables of the first interviews were used and the monitor activities were marked. The intended activities and the monitor activities were qualified separately, as with the qualification of activities and sub-activities. In addition, it was possible to qualify a monitor activity as having been successful even if most monitor sub-activities had been unsuccessful, and vice versa. It should be noted that the qualification of ‘organize consultation’ in the *monitor tables* was only a label to qualify all *monitor* activities related to this specific activity. In the *activity tables* it related to the activities itself. For example, the overall qualification of the intended monitor-activities related to the activity ‘introduce KNMP self-care standards’ was: ‘successful’. Even though the introduction of the standards was not qualified as being a success, the monitor activities did their work. The monitor function was a success in the eyes of the pharmacy manager, and, as was mentioned above in the description of the activities, the model was changed. Furthermore, the overall qualification of the intended monitor-activities related to the activity ‘organize consultation’ was also: ‘successful’. That is remarkable since only one out of two intended monitor activities was a success. In fact, the monitor-activities were prioritized. The interest in the consultation was found to be a more important ‘proxy’ of the success of the consultation than the number of visitors.

Functional area	Intended activities 1996	Intended monitor-activities 1996
oral information	✓organize consultation	✓-interest in consultation ✗-consultation is occupied→ about 4 visitors per afternoon
	✓1-introduce KNMP self-care standards	✓2-pharmacy manager looks and listens ✗-AMP results→ WHAM-questions not applied yet, applied later ✓3-discuss AMP results in discussion of progress
written information	✓produce brochure for foreigners	
	✓pharmacy brochure	
	✗organize direct mail	

Table 6.5. An example of a description of the successfulness of monitor activities.

The fifth step, described problems and solutions involved in the actual performance of intended customer activities; e.g. ‘What were the problems faced in ‘organize consultation’?’ and ‘What solutions to the problems were found by the pharmacy manager?’. As with the criteria 3xE, a minimum requirement was that all unsuccessful activities or activities in which the outcome was unknown were clarified by the pharmacy manager.

Functional area	Intended activities 1996	Intended sub-activities 1996	Problems with realization	Solutions for realization
oral information	✓1-organize consultation	✓2-start off with colleagues ✓3-have consultation for diabetes (only during first half year) ✓4-determine target group ✓5-involve patients' association ✓6-approach general practitioners (GPs) ✓7-organize consultation once in every two weeks ✓8-look for publicity via local paper, via diabetes nurse from hospital, via pharmacy	✓1-8 -at first GPs were not enthusiastic→ was the pharmacy manager creating a too distinctive profile for himself? GPs are often afraid of 'too well-informed' nagging patients	✓1-8 -when the GPs realized that the consultation was organized for fellow-sufferers it was no problem. A trained diabetic informs a diabetic. The problem was solved via pharmacotherapeutic consultation and letters for the GPs, formulated in cooperation with colleagues
	☐introduce KNMP self-care standards	✓1-assess possibilities by pharmacy manager ✓2-study self-care standards by pharmacy manager and assistant pharmacists ✓3-discuss methodology of asking questions: WHAM ✓4-introduce standards ✓5-discuss new AMP results (mystery guests) after some time	☐-AMP results showed good score for attitude, bad score for content→WHAM-questions are still not being asked ✓2-counter folder with KNMP-standards was discussed; until recently no time for self-study: content of the folder is still not known by all assistant pharmacists	☐-self-study, and possibly discuss subjects at discussion of progress ✓2 -evaluate at discussion of progress who read the counter folder; in situation of full completion→ self-study at home for assistants who had not yet studied the folder. If this has no effect→ possibly discuss subjects at discussion of progress
written information	✓1-produce brochure for foreigners			
	✓produce pharmacy brochure			
	☐1-organize direct mail			

Table 6.6. An example of a description of problems and solutions in the implementation of customer activities.

The sixth step, described problems and solutions involved in the actual performance of intended monitor activities; e.g. ‘What were the problems faced in the context of the modelled monitor activities related to ‘organize consultation?’ and ‘What solutions to the problems were found by the pharmacy manager?’. As with the criteria 3xE and the problems and solutions in the implementation of customer activities described before, a minimum requirement was that all unsuccessful activities or activities in which the outcome was unknown were clarified by the pharmacy manager.

Functional area	Intended activities 1996	Intended monitor-activities 1996	Problems with realization	Solutions for realization
oral information	✓organize consultation	✓-interest in consultation ☒-consultation are occupied, about 4 visitors per afternoon	☒-interest in consultation was disappointing→ 1-4 visitors per afternoon	☒-hang announcement poster more prominently in pharmacy; evaluate with local colleagues
	✓1-introduce KNMP self-care standards	✓2-pharmacy manager looks and listens ☒-AMP results (WHAM-questions not applied yet, applied later) ✓3-discuss AMP results in discussion of progress	☒-AMP results showed→ WHAM still not applied and attitude was good, content was not	☒-evaluate again at discussion of progress who read the counter folder; in situation of full complement→ self-study at home for assistants who had not yet studied the folder. If this has no effect→ possibly discuss subjects at discussion of progress
written information	✓produce brochure for foreigners			
	✓produce pharmacy brochure			
	☒organize direct mail			

Table 6.7. An example of a description of problems and solutions in the implementation of monitor activities.

The seventh step, described an explanation of the choice of (non)performance in 1997; what were the reasons why the modelled activities were or were not performed?

For example, the pharmacy manager in case 1015 used the criterion that 'the activities should preferably be performed in a relatively simple way, easily digestible chunks being very convenient in such a situation. In addition to the [customer] activities described before, a lot of other activities have to be performed. Successful activities of other pharmacy managers make things easier: you can take up and use existing concepts. Most activities which were not performed cost a lot of time and cost more effort than the other existing activities. Sometimes an activity did not get any priority, that is why it was not performed.' In another example (case 1029), the pharmacy manager is starting to do the easiest bits of the activities he intends to carry out. 'That counts for all intended activities.' He also prefers to use existing activities, because this is easier to do. Next, he is also carrying out activities which have a direct relationship with his daily work. It is noticeable that self-study of assistant pharmacists for self-care is not included. He has not yet got down to the implementation of this. 'It has not become a part of my daily work. The problem, lack of knowledge of the team, will remain, even after a second monitoring with mystery guests.' Further, the pharmacy manager has noticed that he has made a summary for the content of the medication surveillance. That summary for self-care did not get off the ground; perhaps that has a restraining influence. 'Finally, with self-care there is less daily necessity for knowledge; there is an escape route. If you don't know the WHAM-questions, you just don't ask them. However, if you provide interaction brochures it is evident that you tell something about it.'

6.2.2. Support-structure methods

Between time t_1 (October 1996) and t_3 (September 1996), the support structure of VNA/SAL pharmacies was studied. You are again reminded of the design of this study, described in **chapter 2**; the interviews and a repetition of the survey were made with a group of 15 VNA/SAL pharmacy managers and a group of 16 independent pharmacy managers. With two other groups of 16 independent pharmacy managers only the survey was repeated. The support structure was studied by means of a mix of qualitative and quantitative methods: questionnaires, observations, interviews, and surveys. With questionnaires and observations a description was made in order to study the support of the organizational change to the customer mix. With interviews a qualification was made for the support of the organizational change to the customer mix. With the survey the results of supported and non-supported pharmacy managers were compared between 1996 and 1997.

6.2.2.1. Qualitative methods

In **chapter 2**, we showed that the VNA/SAL pharmacy managers were set apart in the design in order to study the support they received. The support was studied between the interviews of October 1996 and September 1997. As was mentioned before, the nine pharmacy managers of stichting VNA (VNA pharmacy managers) were members of the so-called 'quarter group' (a group which met and exchanged ideas quarterly) and the six pharmacy managers of SAL Apotheken (SAL pharmacy

managers) were members of the so-called 'SAL meeting' (a group which met and exchanged ideas monthly). With the exception of the SAL meeting in February, all meetings were attended by the researcher.³⁷ Firstly, questionnaires were used and observations were made at all separate meetings. Pharmacy managers were invited to describe the ideas which they had got from the meeting. At the end of every meeting a questionnaire was filled in. The questionnaire listed the customer activities modelled with SSM in 1996. The pharmacy manager could describe what new ideas were gained during the meeting with respect to these listed activities. Ideas for new activities could also be added. Furthermore, observations were made at meetings of the quarter group and the SAL meetings. Secondly, a year later, when all meetings were finished, interviews were conducted in which we aimed to find out whether pharmacy managers had been put their ideas to use and what they thought about the support structure, whether it was useful or not. As a part of the SSM-session in 1997, pharmacy managers were asked to mark their ideas. Were the ideas gained at the meetings actually used and transformed into action? Again, as with the intended activities and sub-activities, they were asked to indicate whether the idea had been used. **Table 6.8.** shows an example of the support-structure analysis in connection with the examples described earlier.

³⁷ The support structure of stichting VNA, the so-called 'quarter group', consisted of four meetings (November, February, May and August). In November 1996 the first meeting was held at a pharmacy of the stichting VNA. All meetings were held at different pharmacies of the quarter group and one meeting at the central bureau of the stichting VNA. During the first meeting there was some opposition with respect to the observation. The pharmacy managers required an hour in which daily problems could be discussed without observations. As a consequence of this meeting, it was decided to have a first hour each meeting without the presence of the researcher. Consequently, information may have been missed. However, the pharmacy managers promised not to discuss any subjects relevant to this thesis in that hour. It was assumed that the study of the four meetings, without the first hour, was sufficient to draw conclusions about the role of the support structure of stichting VNA. The support structure of SAL Apotheken, the so-called 'SAL meeting', consisted of nine meetings (October, November, December, January, February, March, May, June, September). As with the first meeting in October 1996, all SAL meetings were held at the central bureau of SAL Apotheken in Gouda. In May 1997 after the first session of the management weekend of SAL Apotheken had taken place, and as a direct consequence of this session, it was decided to change the form of the support structure of SAL Apotheken. The pharmacy managers decided that the management weekend should be held more frequently at the expense of ordinary SAL meetings. Consequently, the number of meetings was reduced, starting in May. In addition, a second session of the management weekend was planned for October 1997. However, a total of 9 out of 12 intended meetings were still convened in *phase two*. It was assumed that the study of nine meetings was sufficient to draw conclusions about the role of the support structure of SAL Apotheken.

Intended activities 1996	Gained ideas at the meetings
-organize consultation	✘-at the meeting of 29/5→ consultations with dieticians are perhaps a suitable way of drawing attention to the pharmacy→ GPs did not react positively to this form of marking the identity
-introduce KNMP self-care standards	✓-at the meeting of 28/8→ activity had already been implemented, no new ideas were gained; I did inform my colleagues that it had not been implemented for 100%
-ideas for new activities	✓-at the meeting of 4/2→ make a list of leaflets for foreigners ✘-at the meeting of 29/5→ consider if one of the assistant pharmacists (the older one) can take a course in tropical care→ still in consideration

Table 6.8. An example of the gained ideas at the meetings.

In addition, as another part of the SSM-session in 1997, pharmacy managers were asked the following question: ‘What is the usefulness of the support structure?’.

For example, the pharmacy manager in case 1015 noted: ‘You get your information from everywhere, consequently, also from the quarter group of stichting VNA. That is why this group is useful. This group consists of pharmacists who develop many activities and which are a source of good ideas. The stichting VNA has put little effort into the support of the intended activities relating to the front office. An exception has been happily made in some cases, for example, for the printing of the pharmacy brochures and the delivery forms. However, stichting VNA could do more. For example, the [so-called] formula [in which pharmacists are cooperating] of Service-apotheken are on the Internet, while we are not. That is one of the reasons why Service-apotheken is distinguishable for the patient, that facilitates communication. In addition, stichting VNA could provide more easily digestible chunks. At the moment, stichting VNA is concentrating on the internal organization and the quality of process tasks and product tasks; the back office. In itself that is a good thing. However, stichting VNA wants to be more than a conveyancing organization. Consequently, there should be more support. With respect to front-office activities there should be done more.’

6.2.2.2. Quantitative methods

As we mentioned in the design presented in **chapter 2**, a year later the first survey was repeated with four selected groups: three groups of 16 independent pharmacy managers, and one group of 15 VNA/SAL pharmacy managers. Again, these groups were set apart. This time the separation was made in order to study if the support a

year later had had an impact on the results of the survey. The questionnaires of the survey were used at time t_0 (May 1996) and repeated at time t_2 (May 1997) for all four groups. The survey for *thought* and *action* was repeated, in the same way as in **chapter 5** but only for the selected 63 pharmacies. The main focus was on differences between the scores of 1996 and 1997 and differences between the four groups. In the data-collection method used to study *thought* of the pharmacy manager, there were 26 questions which consisted of three sub-questions with respect to the three pharmacy mixes. As with the survey the sub-questions were ranked on a scale from 1 to 3, representing *important -less important -even less important* issues. A Friedman test was applied and, in addition, some ordinary means were calculated in order to compare this ranking with the result of the Friedman test. In the data-collection method used to study *action* of the pharmacy manager, 209 out of 384 questions related to the three pharmacy mixes. The remaining 175 questions related to general issues. As with the pilot study all questionnaires consisted of binary questions (true/false). The data were processed with cluster analysis. As with the survey an agglomerative hierarchical cluster analysis was used. However the results of both surveys were used in a more descriptive way than in **chapter 5**. Only a change in the pattern of the general results and the group results over time were described.

6.3. Results

One of the elements of SSM is the transformation process; a process in which an entity is transformed into that entity in a changed state. In this current thesis we used SSM to study a group of 31 pharmacy managers who transformed their organization into a customer-oriented organization. SSM was not applied to the other group of 32 pharmacy managers. We should be aware that the group in which SSM was applied was selected out of the pharmacy managers participating in the survey and was very motivated to change their pharmacy organization. Before the actual implementation of this transformation process or organizational change to the customer mix, we modelled their intended customer activities in a root definition, an activity model, and related criteria, the latter comprising norms and monitor instruments. During the year-long transformation process the pharmacy managers took control action if necessary. The control action was debated at the end of that year. We argued previously that we were interested in the problems of the pharmacy managers and the help which some of them would receive from a support structure. We used SSM as a methodology to unravel the problem 'knots' experienced by these pharmacy managers.

SSM

In this part of the study we started with action in the real world: deliberate, decided, and willed action of a pharmacy manager; in SSM labelled as 'purposeful action'

(Checkland and Scholes 1990: 2). We assume that a model could be useful in explaining problematic aspects of the real world; it is a device to look at the real world. So what we would like to do is to ‘catch’ some of this action in a model. A step from the real world to the modelled world is, among other, expressed in the difference between ‘action’ and ‘activity’. In SSM the real-world ‘purposeful action’ would then be changed into the modelled ‘purposeful activity’. A general expression of purposeful activity is the root definition, defined as: ‘do X (what?) by Y (how?) in order to achieve Z (why?)’. With this root definition we are starting to model the real world.

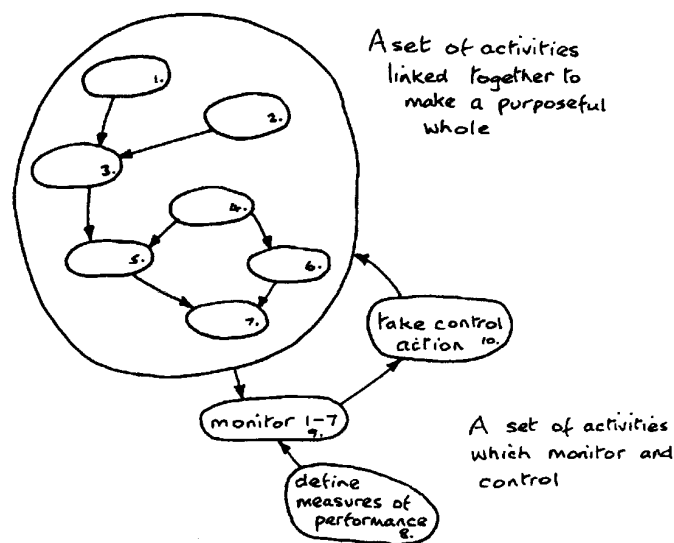


Figure 6.3. The form of activity models in SSM (Checkland and Holwell 1988: 15).

Before we start to discuss the content of our models, we will describe some general system concepts following the issues raised in **chapter 3** in order to be able to construct and explain the models. In modelling with SSM we have to make sure that the set of activities is linked together in order to make a purposeful whole (**figure 6.3**). SSM is ‘systemic’ in such a way that activities are described in a holistic way. We have to think in wholes. In connection with this issue Checkland and Scholes (1990: 18-19) have described the essence of systems thinking and related it to ‘emergent properties’, ‘layered structure’, and ‘processes of communication and control’. These three concepts clarify their meaning of the term ‘system’. The concept of emergent properties is described as being the properties which refer to the complex whole and which are meaningless in terms of the parts. The example given by Checkland and Scholes provides some help in the explanation of this concept. “The vehicular potential of a bicycle is an emergent property of the combined parts of a bicycle when they are assembled in a particular way to make the structured whole”

(1990: 19). It is evident that a bicycle chain only will not help us with cycling. We are in need of the other parts to assemble the bicycle and in order to be able to cycle. Checkland and Scholes also noted that the concept of emergent properties relates to existing layers in a hierarchy, which has been called 'layered structure'. "In the biological hierarchy, for example, from atoms to molecules to cells to organs to organism, an observer can describe emergent properties at each layer" (Checkland and Scholes 1990: 19). Furthermore, they argued that "the hierarchically organized whole, having emergent properties, may in principle be able to survive in a changing environment if it has processes of communication and control" (1990: 19). We noted earlier that we were interested in problems of pharmacy managers transforming their pharmacy into a customer-oriented pharmacy. Let us therefore present some examples from pharmacy practice and discuss some of their problems in terms of emergent properties, layered structure, processes of communication and control, and other issues relevant to SSM and related theories which were described in **chapter 3**. This means that we sometimes will have to 'travel' between different items discussed in SSM (and these related theories) in order to provide you with a sketch of wholes.

Root definition

A pharmacy manager produced the following root definition:

"a customer-relations improvement system (X) via content and attitude for the provision of information, internal organization, and stock control (Y) in order to achieve better quality of life for the patient, increased efficiency in the use of medicine, and reduction in the cost to society (Z)" (case 1004).

This root definition provides us with information about what the pharmacy manager would like to do: she would like to make a system able to improve her customer relations. The 'how' question was attributed to content and attitude towards information, internal organization, and stock control. Since this is rather abstract we are in need of more detailed information. We would have to ask her about a so-called 'lower layer' in which content of information can be translated into activities, for example, 'provide OTC consultation', 'improve information about prescription medicine', and 'organize project for diabetes type II'. At another lower layer, the sub-activities necessary to get the job done are described. For example, in order to organize the diabetes project she would 'prepare the consultation', 'educate specialized assistant pharmacists', 'perform medication surveillance', 'involve GPs', 'invite the patients', 'perform consultation', and 'pay attention to the patients' way of life'. Here we see the layered structure described before. We assume that these activities and the related sub-activities are linked in such a way that they would make up a purposeful whole. We did not test whether these activities and sub-activities were the only or best possible option in the light of the means Y, nor did we test

whether the activities and sub-activities were the best to achieve the aim Z as we have previously claimed (**chapter 3**) that there was no best way to organize quality. We aimed for a reasonable explanation of why the pharmacy manager selected this particular root definition and set of activities and why they were qualified as being successful or not. That there is no best way to organize quality is illustrated by some of the following examples. In these examples we see that what was experienced as a success by one pharmacy manager could be labelled as a failure by others.

Managers of various pharmacies participating in the activities of the KNMP National Children's Week and having a comparable outcome, were divided in the way they qualified the week. For example, the manager in case 254 qualified the week as being unsuccessful. He argued: 'It was a flop, although it was a good PR action. The whole afternoon the pharmacy was full with children. Well over 20 children were put make-up on. However, I did not give any professional advice. I am not a pharmacist for that.' The next time the KNMP selected a similar theme he would again participate, although he would invest less time and modify the content of the project personally. In contrast, the manager in case 1014, qualified the week as being successful. He argued: 'As a PR action it was very successful, over 200 children were put make-up on. The number of appointments was a bit low'.

In another example, in case 1031, the activity 'provide pharmacy brochure' was not realized due to delays caused by cooperating with stichting VNA. The design was compared by colleagues within the quarter group. However, the pharmacy manager noted that it was worthwhile waiting. The prototype was very good. The new brochure would soon be ordered. In case 1027, a pharmacy manager participating in the same brochure project as case 1031 also noted that the activity 'provide pharmacy brochure' was not realized due to delays caused by cooperating with stichting VNA. However, this pharmacy manager argued that he disliked the colours which were chosen by stichting VNA. His personal preference was different to the cooperatively-produced brochure. Consequently, he was hesitating about ordering the brochures.

Emergent properties

Here we see what Checkland and Davies (1986: 109) described as "one man's 'better' can be another's 'worse'." In terms of 'purposeful wholes' the pharmacy manager in case 254 determined that the activity 'organize Children's Week' did not link to the other activities. It was not a purposeful whole in relation to the other activities: in his perception they all linked to a professional contribution in order to secure the survival of the pharmacy (Z). Also, the other activities did affect the emergent properties of his customer-relations system (X). He concluded that a part of his system had failed, next time he would not perform the activity in the same way. This would affect his future operations. In the bicycle example of Checkland and Scholes (1990: 19) this person would, for example, conclude that a windscreen was not an appropriate part of his whole since his Y consisted of 'feeling the wind' in order to feel free (Z). Here, the pharmacy manager concluded that the Children's Week did not match with his root definition. For case 1014, the Children's Week was linked to the other activities which for him comprised a purposeful whole

together. The pharmacy manager expected the week to be a good PR-action (Y) in order to 'improve customer relations' (Z) and it worked accordingly. The emergent properties of the system had not changed; the bicycle still looked the same so to say.

In the other example in cases 1031 and 1027, we have two managers who were both involved in the same pharmacy-brochure project. We note that the disapproval in case 1027 was related to a specific aspect of this activity, namely the colour scheme of the brochure. He argued that he disliked the colours but failed to argue how relevant this was in the light of the other activities or the root definition. However, in terms of SSM we would have agreed with the pharmacy manager if he had explained that the brochure would not be a brochure anymore just by selecting these colours or that the function of the brochure in relation to the other activities and Z was somehow negatively affected. In the terms of Checkland and Scholes (1990), he would have experienced that the colour of the bicycle decided upon was important enough to conclude that the bicycle was not a bicycle anymore. The emergent properties of the whole would have been meaningless in this particular colour. However, we find it hard to believe that the colour scheme would affect the 'continuity of the pharmacy' (Z) in case 1027. In this situation he would have argued that the colour was vital in order to make the brochure a purposeful whole; for example, that with another colour more customers would be satisfied, and consequently the continuity of the pharmacy would be improved. The pharmacy manager did not discuss the contribution to Z; he introduced merely his personal preference rather than the function in relation with Z.

Weltanschauung

In addition, we have to say something about 'Weltanschauung' in general, and in particular about the 'Weltanschauung' of these pharmacy managers. Within SSM the core of the CATWOE is the pairing of the transformation process T and the 'Weltanschauung' W. Checkland and Davies (1986), in reaction to a note by Fairtlough (1982), acknowledged that in his earlier work (Checkland 1981) Checkland used eight different senses of the term 'Weltanschauung'. This was found to be rather confusing. They solved this problem by redefining three new Ws, namely: W₁, W₂, and W₃. W₁ is a device to help model building and that is all it is. W₂ and W₃ relate more directly to the problematical situation and were used for the purpose of analysis in this thesis. W₂ is about relevancy of purposeful activities in

the eyes of the pharmacy manager, W_3 is similar, but concerns a wider social reality.³⁸ Checkland and Davies (1986) added that it is well-known that one man's 'better' can on occasion be another's 'worse'. We should hence be aware of the fact that differences in what is perceived by pharmacy managers as being an improvement would exist. We note that this is not very new information, since Vickers (1965) mentioned that experiences from the past do influence our sets of norms today: "It is neither possible nor desirable that such a body or anybody should make value judgements otherwise than from within a social-historical situation, and about a social-historical situation" (1965: 101). Consequently, it seems obvious that managers with a different social-historical background may value similar situations differently.

However, within this thesis we are especially interested in what the contribution to the learning cycle is for the individual. SSM brings with it this idea of the learning cycle, meaning that each time round the cycle the world experienced is a somewhat different place. We hope to have learned something from our past experience. Within this current thesis learning could mean performing, adding, changing or even striking the intended activities. In principle, this learning process is never-ending.

In the first example above, we in fact see that the W_2 of the pharmacy manager in case 254 changed. Before, he expected that the KNMP National Children's Week would make a contribution to the Z 'survival of the pharmacy'. After the week the manager was not satisfied with the actual contribution to Z. He expected a more professional contribution instead of merely a PR operation. In addition, on the level of W_3 the pharmacy manager also changed: in similar projects he would modify the project in such a way that it had a more satisfactory contribution to Z. In future, projects would be shaped or re-shaped in such a way that they would match with his professional contribution in order to secure the survival of the pharmacy (Z). Consequently, we would expect this learning to affect future operations. In contrast, since the pharmacy manager in case 1014 was satisfied, the W_2 and W_3 did not change. The result was as he expected. Neither the taken-as-given assumptions relating to the relevancy of the activities or the assumptions relating to the wider

³⁸ In a more formal description, Checkland and Davies (1986: 109-115) defined W_1 as "that taken-as-given set of assumptions about the world which makes a particular root definition meaningful. The several versions of W_2 relate to the taken-as-given assumptions which render certain purposeful activities relevant in the eyes of the would-be problem solvers to improve a problematical situation. W_3 relates to the problematical situation which is itself set in a wider social reality. W_2 is thus similar to W_3 but narrower in scope." They advised us to use the category W_1 for the modelled world, 'below the line' of the seven-stage model. W_2 and W_3 should be used for the real world, which is 'above the line'. In this thesis W_1 was used merely as a tool to model the real world and will therefore not be described in our further analyses. We concentrated on the real world; in particular the W_2 , and additionally the W_3 were used in the analyses of cases 254, 1014, 1031, and 1027 below. For reasons of practicality, however, the term 'Weltanschauung' or 'W' has been used within this thesis to indicate that W_2 or W_3 had been discussed.

social reality changed. This purposeful activity was relevant in the eyes of the pharmacy manager in order to achieve the Z 'improve customer relations'. Within this context, it could be expected that he would also continue other forms of cooperation in a wider social reality. Since he was enthusiastic about the result of the cooperation we could expect him to participate another time again in the same project (W_2) or in another cooperation project with the KNMP as well as with other organizations (W_3) in order to 'improve customer relations'. With respect to the learning cycle he had 'learned' that participation is worth the effort in terms of this particular long term aim Z.

In the second example, we can see that the W_2 and W_3 of the pharmacy manager in case 1031 did not change; he was satisfied with the brochure in terms of the Z 'realize customer relations'. Again, with respect to the learning cycle, we would expect the pharmacy manager to have 'learned' to continue his contribution to the same project or another similar project in the light of his aim Z. However, in case 1027 we did not observe a change in W_2 or W_3 . The pharmacy manager argued that he disliked the colours. We described above that this argument would be sensible in terms of SSM if the colour had negatively affected the emergent properties of the system, 'the bike was no longer a bike', or a negative contribution to aim Z, *not* 'feeling free'. In terms of contribution to the 'continuity of the pharmacy' (Z) the pharmacy manager did not use similar arguments. Although he was not positive about this particular result of the cooperation we cannot say much about his participation in future. The pharmacy manager said nothing about participation in similar future projects of stichting VNA. However, according to our data we may doubt whether there had been a change of W_2 and W_3 . He mentioned that the selected colour of the brochure was merely not in accordance with his personal preference. Based on this argumentation we would therefore question a contribution to the learning cycle since he did not mention a change. He did not argue that his world had changed or that he would do the project in another way for future operations in order to improve the link with Z.

Formulation and use of the aim Z

Within SSM we now described some problems observed with respect to purposeful wholes, emergent properties and Weltanschauung. However, we have not yet raised the question of why the pharmacy manager intended to perform the activities. The answer should be in the Z of the root definition. Let us now go back to our earlier root definition so that we can discuss some problems with respect to the formulation and use of the Z in pharmacy practice.

“a customer-relations improvement system (X) via content and attitude for the provision of information, internal organization, and stock control (Y) in order to achieve better quality of life for the patient, increased efficiency in the use of medicine, and reduction in the cost to society (Z)” (case 1004).

Before, in **chapter 3**, we noted that Simon (1945) had described some well-known problems with respect to means and ends. He warned us of incompletely or incorrectly stated ends, the impossibility of complete separation of means and ends, and the tendency to obscure the role of time. In contrast, it was noted that Vickers was not a great fan of this means-and-ends approach at all. Vickers (1965) argued that establishment and modification of relationships through time is more important than the endless strive for goals and, in addition, no end or goal can ever be more than a means. In terms of SSM, therefore, we could at least expect problems with the formulation of incomplete or incorrect Zs, some kind of overlap between Ys and Zs, and that Xs, Ys, and Zs could change over time. However, the change over time would be rather interesting, especially if the change related to the learning cycle of SSM (you are reminded that we adopted time as an important constituent in our design; compare **chapter 2**). We would therefore not expect problems but insight into the learning cycle with respect to time.

Although it is hardly possible to judge whether the formulated ends were incomplete or incorrect, we did see that in our example of Z ‘better quality of life for the patient, increased efficiency in the use of medicine, and reduction in the cost to society’, the pharmacy manager in case 1004 argued a year later that her Z was in no way achievable. She argued that her Z was formulated too abstractly and vaguely. In terms of emergent properties we would be interested in the relation between Z and the activities. Does Z provide us with an achievable goal which is related to the linked activities of the model which together make up a purposeful whole? The modelled activities were, for example, ‘provide OTC consultation’, ‘improve information about prescription medicine’, and ‘organize project for diabetes type II’. These activities were the parts to make up the whole: a transformation process T in order to achieve Z. If root definition and activities made up a purposeful whole together, we could assume that the implementation of T, by performing the modelled activities, would change the pharmacy in the direction of Z. If we want to assess this transformation T, we need criteria for monitoring this change. In Simon’s terms (1945) this would be problematic since the formulation of Z seems rather incomplete or even incorrect. However, we would argue here that we prefer the arguments of both Vickers (1965) and Checkland and Scholes (1990). Following Vickers (1965) we would argue that the establishment and modification of relationships through time is more important than the endless strive for goals. In this current example, we can actually see that change and learning is at stake. Following Checkland and Scholes (1990) we would be in the learning cycle if, as in case 1004, the manager concluded

that her past Z had been rather abstract, vague, and unachievable. In terms of emergent properties we would argue that the link between activities and Z is vital. If there is no link, then either the Z or the activities are meaningless. In case 1004 we can in fact see that, even although all modelled activities were performed, the pharmacy manager experienced her Z and related criteria as being rather useless. In the example of Checkland and Scholes (1990) the person would, for example, conclude that cycling by feeling the wind was a good thing to do but *not* in order 'to feel free' (Z) because this aim was too vague and hence useless for her purpose. Furthermore, she would not know how to monitor the feeling of freedom. This person could, for example, formulate a more practical Z like: cycling by feeling the wind in order 'to improve my physical condition'. The improvement of her physical condition would then be monitored by the average speed of her daily home-to-work cycle distance, for instance. This would make us conclude that a part of the initial model was rather meaningless in the real world of the pharmacy manager. It seems that the performance of the modelled activities in the real world did not suffer from this problem in the model. We could agree, but not before showing that there is another problem: the problem of control and control action. In other words, has the pharmacy manager made sure that she knows where she is going?

Formulation and use of criteria for effectiveness

In this section, and also later in the sections about criteria for efficacy and efficiency, the term criteria will be used. The term criteria refers to norms as well as to measurements.³⁹ Some of the problems in the use of the criteria for effectiveness relate to a well-known problem described in the systems theory of control of De Leeuw (1994: 69-72). De Leeuw noted that with control we could expect the influence of the environment to be present, and, consequently, it is not very easy to determine if the realization of goals is the partial or complete result of the control. It does not mean that the control did not function if the objective was not realized, and, likewise, if the objective had been realized it is questionable if this were thanks to or in spite of the control. Following Simon (1945), this appears to be a more operational problem: how we can actually support decision-making in a pursuit of

³⁹ Checkland and Scholes (1990) do not provide us with a clear distinction between norms and measurements. Although they distinguish 'measures of performance' and 'monitor' and it is clear that the 'monitor' can only take place with information from the 'measures of performance' and the activity model, they fail to give a description of the both terms useful in this context. In relation with this issue, Wilson (1984: 251) argued: "Assessment of the control information ... enables the controller to direct control action to whichever activity is unsatisfactory. The decision on whether or not to take control action would be dependent upon the norms for performance set for each activity." Consequently, we would argue here that norms are the measures of performance with which a certain activity, set of activities or model can be judged. The measurements or monitor instruments are the instruments which visualize or monitor to what extent the norm has been achieved.

ends. He determined some problems in this context: ends are often incompletely or incorrectly stated, the complete separation of means and ends is impossible, and there is a tendency to obscure the role of time. We also noted that Vickers (1965) distanced himself from this perception of means-and-ends. Vickers preferred “standards or norms, rather than goals, and the focus on goals is replaced by one on managing relationships, according to standards generated by previous history” (Checkland and Holwell 1998: 47). However, we stress that it is not easy to define good norms and monitor instruments for effectiveness. In connection with this issue, we have to keep in mind the warning of Schön (1983) that, it would be hard to diagnose signs of trouble, especially how to find out what is wrong. We observed a similar problem at the pharmacy managers. For example, although the norm ‘a good score on a telephonic customer-satisfaction study’ seemed a good norm for monitoring ‘customer satisfaction’ (Z), it was still hard to be sure whether the realization of goals was thanks to or in spite of the control. Moreover, if we unravel the Z of the pharmacy manager in our previous example (case 1004), we see that it was based on some meso issues in the pharmaceutical sector: quality of life, efficiency in the use of medicine, and reduction in the cost to society. Compare her aims with, for example, the definition of pharmaceutical care that was given by the Special Interest Group (SIG) for pharmaceutical care of the KNMP/WINAp: “pharmaceutical care is the care of the pharmacist and his staff for the individual patient in pharmaco-therapy to improve the Quality of Life of the patient” (Venema 1998e: 738). In discussions on the meso level between authorities, KNMP, wholesaler, industry, patients’ association etc. it has been suggested that the community pharmacy sector as a profession should contribute to the quality of life with efficient use of medicine at least cost (Wieringa *et al.* 1998). It is clear that this discussion is taking place on the meso level. These aims represent a strong ethical involvement of the profession in the quality of life of the patient. Within this definition the profession does more than ‘just’ provide the medicine. That is indeed very positive; but is it usable in terms of the managerial activities of the individual pharmacy manager? We would argue that it is hard to transform these goals into tacit actions; if formulated like this they would hardly be usable within the individual pharmacy practice. How would we determine what a better quality of life for the patient consists of? What is better quality of life? Even if we knew what it meant, how would we define a norm and a proper measurement? The same goes for ‘increased efficiency in the use of medicine, and reduction in the cost to society’, though, it should be noted that the pharmacy manager in case 1004 did model norms and related measurements. She formulated ‘an improved use of medicine assessed in a longitudinal-comparative study’, ‘an improved provision and use of medicine for diabetics type II’, and ‘an improved provision and use of medicine for COPD’ as norms for effectiveness in order to be able to monitor and take control action if necessary. What she did is translate the meso goal to criteria on the micro level,

especially the diabetes and COPD. However, during the year she did not perform any of the modelled measurements and consequently did not take control action. She argued that the norms and monitor instruments were not used due to the 'vagueness of the criteria'. She added that the performance of a longitudinal-comparative study was 'in no way achievable'. Next time she would change the measurement related to the norms. In order to monitor the improvement of the provision and use of medicine for diabetics type II and COPD, she would agree with the assistant pharmacists' proposal, checking patient compliance via assessment and description of changes in the medication and asking patients for an explanation.

If we compare case 1004 with the description of Schön (1983) we have to note that this so-called 'reflection' is rather special. Schön (1983) argued that managers reflect on their reflection-in-action seldomly. However, we could easily argue that this itself is a part of the layered structure of the modelled world of SSM. This structure would impose the possibility of another monitor: the monitor of the monitor. Checkland and Scholes (1990) referred to this structure with the term 'layered structure', describing a more general feature of systems which can be, for example, sub-systems of other systems etc. However, here it is somewhat special since the structure was not modelled but only observed in the real-world behaviour of the pharmacy manager; the monitor activities were evaluated and control action was performed. The pharmacy manager changed her monitor instrument into an instrument more adequate for her purpose. Although the modelled monitor activities were not performed, it should be noted the learning effect for this pharmacy manager seems to be high since she would not use these criteria next time. She had changed her model, so to speak. Following the example of Checkland and Scholes (1990) she had concluded that the combined and assembled parts of her bicycle did not create a bicycle and decided that her bicycle had to be assembled from other parts. Next time she would do it in another way: we would expect this experience to have affected her purposeful action for future operations. Next time this particular Z and related norms and monitor instruments would not be used by this pharmacy manager. It is however remarkable that these were formulated in the first place.

In many other cases there was no intervention on the basis of criteria for effectiveness; most of these criteria were met, although the quality of these proxies was doubtful. The linking of criteria with Z seemed rather loose, open to misconstruction or misinterpretation. Nevertheless we stress that it is hard to find workable criteria. For example, in case 043, the Z 'customer relations' was monitored with the norm 'stability of the number of prescriptions'. This confirms the relevancy of the statement of Schön (1983) that it is hard to assess how we can find out whether something is wrong; even when the monitor is performed. In the situation of case 043, we could as well argue that other factors influenced the achievement of the

norm. For example, a good contact with the GPs, lack of alternative pharmacies for the patient (in a small village), barriers visiting another pharmacy ('go to another pharmacy') could also have resulted in the 'stability of the number of prescriptions'. It should be clear that we have not got round to any fixing of the problem. Following Simon (1945) we would say that the connection between means and ends is unclear. In other cases we see that achievement of the norms for effectiveness was visualized in using 'hard' measurements like counting the 'number of patients' or the 'number of prescriptions', and sometimes measurements like 'customer-satisfaction studies', 'turnover', or 'profit'. Fewer measurements were 'soft'; these included 'reactions of customers', 'reactions of the GPs', or a 'good atmosphere in the team'. Two statements should be made here. The first statement is: soft measurements 'just' provide impressions of the achievement. For example, in case 1028, the pharmacy manager intended to 'improve the information' and monitor this with a 'personal impression'. We could argue that a personal impression would not be enough to conclude that the information was improved. We would then be in need of harder data, for example, the number of contacts at the counter, the nature of questions at the counter, the time spent on communication at the counter etc. However, another second statement could be made: soft measurements provide a rich impression of the achievement; richer than, for instance, any customer-satisfaction survey. For example, in case 160, the pharmacy manager argued that he was not interested in the results of a customer-satisfaction study. That would turn out to be the creaking door and the parking space. "I know that, I have seen enough of my colleague's results." It should be stressed that we have no preference for either 'hard' or 'soft' measurements. It is assumed that both measurements could be applied and yield relevant information. It should be recalled that Vickers (1965) supported this idea by arguing that with value judgements of appreciation we have no external 'objective' criteria. The correctness cannot be proven. In this present thesis we were more interested in the usability of the criteria. If we look at the data in this way, we see that it is hard to define usable criteria especially in the light of the aim Z. Pharmacy managers are in need of usable norms and proper measurement tools to visualize the achievement of such norms, and by which the purposefulness of their actions may be improved. We also note that the support of the KNMP, for example, is poor with respect to these micro issues. Although they are a good source of new ideas, organizations like the KNMP fail to give proper support in formulation and measurability of goals for individual pharmacy practices with respect to the customer mix. In the other areas of the triangle, represented by the product and the process mix, support in formulation and measurability of goals given by the KNMP, as well as by many other organizations, has been vividly present in the pharmaceutical sector for many years. Individual pharmacy managers are not helped with meso goals especially not if they do not know how to translate this to their pharmacy practice. They are in need of goal formulation and related evaluation applicable at their own pharmacy.

Origin, formulation and use of Y

As we have now described some problems in the formulation and evaluation of goals within pharmacy practice we may as well turn to the lower layers of the model: the activities and the sub-activities with which the manager intended to achieve his or her aim Z. Here we address the 'how' question: how does the pharmacy manager intend to achieve his or her goal? Within this issue we discuss the modelled Y, but mainly the related activities and sub-activities at different layers in the model. It should, however, be noted that the 'what' question will also remain an issue at stake. The modelled activities will be evaluated in terms of emergent properties: what was the contribution of this particular activity in the light of the longer term aim Z. This may lead to the conclusion that a certain activity was not a satisfying contribution to Z, which will in turn affect the 'what' of the activities. As we mentioned earlier, in order to keep abreast of reality, models have to be adapted all the time. With the help of criteria for efficacy, the manager is able to change the initial model and the composition of the activities whenever it is necessary to improve the connection between the parts and the whole. However, before we discuss the formulation and use of criteria for efficacy, we would be interested in the source of their ideas. In practice, pharmacy managers gain their ideas from various sources. In the following example we can see what factors might influence the choice of activities.

For example, a pharmacy manager in case 254 noted: 'I learn about developments in the environment by media (newspaper, tv, radio), the consumers' magazine, colleagues within the partnership, colleagues outside the partnership, Pharmaceutisch Weekblad (KNMP), family and friends as a sounding board, assistant pharmacists and sales representatives. In addition, I choose activities and developments in the environment that have a clear added value with respect to pharmaco-therapy. I like to work on pharmaco-therapy.'

As with case 254, a mix of internal and external sources was used in other pharmacies (figure 6.4). A main source for the intended activities was *external*, and was mostly comprised of general information about the national environment. The issues mainly covered technological and market change. It was remarkable that only a small number of pharmacy managers used the results of studies done among their own customers, for example, using a neighbourhood customer-satisfaction study as a trigger for change.

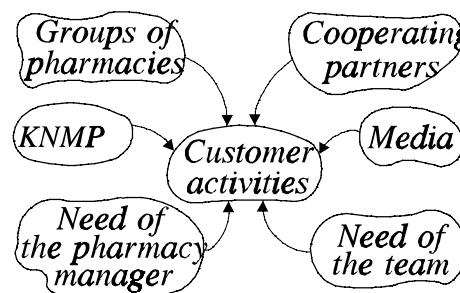


Figure 6.4. Sources of customer activities used in the activity models.

However, most pharmacy managers monitored what was going on in the sector via pharmaceutical literature and general media. We stress that the KNMP had a main role in the provision of information. Pharmacy managers received some of their information via national activities, such as the national pharmaceutical journal *Pharmaceutisch Weekblad*, direct mail, etc., and via regional activities, such as department meetings, quality circles, etc. Other sources of external information originated from cooperating partners. Various partners named were: GPs, hospitals, the management of homes for the elderly, the management of nursing homes, insurance companies and software houses; all these were used as sources of ideas. Another source of external information was the group in which the manager participated. For example, VNA/SAL pharmacy managers received a substantial part of extra information via central activities like meetings, study groups and newspapers. A source of *internal* information came from the personal needs of the pharmacy manager and the needs of the team. Both sources were very frequently used. Personal preferences consisted of pleasure in doing things, as well as a feeling of unease with the present organization, which stimulated the change.

Now we have said something about the *origin* of the activities, we have to say something about the *nature* of the activities also. What kind of activities did the pharmacy manager model? Before we describe these it should be clear that we will not say anything about the quality of the change with respect to the number of activities. Some pharmacy managers planned not more than five activities, others planned around 20 activities. We argue that many reasons could cause this variation. For example: the pharmacy managers with many activities could have been more active, could have had a larger time horizon, or were more used to planning and working deliberately. The others could have made more intensive use of emerging activities. We stress here that the number of activities gave no information about the magnitude of the change to Z. The magnitude of change in the model depends mainly on the detail with which the activities were described, for example, how much detail about the plans and related learning experiences was given by the pharmacy manager. It should be stressed that we might well have missed some activities with the modelling; among many others, Bertalanffy (1968: 176-178) has argued that “the main reproach against models ... is that of oversimplification.” We have to be honest: in the examples that we are about to give we can in fact see that we have missed some activities of the real world. These activities were, apparently, not visualized in the model, but might have been involved and could have affected the magnitude of change.

With respect to the variation in the number of activities a pharmacy manager noted: ‘Not all customer activities performed were recorded in the study, a lot more has happened on the way than was described here.’ (case 254). With respect to the quality of change it can be noted that most pharmacies in the Netherlands will have participated in the organization of the KNMP

National Children's Week, derived from the results described (Noort 1997). However, some pharmacy managers did not mention it in their plans. For example, case 1030 did not plan the Children's Week in the activities. However, in relation to the activity 'perform direct mail' he noted that he did not perform direct mail. Only some exceptions were made like in the KNMP National Children's Week: he sent 1200 letters; probably more than anyone else. In addition, in case 160 the pharmacy manager noted: 'I was very surprised to read that activities such as BOS/MBJ (Decision Support Systems/computerized Medication Surveillance Journal), EPD (Electronic Pharmaceutical Documents) and stock control were allowed to be planned. I thought that these activities were not allowed in the list. These kinds of activities would have increased my list substantially. A year later, I would have been able to show a beautiful list of plans that had been realized.'

As was promised above, we will now give a short impression of the *nature* of the modelled activities. In the modelled change to the customer mix, most customer activities were translated into patient activities. This means that the activities primarily could be used in health-care organizations. Most activities discussed in the field and stimulated by the KNMP were adopted. The pharmacy managers often took up national and regional activities. Many pharmacy managers intended to participate in national activities like the KNMP National Children's Week and WHAM questions.⁴⁰ Regional activities of the quality circles of the KNMP were also mentioned very often. In addition, pharmacy managers mostly obtained specific brochures from national operating organizations (e.g. KNMP, S&L, Pinpoint, SUI, NIGZ) rather than producing brochures themselves. VNA/SAL pharmacy managers also modelled specific activities related to stichting VNA and SAL Apotheken. For example, some VNA pharmacy managers were working on their VNA certification and some SAL pharmacy managers were preparing the 24-hour service of SAL in The Hague.

Projects with groups of patients, oral information, written information, and computerization were the most popular intended activities. Projects with groups related mainly to COPD, diabetes, and children, and occasionally to nutrition. Oral information related mainly to self care WHAM questions and consultation, and occasionally to information for incontinence and lectures. Written information related to specific information in brochures and first dispensing of medicine, and to general information in a pharmacy brochure and a pharmacy newspaper, and occasionally, to newsletter, direct mail, illuminated-news trailer, and instruction leaflets.

⁴⁰ This is remarkable because, the interviews were conducted shortly after a study of the Dutch consumers' organization *Consumentenbond*. The results showed that OTC-medicine was provided with too little information; WHAM questions could help to improve this situation (Graatsma 1996). After the results were published, the KNMP among others, stressed the importance of the use of the WHAM questions again in their communication campaign (Peeters-Udding 1996). Many pharmacy managers seemed to have followed this advice.

Computerization related to medication surveillance, BOS/MBJ, stock control, and occasionally to EPD or EDI (Electronic Data Interchange) with the GPs. In addition, a variety of other subjects were mentioned. For example, improvement of privacy at the counter and/or a separate room for private conversations, OTC (Over The Counter) assortment, organization of labour, and occasionally activities related to care protocols, homes for the elderly, and nursing homes. As was mentioned before, most activities concentrated on the patient. However some activities related to customers in general, and these mainly took place at VNA/SAL pharmacies. These were activities that could very likely be used in organizations other than those to do with health care. Most popular were customer studies, registration of complaints, registration of mistakes, delivery at home, and PIN automation, and as an addition to these, it was planned to introduce coffee in waiting room, video in waiting room, music in waiting room, and a 24-hour service.

If these activities are to be performed in the real world, it can be expected that not everything will be implemented equally smoothly. Pharmacy managers would have to find tricks for problems that occur before, during or even after implementation. In this study we were interested in the problems as well as the tricks used by pharmacy managers to implement their modelled ideas. With respect to performance the pharmacy managers were asked about the problems and they were asked about what they had learned from the implementation process. It should be said that we encouraged the pharmacy manager to mention any problems. For the researcher, problems are interesting for the purpose of analyses. It was argued above that one of the main questions related to problems in the organizational change to the customer mix. More problems would yield extra insight in this process of change. Consequently, most activities did have related problems. In addition, for the pharmacy managers, it was important to mention their problems because they could learn from the other respondents. After the interview, each SSM interview respondent would receive a full report of all interviews. This meant access to the modelled plans and ideas of colleagues, and, if everybody was open in mentioning problems, the learning effect would be greater than if this openness were not present.

Formulation and use of criteria for efficacy

After sketching some of the more general features of the modelled activities in pharmacy practice we will now go back to systems theory and SSM, and following the issues raised in **chapter 3** unravel some of the problem 'knots' in the implementation process. We remind you that the term criteria refers to the norms, the measures of performance by which a certain activity, set of activities or model can be judged, as well as to the measurements, the instruments which visualize or monitor to what extent the norm has been achieved. We argued before, with the help of Checkland and Scholes (1990: 19), that "the hierarchically organized whole,

having emergent properties, may in principle be able to survive in a changing environment if it has processes of communication and control.” Processes of communication and control are thus necessary in order to survive. In addition, De Leeuw (1990) noted that evaluation is a minimum requirement for effective control. Checkland and Scholes (1990) have defined an even more specific monitor requirement: the monitor should logically be judged on efficacy, effectiveness and efficiency. In relation with this judgement, some problems were described in **chapter 3**; such as with the formulation of criteria. Vickers (1983) warned us that cultural and personal criteria are very complex. However, we are in need of criteria here. He also argued that we could expect problems with evaluation: it was hard to formulate a norm. Furthermore, he described difficulties with comparability of disparate variables, uncertainty, and the difficulty of time and added that value judgements of appreciation cannot be proved correct or incorrect, since there are no external, ‘objective’ criteria. We saw above that in SSM a similar statement was made with respect to the ‘Ws’ or ‘Weltanschauungen’: ‘better’ could as well be ‘worse’ for different individuals. In addition, Schön (1983) has warned us that the use of algorithms generally has failed to yield effective results in business management. Here we have to accept that we are in a swamp of confusing messes where algorithms can hardly be used. It is hard to diagnose signs of trouble within an organization. According to Schön (1983) the manager faces a twofold problem: how to find out what (if anything) is wrong, and how to do so in a way that enhances rather than reduces his ability to fix what is wrong, We are warned.

Since we would like to say something about the modelled customer activities and some of the related actions, we could just as well use the criteria for efficacy in our description. Let us start with an example in order to show how easy and useful the application of criteria for efficacy can be.

In case 1029, the oral-information activity ‘implement KNMP self-care standards’ was monitored via ‘pharmacy manager looks and listens, AMP results of mystery guests (WHAM-questions not applied yet, applied later), and discussion of the AMP results during discussion of progress’. He argued that ‘the AMP results showed that WHAM questions still were not applied and that the subject ‘attitude’ was good and the subject ‘content’ was not.’ He made an intervention. ‘During the discussion of progress we determined how many of the assistant pharmacists had read the counter folder. Some assistants had not read it.’ He decided that in a situation of full completeness, assistants would make self-study at home if they did not study it before. If this had no effect: possibly he would discuss WHAM-questions and related OTC-subjects at the discussion of progress.

Following SSM, this pharmacy manager did exactly what we would have expected him to do: in using the criteria for efficacy he had monitored the outcome of the actions. In this case, he had to conclude that the norm, the use of WHAM-questions by the team, had not been achieved; the situation had not yet improved. A main

instrument for determining this result was an external audit with so-called ‘mystery guests’ (assessors pretending to be real customers). Consequently, he changed the activities and related actions, and prepared to wait again and see what the effect was; measured by using these mystery guests. Each time we go around the learning cycle: the manager models activities, performs them, measures the result, compares the result with the norm, and makes alterations if necessary etc. Although the example above, in case 1029, seems rather straightforward, in other cases problems with the usability of the monitor results were present. In other words: it might be hard to find usable criteria to which one can really respond if something is the matter. Following Checkland (1981, 1990, 1998), Vickers (1965, 1983) and Schön (1983), it would have been difficult or even impossible to value the sensibility of the performance and control since we would not find any hard criteria which are useful for this purpose. We will, however, try and say something about the interaction between activities, criteria and control action using the learning cycle of SSM. We have argued that in terms of this learning cycle we hope to have learned something from our past experience which in turn might be useful for future operations. In addition, we have said that learning could mean performing, adding, changing or even striking intended activities, and that in principle, this learning process is never-ending. In the example of case 1029 we could actually see that the manager was learning from his past experience. In another example of the same case (1029) we will now show that the monitor itself was evaluated. Following Schön (1983), this monitor seems rather special. Schön described reflection-in-action as a reflective conversation with the situation. Some of the problems he described include the process of learning from experience and the effect of the learning on the way in which organizational problems are set and solved. He added that managers reflect on their reflection-in-action seldomly. However, within SSM the layered structure itself would logically impose another monitor possibility: the monitor of the monitor.

In case 1029, the written-information activity ‘produce interaction brochures’ was monitored via ‘collection of impressions at the check of prescriptions and the daily practice that brochures are handed out’. The pharmacy manager noted that a collection of impressions and daily practice was too vague. The intervention was that he decided to use medication lists with a description of the signal settlement; comparable with the EPD.

These modifications of the monitor activities based on the practice of monitor actions, were done in a similar way to how it was meant in SSM; in the learning cycle we would attribute a different meaning to the same criteria over time. Here we are: observing pharmacy managers which change their modelled world on the basis of the real world because monitor instruments were found to be too vague or unnecessary because of better instruments being available. The Weltanschauung changed for case 1029. He argued that the criteria were too vague in this situation. We also would expect the pharmacy manager to have an increased alertness for the

formulation and use of monitor instruments in general. We should note that on the basis of the available data we are not sure about this. Nevertheless, we would doubt the presence of a real norm in the new situation. Although the manager was technically able to monitor the issue of the brochures by means of the medication lists, he did not, for example, describe the numbers of brochures to be handed out. In this particular instance, improvement in the monitor is unsure. However, according to most of the material presented so far, we would expect the formulation and use of criteria for efficacy to be rather straightforward. In contrast, in the following examples we see that learning with the use of criteria is not always so easy for the pharmacy manager.

In case 160, the oral-information activity 'increase the number of private conversations with the patients' was monitored via the norm 'positive impression of the pharmacy team and positive reactions of the patients'. However, he noted: 'I have positive reactions, but what should I do with them?' He did not intervene and argued: 'I have done the best I could, and it works.' In case 189, the project activity 'organize KNMP National Children's Week' was monitored via 'spontaneous reactions of the patients and study KNMP results'. She noted that the KNMP overemphasized favourable findings. 'The results differed from our own experiences and the experiences of the colleagues.' The local results were less positive. She argued that her own experiences and the experiences of the colleagues were more important than the KNMP findings; no intervention was made.

We see that the pharmacy managers in the examples have made a proper measurement but experienced another problem: what to do when the norm is achieved? It does appear that the norm is not very usable. In case 160 we are not sure what has been learned. Although the manager doubted his own norm, there was no argument for not using these or similar norms for future purposes. In fact, we could say that his norm, the positiveness of impressions and reactions, did not provide him with the right sort of information to make decisions for control action. The norm was useless in terms of intervention. Although it seems rather harmless, the pharmacy manager had failed to argue why he thought the private conversations worked. There was seemingly no problem at all since the result was positive anyhow, and the norm was achieved. The measurement would have been more dubious if there had been no or negative reactions and he had concluded that 'I did the best I could, it works' in spite of this. In case 189 the pharmacy manager also was not satisfied with the result of the monitor. Differences were observed in the outcome of various measurements for efficacy. She argued that her own experiences were far more important than the national results of the KNMP. We see that she skipped one of the measurements because it did not correspond with her perceived reality and she introduced a new measurement: her own experiences and those of local colleagues. Along with her colleagues, she valued the success of the activity far more negatively than the KNMP. The results did not fit with her local situation. In contrast with the first example, case 160, we see that the pharmacy manager in case 189 presented

arguments for why she thought the measurement (the KNMP findings) was not a success. In terms of the learning cycle we would expect her to rely on local measurements with similar projects next time and formulate a related norm. In the following example the situation was much more questionable. The manager decided not to perform some monitor activities. We would seriously doubt the purposefulness of the action.

In case 138, the written-information activity 'produce pharmacy brochure' was to be monitored via 'reactions of the customers and the taking of more than two brochures per day'. The pharmacy manager argued that he had watched the reactions of the customers, but there were no reactions. In addition, the number of taken brochures was not measured. He had the feeling that: 'If the brochure is ready, the process is ready. We inform, that is good enough.'

With respect to case 138 above we note that the (absence of) control and control action cannot be explained in terms of the purpose 'customer relations' (Z). The manager decided not to assure himself whether and in what way the action made a contribution to Z in the real world, although he modelled two criteria for the activity. We would argue that he is not in the position to conclude that the brochures did work. The fact that there were no reactions could have been an indication that the mechanism underneath the activity had failed, or even that it had worked. Nevertheless, we do not know. There is no norm in the formulation of 'reactions of the customers'. It is evident that reactions may have various value judgements. In deciding not to measure the number of brochures either, he was relying on his feeling only. We introduce Checkland and Scholes (1990: 19) again who argued that "the hierarchically organized whole, having emergent properties, may in principle be able to survive in a changing environment if it has processes of communication and control." Processes of communication and control are thus necessary in order to survive. In contrast we note that this pharmacy manager did not have a proper evaluation mechanism. According to De Leeuw (1990) the minimum requirement in exerting control was missing. We note that his feeling might have worked very well in this situation, but might just as easily have failed. The main thing is that we do not know anything about purposefulness of the action. In this situation the absence of evaluation seems rather insensible. He had no other instrument to monitor the success of the activity other than the performance of the activity itself or the assumed logic mechanism under the activity. Schön (1983) warned us that it would be hard to find 'signs of trouble'; this pharmacy manager reacted to this difficulty by ignoring his own norms and related measurements. We stress that he is not sure where he is heading. The actions could just as well have been successful as useless.

Above we discussed some of the major problems observed at community pharmacies. We showed that pharmacy managers experienced problems with the formulation of the aim Z and finding usable norms and measurements for effectiveness. A more

general aim Z and related norms for effectiveness expanded the domain and consequently covered more activities. It was however less usable within the individual pharmacy practice for facilitating control action. Conversely, many pharmacy managers did formulate proper norms for efficacy, performed measurements, and related control action; they learned from their work and improved it accordingly. Nevertheless, others experienced problems with the criteria for efficacy. A main problem was: 'What to do with the result if a measurement for efficacy was made without having a usable norm?'. Not all managers performed control action to manage such situations. Another problem was that some pharmacy managers did not monitor their modelled activities at all. We would argue, following Checkland and Scholes (1990), that this is a rather insensible thing to do if we want to survive.

Formulation and use of criteria for efficiency

Many pharmacy managers did formulate and use norms with respect to efficiency in a rather proper way.

In case 1027, the criterion 'perform feasibility study on the financial repercussions of reconstruction' was used. As a consequence of measures by the authorities, the reconstruction was postponed. The pharmacy manager argued that he perceived the 5% or 10% reduction on purchase, or alternative distribution channels like hospitals as threatening his position. He noted that he was experiencing financial barriers. It was unsure what would happen in the coming years. The pharmacy manager noted that he needed more time to consider the issue more thoroughly. He would wait and see what would happen in the next half year or year.

This pharmacy manager changed his model. The expected financial consequences of the measures by the authorities were so serious that he postponed the idea of reconstruction. As a result, the feasibility study for the reconstruction was also skipped. In other cases it was sometimes hard to find workable criteria. In some cases there was no clear norm. For example, in case 001 it was hard to determine whether the norm 'available time of the pharmacist' was exceeded or not. Again, this confirms the relevancy of the statement of Schön (1983) that it is hard to assess how we can find out if something is wrong. We again have not got round to any fixing of the problem. In contrast, the norm 'remain within budget', used by the budgeted SAL pharmacy managers and some VNA pharmacy managers, was much clearer in this context. Nevertheless, in some cases no norm was formulated. Pharmacy managers argued that they would perform the modelled activities anyhow, regardless of the cost, because the cost was very low, or because the money had been put aside already. Again, as with the criteria for efficacy, we would argue, following Checkland and Scholes (1990), that it is a rather insensible thing to do if we want to survive. With these latter results it does appear that the pharmacy manager is profligate with respect to money. However, we note that some of the modelled

activities did not have a major financial impact. This nuance is reflected in the statements made by pharmacy managers.

For example in case 263, no criterion for efficiency was formulated. The pharmacy manager argued that money does not matter with the modelled customer activities. The cost is very low, for instance, the plasticized duty roster costs 0.10 Dutch Guilders per piece.

However, we may find these results somewhat peculiar in the context of **chapter 3** and **chapter 5**. In these chapters it was suggested that pharmacy managers had a firm grasp on the financial situation at the pharmacy. Although *inconsistency* was observed in the process mix, the results for *action* showed that financial actions were performed to a considerable extent. In terms of the modelled customer activities, we may well doubt the firm grasp of the pharmacy manager with respect to efficiency.

Were these experiences in using SSM in any way new? If we look at most applications of SSM we can, in fact, see that the studies as a whole represent a process of learning (Checkland and Scholes 1990: 271). This is not surprising since SSM has its roots in action research. Miles and Huberman (1994: 9) argued that in action research “the researchers, with local help, design the outlines of a ‘field experiment’. The data are collated and given to the ‘activists’, both as feedback and to craft the next stage of operations.” Within this action research mode Checkland and Scholes (1990: 16-17) had used hard systems engineering in messy problem situations and concluded that it failed. Consequently, SSM emerged as an alternative in which researcher and ‘problem-owner’ were entwined in order to seek accommodations for a messy problem situations. The empirical descriptions contained a process of learning: researcher and ‘problem-owner’ tried to improve the clarity in problem situations. However, in terms of formulation of root definition and criteria

in practice, little attention was paid to descriptions of what was problematic.⁴¹ The researcher as an expert in developing or using SSM was vividly present in these processes. We assume that eventual modelling problems were solved straight away, because of the continuity in this contact. During the process, for example, the researcher helped to formulate a usable and consistent model, such as root definition and related criteria. We think we are correct in assuming that the expert view was used in their case descriptions, without it being seen as problematic. Although the issues were discussed elaborately in a theoretical sense, Checkland does not provide us with much information about the problems of formulating a Z for the root definition and the related criteria. In addition, it is remarkable that none of his material was analyzed in terms of emergent properties. In this thesis there was some discontinuity present: the researcher's role was more observer than participant, and, in addition, there was a time gap of a year between the first and the second SSM session. No modelling help for the pharmacy manager was provided in between these sessions. We assume that this present thesis seems in some ways also related to the traditional model defined by Miles and Huberman (1994: 47), although we took SSM very seriously. This model "differentiates expert researchers from researched-upon 'informants'." As we could expect, a year later, the differences between the model and the real world were fairly large. Therefore, problems with, for example, the formulation of the aim Z, had become enlarged and could more easily be observed. We assume that, within more classical approaches of SSM such problems would have been solved in the modelling process. In this thesis we have shown that, somewhere between the action research model and the traditional research model, SSM can also be used for the description of a learning process.

⁴¹ Let us, for example, take a look at some of Checkland's texts describing the modelling process of root definitions. In the example of Airedale Textile Company, when SSM was in the developing stages, Checkland produced a root definition for this case and added: "This was the equivalent of what would now be called a root definition although that concept had not been formulated at the time of this study" (1981: 171). In his next book with Scholes many cases were described but the formulation of root definitions seemed rather unproblematic: "A number of detailed models were built from root definitions, and these were used in further interviews to shape discussions with managers in the sector. These discussions led to further ideas for relevant systems and new root definitions were formulated" (1990: 158), or even more straightforward: "At a project meeting many potentially relevant 'relevant systems' were discussed. ... Eleven root definitions were formulated and modelled" (1990: 194-195). They continued to argue that "Technically within SSM, however, there is nothing wrong with root definitions of this type. As always what is important is that those formulating them should be doing so consciously, aware of their nature and pitfalls, and mixing them with other choices" (1990: 198). In his latest work with Holwell, Checkland has argued thus: "Treating this [mission statement of the Information Department] as a root definition produced the model shown in Figure 7.2. ... Next some models relevant to the laboratories' role in the company ... were presented. These models were discussed, argued over, modified and commented on, in small groups." (1998: 179-180).

The modelled activities showed that pharmacy managers rely heavily on existing structures rather than inventing new ones. The role of the KNMP was very important. Many of the activities or suggestions were directly adopted from the KNMP. In addition, material and services from national operating organizations were used. VNA/SAL pharmacy managers received extra activities and suggestions via the support structure of stichting VNA or SAL Apotheken. Since we have discussed the aims as well as the means for achieving the aims and related control and control action, it now seems time to discuss the role of the support structure. What was the role of the support structure within the organizational process of change?

We mentioned earlier that many activities of VNA/SAL pharmacy managers were initiated by stichting VNA or SAL Apotheken. Our interest now is in the contribution of the support structure to the implementation process. The survey results for both 1996 and 1997 showed no striking or 'alarming' differences between the supported and non-supported managers.⁴² However, we should for the moment be careful about drawing premature conclusions about the role of the support structure. Let us therefore take a closer look at the content and contribution of the support structure from a qualitative perspective by using the results of observations, questionnaires and interviews.

Stichting VNA

The support structure of stichting VNA consisted of quarterly meetings. The meetings were structured around cycles in which plans were discussed at the end of a year. In the next year the implementation process was reported to the group every quarter. It was remarkable that the SSM activity models produced in interviews, were used as their year plan. The activities were consequently discussed at the meetings in the beginning of the year. Discussions about progress in the implementation process of these modelled customer activities and problems with this process decreased later in the year. In connection with this issue the following statement of a pharmacy manager was striking.

⁴² The 'survey' was repeated for 63 pharmacy managers after a year. In comparing the results of the supported and the non-supported pharmacy managers no major differences were observed (for an elaborate discussion compare **appendix 3**). In the analysis of the first ranks, the results for *thought* showed that VNA/SAL had relatively less managers with product in the first rank after a year. For *action* the first ranks were comparable. In the analysis of the correspondence no major differences between supported and non-supported pharmacy managers were observed. For our purpose, we would conclude that no major difference was observed in time with respect to the change in the position of the supported managers within the triangle, as well as with respect to the change in the correspondence between *thought* and *action* in the survey. In addition, for both surveys the pharmacy managers were asked to give their opinion about the results. Most pharmacy managers recognized the results; the acceptance of the results among supported and non-supported pharmacy managers was comparable (**appendix 3**).

In case 1030, the pharmacy manager argued that he wants the meeting to be a mirror for the development of various activities. "The advantage of the meetings is that you can talk freely and can exchange information freely. You can compare yourself with your colleagues. Unfortunately, the mirror function was not used with respect to the intended activities of the APOM-project in the meetings of stichting VNA last year. That is a pity. We had decided to report on the progress of the implementation of the activities per quarter. That was not done. Consequently, no cross-pollination was possible."

In addition, the questionnaires which were filled in at the end of every meeting, showed that very few customer activities were actually supported by new ideas coming from colleagues. It is therefore remarkable that most pharmacy managers qualified the meetings as being meaningful and as a source for new ideas. The exchange of ideas probably related to other subjects. Nevertheless, some pharmacy managers added that the usefulness of the meetings was too limited. We could add that there was much variation in the level of quality of ideas and the related implementation per pharmacy: some pharmacy managers working on certification of stichting VNA were far ahead of their colleagues. However, in some cases there was some cross-pollination. In the first meeting, the pharmacy manager in case 1029 was encouraged to think about his monitor activities, and his colleagues gave comment. It should be noted that the pharmacy manager concluded that his measurements were too vague after a year. We have described this in the section above *Formulation and use of criteria for efficacy*. Although he defended his monitor activities in front of his colleagues at that time, he changed some of them later that year. We saw thus that learning had taken place; he adopted some of the comments and used them to improve his monitor activities. In addition, it was remarkable that it was only the pharmacy manager in case 1030 who stressed the importance and relevancy of the structure of the meetings. During the year the others failed to keep to the structure of the meetings. The structure faded away, but the pharmacy manager in case 1030 kept using the pre-determined structure very properly, even though this put him under considerable time pressure with some activities, such as the VNA certification. Most of the other managers in the group did not do this. In terms of SSM we could argue that it is remarkable that although some pharmacy managers argued that the usefulness of meetings was too limited, in spite of this dissatisfaction nothing really happened.

SAL Apotheken

The support structure of SAL Apotheken consisted of monthly meetings. The general structure of the meetings consisted of the issues 'discussion of the minutes of the last meeting', 'round of the pharmacies', and 'questions at the end of the meeting'. In addition, a spectrum of other activities was discussed. A planning system similar to the system of stichting VNA was also used. In some pharmacies the activity models of the SSM interviews and the activity plans for the SAL meeting were similar.

Some of the modelled activities, that had been planned through this study were mentioned during the meetings. For example, in the 'round of the pharmacies', or in the 'evaluation of the main issues of the last year', the progress of implementing the customer activities was reported. We did not however observe any overt discussions or conscious exchange of ideas with respect to the intended activities. The pharmacy managers merely informed each other. There were some exceptions in some situations, but the discussions were not continued. In connection with this issue it may be of interest to look at the following example.

At the meeting of November 5th in 1996, for the agenda item 'research plan', the pharmacy manager in case 226 noted that he had problems in measuring the effect of information. "What is the contribution of my intended activities?" He suggested making a financial reservation for the measurements. The pharmacy managers of cases 1001 and 1005 argued that the KNMP was working on this issue. The director suggested that all participants should think about measuring possibilities, rather than just the well-known subjects COPD, diabetes, and old people. However, neither item was discussed later.

The example above shows that in one of the first meetings the pharmacy manager in case 226 was asking his colleagues to think about his monitor activities. He was having problems in measuring the effect of information. The reaction was poor, no one really helped him out. The discussion was postponed and he did not receive an answer to his request he could act on. Moreover, the questionnaires which were filled in at the end of every meeting, showed that very few customer activities were actually supported by new ideas coming from colleagues. Again, as with stichting VNA's support, the results showed that the use was very limited, although the meetings were qualified as being meaningful. In contrast, however, the pharmacy managers argued that the value of the support structure was enhanced by the reorganization of the SAL meeting during the year. This change to the structure of the meetings was quite remarkable, since it happened during the year in which the support was studied. In May 1997 the first session of the SAL Apotheken management weekend was held. As a direct consequence of this session, pharmacy managers began to realize that the results of the present structure of the SAL meetings were not good enough. This thesis was also connected to this sudden change. In connection with this issue the pharmacy manager in case 1001 argued: "We had to fill in your questionnaire at the end of each meeting: the results were incredibly poor and there was a need to improve the results." Consequently, the number of meetings was reduced starting in May, and instead, a second session of the management weekend was planned for October 1997. In terms of SSM, we see that because some pharmacy managers had argued that the meetings were put to too limited a use, something happened. The structure of the meetings changed and most of the pharmacy managers thought that it had improved.

6.4. Conclusion

Since we have now determined the results, the main questions should be raised again. They were ‘What problems does a pharmacy manager face if he/she ‘travels’ to the customer mix?’ and ‘What is the role of the support structure in the organizational change to the customer mix?’. In addition, another question was raised: ‘What can be said about SSM as an interview-support technique and a methodology for analyzing data?’.

We have argued that it is not easy for pharmacy managers to define a usable aim Z and related criteria which ‘cover’ the modelled customer activities. We have shown that a definition of emergent properties gave a powerful frame of reference by which we can judge the consistency in the model and in the real world. We could say something about the sensibility of the modelled activities and the related real-world action of pharmacy managers by using this frame. For example, by using the manager’s arguments, in order to qualify an activity in the model as a success or as a failure, showed that we sometimes could seriously doubt their consistency. We repeat that we only used the statements of the managers. In this analysis we just need a model, some flavour of real-world action added with an explanation of the manager. All three separately and together must form a purposeful whole. We exemplified situations in which the activity in relation to the root definition did form a purposeful whole, as well as situations in which this was rather questionable. Both situations were vividly present in the data.

Furthermore, we noted that the link between root definition and modelled activities was not always very strong. The modelled activities could of course also be performed without the use of a root definition and related criteria. But then we would not be able to say much about the sensibility, and that is a problem if the pharmacy manager would like to operate effectively. We stressed that formulation of aim, criteria and proper control are necessary in order to survive, and to be able to judge whether or not the modelled activities and/or the performed actions had made a contribution to the process of change, or were a waste of effort.

In terms of the aim Z we added that it was hard to find evaluation mechanisms for pharmacy managers. Some aims were rather abstract, vague and defined for a meso level. We have noted that pharmacy managers sometimes did want to change these aims and related criteria for effectiveness. However, we also added that he or she would have a hard time finding proper alternatives. We would argue that in the pharmaceutical sector, most goals, criteria and measurements for monitoring or exerting control relate to the product and the process mixes. At the level of individual pharmacy practice, pharmacy managers have a lot to learn with respect to the customer mix. We also have noted that the support of, for example, the KNMP

was poor with respect to these micro issues. Although many organizations (like the KNMP) which operate in the sector are a good source of new ideas, they fail to give proper support to the individual pharmacy manager with the formulation and measurement of aims to do with the 'travel' to the customer mix. Pharmacy managers are not helped with meso goals and evaluation, especially not if they do not know how to translate this to their pharmacy practice. They are in need of micro-instrumentalization: goal formulation and evaluation for customer activities applicable at their own pharmacy. In terms of the attributes Y and related activities and control mechanisms we have argued that many managers evaluate their modelled activities in a rather proper way. Criteria for efficacy were modelled and actually used in the control process, which sometimes led to control action. However, some managers experienced another problem: what to do with the result if a measurement for efficacy was made without having a usable norm? Given that the manager had made proper measurements, then what should he or she do if the result was either negative or positive? Not all managers performed control action to manage such situations. Another problem was that some pharmacy managers did not monitor the modelled activities. Moreover, the criteria for efficiency showed that the firm grasp of the pharmacy manager was not always as strong as was suggested earlier in **chapter 3**. Although the managers modelled the criteria properly, it should be noted that some of the modelled customer activities did not have a major financial impact.

We argued before that it was hard to define a norm and find related measurements. However, the KNMP provides Dutch community pharmacies with good information of the sector via the Foundation for Pharmaceutical Statistics (SFK): for example, facts and figures about costs of pharmaceutical care, drug consumption within a European perspective, employed pharmacy staff, substitution etc. Pharmacy managers receive a general impression of their performance through these figures since the figures relate to the meso level. They can use this material for the purpose of benchmarking. It would be helpful for the pharmacy manager to have similar information (but then formulated on the micro level) for the production of norms. Norms defined for customer activities could be useful for managers in their individual pharmacy practices. Furthermore, it would be a good idea to link these norms to related measurements so that the manager can select measurements suitable for his/her purpose. In other cases it was showed that some pharmacy managers did not perform any monitor at all. In such situations we seriously doubted the purposefulness of the action, because we had no information about what the contribution of the action was to the root definition. Looked at in terms of emergent properties: they did not monitor, for example, whether a COPD-project contributed to the other parts in such a way that the customer relations would really improve. In other words, the manager had no information about whether the system worked. The mechanism to exert control if the customer-relations system was actually more than

its parts, had failed as it were. In the profession, the necessity and importance of the monitor should be clearer: without a monitor we cannot say anything about the usefulness of the modelled activity.

The quantitative surveys of 1996 and 1997 at 63 pharmacy managers showed that no striking or 'alarming' differences were observed between supported and non-supported pharmacy managers. In addition, these results were compared with the results of some qualitative methods: observations, questionnaires and interviews. We showed that very few customer activities were actually supported by new ideas from colleagues within the support structure of stichting VNA. It is therefore remarkable that most pharmacy managers qualified the meetings as being meaningful and as a source for new ideas. In terms of the learning cycle of SSM we could argue that it is striking that nothing really happened although some pharmacy managers argued that the use of the meetings was too limited. In spite of some dissatisfaction nothing changed. We also showed that very few customer activities were actually supported by new ideas from colleagues at the support structure of SAL Apotheken. Again, as with the support of stichting VNA, the results showed that although the meetings were qualified as being meaningful, the use was very limited. Conversely, we note that SAL Apotheken did reorganize their support structure during the year. The managers were dissatisfied with the results of the meeting. Their frustration was stimulated by this current study; the questionnaire made them realize that by the end of each meeting they still had few ideas. We could see the learning cycle in action in terms of SSM: because some pharmacy managers had argued that the use of the meetings was too limited there was some action to improve this situation. The structure of the meetings changed and most of the pharmacy managers thought that it had improved.

Within stichting VNA it was remarkable that most pharmacy managers qualified the meetings as being meaningful and as a source for new ideas. Although some pharmacy managers argued that the usefulness of the meetings was too limited, in spite of this dissatisfaction nothing really happened. In contrast, within SAL Apotheken something really changed. Because this change was at the end of the year the effect on the problems described earlier was rather limited. With this present material we would conclude that the support structures of neither stichting VNA nor SAL Apotheken provided solutions to the problems of the pharmacy managers described before. Nevertheless, we add that many of the ideas for activities as well as for some monitor activities came from the support structures. In fact, many inventive and fresh customer activities also usable in organizations other than health care, were modelled at VNA/SAL pharmacies. With respect to their modelled activities, however, the meetings with the colleagues were not of a great help to most supported pharmacy managers. We could even argue that as far as the modelled

activities are concerned, the managers used the support structure as an institute for the provision of good ideas and cooperative activities. In terms of the learning cycle we would doubt that there would be much improvement in the problematic situations through support. Most activities were not influenced by the discussions. In this sense, change was not facilitated by the support. In the discussions the managers merely informed each other and maintaining professional independence was important. However, we have to note that regional differences sometimes meant that problematic situations of the supported pharmacy managers could not be compared. The advantage of the supported pharmacy managers over their non-supported colleagues was that they had a structure which was close to their pharmacy organization and very present. Nevertheless the managers were not supported in solving the problems which they experienced in relation to changing the organization. We would therefore conclude that the difference between supported and non-supported pharmacy managers was minimal for the modelled change to the customer mix. In terms of solutions it should be noted that consultancy at an individual level could be very helpful for the pharmacy managers. Individual consultancy could meet the need of pharmacy managers to have a mirror with respect to their plans for and performance of activities, to improve the suitability with the local situation, and to respect their professional independence. We would also expect the supported pharmacy managers to be better off with this individual support in their change to the customer mix.

In analyzing the use of SSM, we could say that within classical data collection, methods for observation and those for intervention are in general strictly separated. In SSM, methods for observation and intervention are intertwined. However, we have used SSM as an interview-support technique in order to structure the data. The main reasons for selecting SSM as a methodology for collecting and analyzing data were the expected fuzziness of the problems, the subjectivity encapsulated in the problematic situations, and the structure and richness of the results from the pilot. In most SSM practices and case descriptions, researcher and respondents work jointly at a solution of (part of) the problem situation. The solution, a purposeful action, makes the learning cycle start over and over again. Within this approach data collection is a mix of observation and intervention. The role of the researcher is in general limited to giving advice with respect to systems language, although the solid contact between researcher and respondent will undoubtedly lead to interventions. The researcher is a major part of the real world of the respondent, and the researcher is also expected to influence this reality consciously and unconsciously. By using SSM, decisions with respect to activities and possible problems would usually have been made in the active presence of the researcher in the course of the year. It is an ongoing process of modelling activities, real-world action, evaluation, discussion and modification. In this present study however we have made an attempt to use SSM as a methodology for observation; intervention was limited to a minimum. Normally,

if the intervention is completely fused with the observation, problems related to causality will rise. It will not be clear whether the success or failure of a purposeful action was caused by the researcher's intervention, the respondent's action or a mix of both. The mix of action by both researcher and respondent is most likely to occur. Consequently, for the researcher it will hardly be possible to distinguish between intervention and observation. In this thesis, we have tried to isolate the intervention from the observation in order to avoid this problem. However, some other problems were still present. Intervention in the form of an interview and using the activity models as a logbook to document the change intervenes in the organization. Before the interview most managers did not have clear ideas about intended customer activities. The interview structured and refined their ideas about the activities and the related sub-activities. It was possible to work with the list of modelled customer activities and to 'just' perform the sub-activities. We note that the contact between researcher and respondents was mostly limited to two interviews in this study. This thesis was an interdisciplinary project between management science and pharmacy practice research. In pharmaceutical studies new medicines and the placebo effect are tested in groups of patients in a similar way. In organizational studies an identical experimental setting for patient compliance or setting like a pharmaceutical laboratory is not possible. Cook and Campbell (1979) argued that randomized experiments are characterized by the use of initial random assignment for inferring treatment-caused change. Random assignment is however more difficult with individuals or larger social groups than with objects, and is more difficult with humans in the field than in the laboratory. Consequently, random assignment will be less frequent with humans than with objects, and less frequent with humans in the field than in the laboratory. The application of random assignment is eliminated in the quasi-experiment, such as was done here. You are reminded that the quasi-experiment had treatments, outcome measures, and experimental units, but did not use random assignment to create the comparisons from which treatment-caused change could be inferred. In this thesis, a comparison between supported and non-supported groups was made using different stimuli. The stimuli were interventions; interviews of the researcher with the respondents. The structure of the interviews was in accordance with SSM. In this design the intervention group was isolated from the non-intervention group. The time period of a year between the interviews was considered to be a black box.

As was mentioned before, SSM can be used as a methodology to intervene and to describe interventions. It is a powerful framework for collecting as well as analyzing the data. In the data collection the structure of SSM helps the researcher to find what he or she is looking for. In the analysis of data it is a powerful tool to check for consistency within the modelled world, the real world, and the interaction between both worlds. It is amazing that we just need a mix of a model, some real-world

action, and an explanation by the manager in order to say something about the sensibility of the real-world action of pharmacy managers. The degrees of freedom in producing, interpreting and explaining models and real world are high. SSM just has some limited rules in the use. Consequently, we might expect the respondent to pull the researcher's leg much more frequently than in more classical data-collection methods. We could even expect the respondent to create a purposeful and consistent whole merely for the purpose of the study. It should be stressed that things were made hard for the respondents by having several connections between quantitative and qualitative methods and by using a time period of one-and-a-half year in the design. But within this context, the respondent could say whatever he or she liked; as long as there was a reasonable explanation within the model we would qualify the activities, action and explanation as consistent. Nevertheless, we stress that all three separately and together must form a purposeful whole. Although the degrees of freedom are seemingly very high, the practice showed that it is hard for managers to create consistency between their model, their action, and their ex-post explanation all together. In this study we in fact found and described many problems of pharmacy managers with the use of SSM. In connection with this issue, we might well quote Mark Twain in saying: 'if you tell the truth, you don't have to remember anything' and conclude that a good lair will be in need of a large 'hard disk' capacity in order to take researchers for a ride in a consistent manner.