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Victoria J. Mabin Steve Forgeson Lawrence Green

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Victoria J. Mabin

Victoria University of Wellington, Wellington, New Zealand

Steve Forgeson

WestpacTrust, Wellington, New Zealand

Lawrence Green

High Performance Thinking Ltd, Wellington, New Zealand

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New Zealand

Abstract

Re-examines traditional views on change management, in particular the resistance to change, and to suggest alternative views and a practical approach for better managing change. The literature on change management contains numerous prerequisites for successful change, with a predominantly negative view on the issue of resistance to change. Some authors have argued for the positive utility of resistance, but have lamented a lack of management theories which support this view. Describes a management methodology called the theory of constraints (TOC) which views resistance as a necessary and positive force, and we demonstrate how it was applied in a case study involving a bank merger. Reviews how TOC handles the various types of resistance identified in the change management literature, and posit that the TOC framework helps lead and manage change by providing practical guidance on, *inter alia*, situational assessment, assumption surfacing, conflict resolution, planning and implementation of successful change.

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Introduction

A survey of the literature on change management surfaces numerous prerequisites for change to be successful: the list includes vision, mission, culture, communication, strong leadership, and participation. But the survey reveals little about how such prerequisites are to be achieved. One of the main arguments is that if such prerequisites are not present, then change will fail due to what is often termed “resistance to change”. Various types of resistance have been categorised (e.g. Kanter, 1985). In most cases, resistance is seen to be problematic – something to be managed and overcome. Some authors (e.g. Schermerhorn, 1989) have suggested strategies for “dealing with” resistance, consistent with this view of resistance as being undesirable.

One recent exception to this view has been provided by Waddell and Sohal (1998). They addressed the issue of resistance, reviewing the traditional views on resistance, the research over the last 50 years, and the current practices. The traditional attitude to resistance is that it is something undesirable, to be overcome. However they review considerable research in the 1960s and 1970s which paints a rather different picture of resistance, and shows it has many advantages. They argue that there is utility in resistance, but current practice appears to have forgotten the lessons from this research, and resistance is still seen to be problematic. They observe that while it is recommended that managers assess “the level of resistance they expect to encounter, rarely is it suggested that the nature of resistance be diagnosed to see if there is any benefit from its utility”. Finally, they lament that, “there is a notable absence of change management models and theories that actually incorporate the possibility of utility in resistance”.

Parallel to these developments in change management theories, another management theory has been developing over the last 20 years, called the theory of constraints (TOC) (Goldratt, 1990b; Dettmer, 1997; Kendall, 1998; Scheinkopf, 1999). Central to this methodology is an appreciation of resistance as a necessary and positive element in any change process. According to the theory of constraints, managers need to identify this resistance in its various forms, and use it carefully to test and hone change strategies and action plans, to enable a full, complete and successful implementation that has buy-in from everyone involved. As such, it appears that the theory of constraints may well provide a management model that incorporates the utility of resistance actively, directly and positively.

So what is this new methodology and how can it assist managers with managing change? This paper will briefly review the theory of constraints methodology, and show how it builds on resistance in addressing the key questions in any change process, namely: what to change; what to change to; and how to bring about the change? We explain how the various types of resistance, identified in the change management literature, are handled within this framework, and how TOC goes a long way to providing practical steps to achieving the prerequisites for successful change.

First, we will review the change management and resistance to change literature, then give a very brief overview of the TOC methodology, before providing a worked case study using TOC to manage the change process to harness resistance to change. Finally, we review the various types of resistance to change and how they were countered using TOC.

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Change management frameworks

A survey of the literature on change management surfaces numerous prerequisites for change to be successful: the list includes vision, mission, culture, communication, strong leadership, and participation. Developing vision, which is a picture of the future shape of an organisation, gaining commitment to that vision and synchronisation of purpose and effort are important leadership qualities. This development of vision and mission sets the scene for organisational change (Hamel and Prahalad, 1994; Senge and Roberts, 1994). Once direction has been set for organisational change, the next step in the change process is influencing its culture. Organisational culture is the shared understanding of how an organisation works, and has a major impact and influence on successful change initiatives (Schein, 1988; Handy, 1996; McAdams, 1996). Communication and strong leadership play a vital part in preparing any organisation for change and in guiding the organisation through the upheavals that result from changes made. The ability to create trust and to use power from an appropriate source to create an environment where the people who make up an organisation feel change is required and then commit to that change process are two of leadership's most important qualities (Carlzon, 1989; Schermerhorn, 1989; Zand, 1997). Creating trust can be achieved through the sharing and discussion of issues, which in turn ensures that the negative aspects of power are not displayed. The more genuine and deeply seated are these attributes, the longer the benefits of a change will last, and the better it will be for an organisation.

The survey also provides dozens of role models, people who have successfully managed/led change in their organisations, such as Carlzon (1989), as if one needs only to emulate them to be successful. But the survey reveals little about how such attributes or prerequisites can be replicated by others. In general there are few guidelines as to how such prerequisites are to be achieved. One of the main arguments is that if such prerequisites are not present, then change will fail due to what is often termed "resistance to change", a subject we will return to shortly.

But first, let us ask how do most organisations approach change management? Pascale (Pascale and Athos, 1982; Pascale, 1990), quoted in Crainer (1996, pp. 16-19), observes that "Organisations churn through one technique after another

and at best get incremental improvement on top of business-as-usual. At worst, these efforts waste resources and evoke cynicism and resignation. . . . What is needed is a much deeper inquiry into first, a business's unfolding competitive situation and second, an understanding of the largely invisible patterns of thinking and behaviour which define the "box" inside which a company operates. Once revealed, it becomes clear whether the organisation (improving at predictable pace given past performance) can successfully meet the demands of competition. If not, there is a need for transformation. This is a difficult but manageable journey".

He continues, "The problem is that most companies are conflict averse. For many it is associated with wounded egos, harmed relationships and turf wars. Contention is often mistaken as an indicator of mismanagement". Pascale believes 50 per cent of the time, contention is smoothed over and avoided. Another 30 per cent it leads to non-productive fighting and no resolution. Only in 20 per cent of cases is contention truly confronted and resolved. He says "the trick is to learn to disagree without being disagreeable and channel this contention as a means of self questioning and keeping the organisation on its toes".

Finally he recommends that "To transform itself an organisation needs to tackle its very core – its context – the underlying assumptions and invisible premises on which its decisions and actions are based". He continues, "this sounds arcane but is no more complicated than assembling a critical mass of key stakeholders (perhaps 100-200 people who really make things happen in a company) and conducting an organisational audit that reveals the invisible box inside which the company operates. Once revealed, it is easy to have a straightforward discussion about whether the organisation, operating at its current level (i.e. doing what is predictable), can respond to the unfolding competitive threats. If not, a dramatic shift in organisational capability (i.e. transformation) is required".

So in summary, change management theories have plenty to say about the prerequisites needed for successful change management and the consequences of not having these, but little concrete guidance about how to achieve them.

Resistance to change

Resistance to change is acknowledged as being a fundamental block to change, and a

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prime reason why change does not succeed or get implemented. Resistance to change is ubiquitous in nature. It can be defined as an expression of reservation which normally arises as a response or reaction to change (Block, 1989). Resistance is caused by a number of factors, such as:

- *Individual factors*: personality factors (high need for control, locus of control, need for achievement etc.); attitudes based on previous experiences of change.
- *Group factors*: group cohesiveness, social norms, and participation in decision-making.
- *Organisational factors*: threats presented by the unknown; challenges to the status quo; workload consequences.

There are many reasons why people inside organisations resist change; indeed, it is possible for the entire system which the organisation represents, to be resistant to change if the preparation for change has not been carried out in a manner that does not correctly prepare the organisation for it. Various types of resistance have been identified (e.g. Kanter, 1985), see Table I.

Perspectives on resistance

Some view resistance as an unavoidable and natural behavioural response to the perceived threat of change. It may be seen to be politically motivated and part of a co-ordinated campaign of class struggle, or to be a constructive counter-balance to organisational change, or as the manifestation of difficulties in cognitive restructuring. In most reports in the

literature, resistance is seen to be problematic – something to be managed and “overcome” to ensure the success of change. Some authors (e.g. Schermerhorn, 1989) have suggested strategies for “dealing with” resistance, consistent with this view of resistance as being undesirable. It is much less often recognised as something to be utilised to support the success of change.

Viewing resistance to change as a positive factor

One recent exception to this view of resistance as problematical has been provided by Waddell and Sohal (1998). They addressed the issue of resistance, reviewing the traditional views on resistance, the research over the last 50 years, and the current practices. Their review uncovered considerable research in the 1960s and 1970s which paints a rather different picture of resistance, and shows it has many advantages: it is better than apathy, it avoids group-think, it provides alternative ideas for consideration, and a wider set of people involved in the evaluation of alternatives may overcome the problem that many managers have of failing to consider or evaluate properly enough alternatives. Waddell and Sohal argue that there is utility in resistance, but current practice appears to have forgotten the lessons from this research, and resistance is still seen as something to be managed and overcome. The assumption is that less resistance is better. They observe that while it is recommended that managers assess “the level of resistance they expect to encounter, rarely is it suggested that nature

Table I

Factors causing resistance to change

Cause	Outline
Fear of the unknown	Being uncertain about the nature of a change, feeling that you do not know what is going on and what the future is likely to hold
Loss of control	Feeling that the change is being done to you, not by you, worrying that you have no say in the situation and the events taking place
Loss of face	Feeling embarrassed by the change and viewing it as a testimony that the way you have done things in the past was wrong
Loss of competency	Feeling that existing skills and competencies will no longer be of any use after the change
Need for security	Worrying what your role will be after the change
Poor timing	Being caught by surprise with a change that has been sprung on you, or being asked to change at a time when you already feel overworked
Force of habit	Not liking to change existing ways of doing things, feeling comfortable in existing routines and habits
Lack of support	Lacking important support from direct supervisors and/or organisation, not having the correct resources to properly implement the change
Lack of confidence	Lacking in personal confidence that things, once changed, really will be better than before
Lingering resentment	Being recalcitrant because of a lack of respect for the people involved and/or because of anger over the way you have been treated during past change efforts

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of resistance be diagnosed to see if there is any benefit from its utility”. When seen as something to be utilised, it provides a pointer to areas needing addressing, energy for change, and a driver of innovation for change.

In order to harness the positive utility in resistance, we need to first treat resistance as positive, and we need to be proactive in dealing with resistance. In order to do this, we need to understand the issues, and the underlying causes of resistance surrounding change. But how can we achieve this? Waddell and Sohal lament that “There is a notable absence of change management models and theories that actually incorporate the possibility of utility in resistance”. However, there is at least one methodology that has been described as viewing resistance as not just ubiquitous but necessary, and as providing valuable insights to enable managers to successfully manage change (Dettmer, 1998a; Houle and Burton-Houle, 1998). According to this methodology, managers need to engage others in the process to identify resistance in its various forms, and to test and hone change strategies and action plans, to enable a full, complete and successful implementation that has buy-in from everyone involved. As such, it appears that this approach may well provide a management model that incorporates the utility of resistance positively, actively, and directly.

So what is this new methodology and how can it assist managers with managing change? This is the subject of the next section.

The theory of constraints (TOC) methodology

The method recommended by Dettmer (1998b) and Houle and Burton-Houle (1998) is the TOC, a method credited in the main to Dr Eliyahu M. Goldratt. A physicist by training, he has turned his attention to the business world’s problems, and has produced a large number of books, seminars and other media (see for example, Goldratt and Cox, 1992; Goldratt and Fox, 1986; Goldratt, 1990a; 1990b; 1994; 1995; 1997). There are several works which provide reviews of TOC’s history and development (McMullen, 1997); its major components (Cox and Spencer, 1998; Dettmer, 1997; Smith, 2000); applications (Noreen and Smith, 1995; Kendall, 1998); and published literature (Rahman, 1998; Mabin and Balderstone, 2000). The major component of TOC that underpins all the other parts of the methodology is the TOC thinking processes,

a suite of logic tools that address fundamental change management concerns, and provide a roadmap for change. They guide the user through the decision-making process of problem structuring, problem identification, solution building, identification of barriers to be overcome, and implementation of the solution, i.e. through analysis, strategy formulation and tactical planning. The trees make recourse to a set of logic rules, called the categories of legitimate reservation (CLR), which set out to check for and correct common flaws in our logic, and provide the analytical rigour usually associated with philosophy or hard scientific approaches. This is combined with the ability to capture softer information and complexity such as intuition, policies, behaviours, perceptions and plurality.

Goldratt originally set out to devise a systematic approach to identifying what was preventing a company from achieving its goal of “making money” for its “owners”. The approach was first used in a manufacturing environment and reported at an APICS conference in 1980 (Goldratt, 1980). Hrisak (1995) advises that TOC is now used worldwide by companies of all sizes. He states that many managers who routinely use TOC believe they understand their businesses for the first time. From this understanding they gain a sense of control and of being able to act proactively. He says this is because TOC empowers managers by providing a consistent framework for diagnosing problems. The TOC methodology now encompasses a wide range of concepts, principles, solutions, tools and approaches, the description of which is beyond the scope of this paper. Interested readers can refer to Cox and Spencer (1998) or Balderstone (1999a) for an overview.

For the present purposes we will concentrate on the change management aspects. TOC provides managers with a set of tools that guide the user to find answers to the key questions relating to change, namely:

- What to change?
- What to change to?
- How to cause the change?

Goldratt (1990a), Klein and Debrune (1995) and Dettmer (1997) state that TOC views an organisation as a chain composed of many links, or networks of chains. Viewed as a constrained system, a chain’s links all contribute to “The goal” and each link is strongly dependent on the other links. The chain, however, is only as strong as its weakest link, and Goldratt states that the overall performance of an organisation is limited by its weakest link: if an organisation

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wants to improve its performance, the first step must be to identify the system's weakest link, or constraint.

As can be seen from the above, one of the central tenets of TOC is that any system has constraints that prevent it from achieving its goal. The place to focus efforts is on making those constraints produce more, either by acting on the constraints directly, or on other operations interacting with them. The five focusing steps of TOC (Goldratt, 1990a) provide a simple but effective approach to continuous improvement in cases where the constraint is fairly clearly identifiable. These are:

- 1 *Identify the constraint.* Identify the operation that is limiting the productivity of the system. This may be a physical or policy constraint.
- 2 *Exploit the constraint.* Achieve the best possible output from the constraint. Remove limitations that impede the flow, and reduce non-productive time, so that the constraint is used in the most effective way possible.
- 3 *Subordinate other activities to the constraint.* Link the output of other operations to suit the constraint. Smooth work flow and avoid build up of work-in-process inventory. Avoid making the constraint wait for work.
- 4 *Elevate the constraint.* In situations where the system constraint still does not have sufficient output invest in new equipment or increase staff numbers to increase output.
- 5 *If anything has changed, go back to step 1.* Assess to see if another operation or policy has become the system constraint. Goldratt (1990a) states that this step is consistent with a process of ongoing improvement.

However where the constraint is caused by policies or behaviours, or in other more complex and messy situations, the constraint may be harder to pinpoint, and what should be done to rectify it is not as clear-cut.

In such cases, the TOC thinking process tools are more useful in deciding what to change, what to change to, and how to cause that change to occur. In much the same way as the five focusing steps focus on the constraint, the thinking processes focus on the factors that are currently preventing the system from achieving its goals. They do this by first identifying the symptoms within the system, which provide evidence that the system is not performing as well as desired. Working from there, the various TOC thinking process tools are then used to deduce what the causes of those symptoms

are, what needs to be done to correct those causes, and how such corrective actions could be implemented. In this way, the TOC approach is to map the change management from the point of view of the current problems, thus ensuring any change will achieve improvement, by leveraging it on the points of the system where it will have greatest effect.

The thinking processes

The thinking processes comprise a suite of five logic diagrams (four trees and a "cloud") and a set of logic rules. The diagrams use two different types of logic. Three of the trees (current and future reality trees and the transition tree) use sufficiency (cause-and-effect) logic. They are built up by constructing connections between observed effects and causes using IF ... THEN ... statements, and checking for "sufficient cause". Sufficiency can be of three types: "A is sufficient to cause C" or "If both A and B occur together, then they will be sufficient to cause C" or "A and B (separately) both contribute to C, and between them are sufficient to cause C". The other two tools, the evaporating cloud and the prerequisite tree, use necessary condition thinking: "In order to have A we need B". The logic rules are called the categories of legitimate reservation (see Dettmer, 1997; Noreen and Smith, 1995) and have been proposed for use in validating systems dynamics models (Balderstone, 1999b). The entire suite of thinking process tools is based on these constructs. Scheinkopf (1999) provides an excellent straightforward explanation of these building blocks, or for a fuller description and further examples, see Goldratt (1994), Noreen and Smith (1995); Dettmer (1997; 1998a); Kendall (1998); Schragenheim (1999); Smith (2000). A very brief overview of the main features of the logic diagrams is provided next, followed by an illustrative example.

Current reality trees (CRT)

Goldratt (1990a) calls an existing condition a reality. The tools he has designed are intended to be used to analyse and deal with a system condition, or reality, with which the TOC practitioner is unhappy. Dettmer (1997) defines a current reality tree as a logical structure which has been designed to depict that state of reality as it currently exists in a given system. The CRT represents the most probable chain of cause and effect, given a specific, fixed set of circumstances. It is constructed from top-down: from observed undesirable effects, postulating likely causes for those effects, which are then tested via the

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CLR. One such test is to predict (and check for) other effects that would also arise if this cause did exist – hence the term effect-cause-effect found in early descriptions.

Dettmer (1997, p. 64) states that the CRT is designed to achieve the following objectives:

- provide the basis for understanding complex systems;
- identify undesirable effects (UDEs) exhibited by a system;
- relate UDEs through a logical chain of cause and effect to root causes;
- identify, where possible, a core problem that eventually produces 70 per cent or more of the system's UDEs;
- determine at what points the root causes and/or core problem lie beyond one's span of control or sphere of influence;
- isolate those few causative factors (constraints) that must be addressed in order to realise the maximum improvement of the system;
- identify the one simplest change to make that will have the greatest positive impact on the system.

The CRT also helps to identify policies, measurements, and behaviours that contribute to the existence of the UDEs (Burton-Houle, 2000).

CRTs generally include at least one feedback loop which creates a vicious cycle. (Note that TOC describes these loops as negative feedback loops, while other systems methodologies would label such reinforcing loops as positive feedback loops.) The existence of a loop usually opens up more possibilities for the siting of remedial action: a change within or below a loop will have a significant effect.

CRTs can get very detailed and time-consuming to prepare, and can be difficult to communicate to others because they tend to paint a very depressing picture. For these reasons, recent improvements have been made to the method of building the tree, producing a simplified and more easily communicated version of a current reality tree. This has fewer details in it, and while still constructed from the UDEs, it has at its base a desired objective that the organisation is trying to achieve. The new-style CRT generally shows how the current undesired effects arise despite their best efforts to achieve this desired objective. The difference between the two types of CRT will be illustrated later.

Evaporating clouds

Once TOC practitioners have identified what to change, the second step in the process deals with the search for a plausible solution

to the root cause; that is, what to change to. This task is accomplished with the aid of the evaporating cloud (EC) and the future reality tree (FRT). Unlike the trees, the EC has a set format with five boxes. The practitioner identifies two opposing wants, that represent the conflict, the need that each want is trying to satisfy, and a common objective or goal that both needs are trying to fulfil. Then the practitioner surfaces the assumptions that underlie the connections between objectives and needs, needs and wants, and in the process, uncovers the reasons for the conflict that exists in their reality and prevents them from achieving the desired objective. This direct conflict is often the same as that underlying the CRT, and in fact forms the base of the new-style CRT. Goldratt (1990a) states that in resolving these conflicts, managers have traditionally resorted to compromise solutions. His approach seeks to resolve the conflict altogether without resorting to compromise. The EC is intended to achieve the following purposes:

- confirm that the conflict exists;
- identify the conflict perpetuating a major problem;
- resolve conflict;
- avoid compromise;
- create (win-win) solutions in which both sides win;
- create new “breakthrough” solutions to problems;
- explain in depth why a problem exists;
- identify all assumptions underlying problems and conflicting relationships (Dettmer, 1997, p. 122).

A significant recent extension of the cloud method is in the development of a generic cloud (or core conflict cloud), which is used to form the base of the new-style CRT. The generic cloud is created from merging three individual clouds, each of which is based on a single UDE. If the generic cloud derived is identified correctly, then the existence of the UDEs stems from this generic conflict, which hypothesis is verified by checking whether all of the UDEs can be connected using If-Then logic to the generic cloud. If there are “outlier” UDEs that are relevant to the subject matter but which cannot be linked back to the hypothesised generic conflict, then the cloud is not generic enough and is revised before continuing to draw up the new-style CRT (Burton-Houle, 2000).

Future reality trees

Once a solution, called an injection, has been identified via the EC method, practitioners assume for the next exercise that it has been achieved and start to build the future reality

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tree (FRT). The tree is constructed and scrutinised to test the solution, once again using the effect-cause-effect and other CLR logic rules. The FRT identifies what to change as well as considering its impact on the future of the organisation, being alert to possible negative side effects. Any such side effects are resolved in a process referred to as trimming negative branches. Scrutinising each step of the FRT as a group minimises the probability that participants may overlook significant negative branch effects or overlooked problems. The resulting tree originates in one or more injections and ends in desirable effects which really reflect the opposite of the UDEs in the CRT. Klein and DeBruine (1995) state that the process of synthesising the total organisation fosters and nurtures communication, understanding and acceptance. This is largely because the CLR logic rules provide guidelines for communicating any reservations about the validity of the elements and connections within the trees (see Dettmer, 1997; Balderstone, 1999b).

The FRT serves the following purposes:

- enables effectiveness testing of new ideas before committing resources to implementation;
- determines whether proposed system changes will produce the desired effects without creating negative side effects;
- reveals through negative branches, whether (and where) proposed changes will create new or collateral problems as they solve old problems, and what additional actions are necessary to prevent any such negative side effects from occurring;
- provides a means of making beneficial effects self-sustaining through deliberate incorporation of positive reinforcing loops;
- provides a means of assessing the impacts of localised decisions on the entire system;
- provides an effective tool for persuading decision makers to support a desired course of action;
- serves as an initial planning tool.

When the FRT is used in presenting the solution for buy-in, it is important to look out for potential resistance: “Who will be affected by the solution; who can block the implementation of the solution?” These help target the proper audience for buy-in. It does not preclude a leader from painting the vision on a wide scale for communication and translation (Simpliciano, 2000).

Prerequisite trees

Once practitioners have identified what to change to, the third step in TOC deals with implementing the solution. Goldratt (1990a) states that one of TOC’s principles is that “ideas are not yet solutions”. He feels it cannot be called a solution until implementation is complete and the system is working as intended. The PRT is intended to identify obstacles that prevent the injection from the EC being implemented. Dettmer (1997) advises asking the following two questions to check whether a PRT is needed:

- 1 Is the objective a complex condition? If so, a PRT may be needed to sequence the intermediate steps to achieve it.
- 2 Do I already know exactly how to achieve it? If not, then a PRT will help map out the possible obstacles, the steps involved in overcoming them, and the appropriate sequence.

The PRT uses a different logic from the previous trees, both of which use sufficiency logic (which basically asks “Is this enough?”) to establish cause and effect relationships. The PRT uses necessity logic, as does the evaporating cloud, asking instead “What is absolutely necessary?” In the case of the PRT, it is to identify the critical elements, or obstacles, standing in the way of reaching the objective.

Dettmer (1997) states that the PRT is used to achieve the following objectives:

- To identify obstacles preventing achievement of a desired course of action, objective, or injection (solution idea arising from the evaporating cloud).
- To identify the remedies or conditions necessary to overcome or otherwise neutralise obstacles to a desired course of action, objective or injection.
- To identify the required sequence of actions needed to realise a desired course of action.
- To identify and depict unknown steps to a desired end when one does not know precisely how to achieve them.

Transition trees

The last tool in the TOC thinking process is the transition tree, which Klein and DeBruine (1995) state allows practitioners to determine the actions necessary to implement the solution. Practitioners use the effect-cause-effect method to construct and scrutinise the details of the action plan, called the transition tree. As in construction of the FRT, each step is scrutinised using CLRs for negative branches. The FRT is a strategic tool in which major changes can be outlined. The implementation of these,

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however, will require complex interventions needing greater detail of actions to be taken, which is the intended use for the transition tree. As such the transition tree is an operational or tactical tool.

The purpose of a transition tree is to implement change. Dettmer (1997) reports that the transition tree structure started off as a four-element tree, with a fifth element being added later. Dettmer feels that the use of the four or five element tree is situational. He states that the five-element tree is the preferred methodology when constructing step-by-step procedures and there is a need to explain to others exactly why each step is required. He outlines the original four elements of the transition tree as:

- 1 a condition of existing reality;
- 2 an unfulfilled need;
- 3 a specific action to be taken; and
- 4 an expected effect of the integration of the preceding three.

Each succeeding level of the tree is built on the previous level, with the expected effect taking the place of the unfulfilled need. These build progressively upward to an overall objective or desired effect.

The fifth element added to the transition tree is:

- 5 the rationale for a need at the next higher level of the tree.

This change was devised to better assist buy-in from those from whom the TOC practitioner requires assistance. People are often inclined to resist change without a good explanation for the background to it. Also, frequently the implementation of major change falls outside the span of control of the person designing the change initiative, so that it is important to obtain the commitment of those who have the required power to ensure implementation. The fifth element that Goldratt has added appears to address these issues.

Dettmer (1997, p. 284) states that the transition tree has nine basic purposes, these are:

- 1 provide a step-by-step method for action implementation;
- 2 enable effective navigation through a change process;
- 3 detect deviation in progress toward a limited objective;
- 4 adapt or redirect effort, should plans change;
- 5 communicate the reasons for action to others;
- 6 execute the injections developed in the EC or FRT;
- 7 attain the intermediate objectives identified in a PRT;

- 8 develop tactical action plans for conceptual or strategic plans;
- 9 preclude undesirable effects from arising out of implementation.

The categories of legitimate reservation

The categories of legitimate reservation (CLR) are a set of eight rules or “tests” of logic that can be used to validate a tree. They are justifiable reasons why people might have reservations about a tree. To be logically sound, a tree must pass all of the eight tests.

The eight categories are:

- 1 clarity;
- 2 entity existence;
- 3 causality existence;
- 4 cause sufficiency;
- 5 additional cause;
- 6 cause-effect reversal;
- 7 predicted effect existence;
- 8 tautology.

Dettmer (1997) states that the most important use for CLRs is to communicate disagreement with others in a non-threatening way, which promotes understanding, rather than animosity. The language used in TOC contains special terms as shortcuts for those who know the terms, but these can be translated into “everyday” English. Table II translates the formally defined reservations into conversational English.

Goldratt’s tools, particularly the use of CLRs in group discussions, aim to get the group to share the vision, agree on common values, gain understanding of others’ views and find ways to accommodate different views, in developing an agreed action plan. Senge (1990) talks about shared values through dialogue, learning through listening, suspending judgement and people being open enough to share their values. Pascale, quoted in Crainer (1996), stresses the need to deal with conflict, to be able to disagree without being disagreeable, and to reveal the hidden assumptions that limit our thinking. All of these seem to be facilitated by using Goldratt’s tools.

Summary of the thinking processes

The relationship of the tools with each other as they are currently described and used is shown in Figure 1 (Draman and Holt, 2000; Burton-Houle, 2000). This shows the five diagrams and the usual way they interconnect if used in sequence to solve a complex problem. The first stage diagnoses what, in the system, needs to be changed, using a three-cloud process to identify the core conflict cloud (CCC) which then forms

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Table II
Translating reservations into conversational English

Scrutinising trees with others knowledgeable in CLR	In conversation
I have a <i>clarity</i> reservation on ... (specify)	I'm not sure I understand. Could you <i>clarify</i> what you mean by ... (Specify <i>entity</i> wording you find unclear)?
I have an <i>entity existence</i> reservation on ... (specify)	Maybe I still don't understand. How do we know that (specify <i>entity</i>) <i>exists</i> ? What evidence is there to support it?
I have a <i>causality existence</i> reservation on the connection between ... (specify)	I'm not sure I see how (<i>cause</i>) leads to (<i>effect</i>). Could you please explain it to me?
I have a <i>cause insufficiency</i> reservation for (specify <i>effect</i>), and I think the missing element is (specify)	It seems to me there is something missing. Besides (specify <i>cause</i>), you'd need (provide contributing <i>cause</i>) to get (<i>effect</i>)
I have a <i>cause-effect reversal</i> reservation. It looks like (specify <i>cause</i>) is really the effect, and vice versa	I think you definitely have a connection there, but could (specify <i>cause</i>) really be the effect? And (specify <i>effect</i>) really be the cause?
I have an <i>additional cause</i> reservation about (specify <i>effect</i>), and the additional cause is (specify independent <i>cause</i>). An <i>additional cause</i> not only gives the same effect but contributes to the magnitude of the effect (adds dimension to the problem)	What you have there looks good. But could there be something completely separate that could give the same effect? I'm thinking of (specify <i>additional cause</i>)
I have a <i>predicted effect existence</i> reservation. If (<i>cause</i>) really leads to (<i>effect</i>) then we should also see (or not see) (specify <i>predicted effect</i>). But we do not (or do)	The cause you are proposing is a little hard to verify. It seems to me that if what you say is true, we should also see (<i>predicted effect</i>). But as far as I know it's not there
I have a <i>tautology</i> reservation about (specify <i>cause</i> and <i>effect</i>). The absence or presence of (specify <i>effect</i>) doesn't confirm (specify <i>cause</i>)	Wait a minute. Are you saying that (<i>effect</i>) is the justification that (<i>cause</i>) exists? That sounds like circular logic. Perhaps you can explain it to me (like the age-old question: which came first, the chicken or the egg?)

Source: Dettmar (1997), p. 339

the base of the current reality tree, CRT. The core conflict cloud is then analysed fully to gain a better understanding of the conflict and to provide ideas of what can be changed to break the conflict and resolve the core problem. The future reality tree takes these ideas for change and ensures the new reality created would in fact resolve the unsatisfactory system conditions and not cause new ones, taking a strategic view. The prerequisite tree determines obstacles to implementation and ways to overcome them and the transition tree is a means by which to create a step-by-step implementation plan. Thus the tools provide a framework for analysis, strategy formulation and tactical planning. All of Goldratt's tools are designed to overcome resistance to change by creating a logical path which can be followed. The CLR in particular provide a framework to facilitate on-going dialogue and debate within the change process.

The five tools can be used individually or in concert depending on the complexity of the situation that is being faced. The process allows practitioners to logically and

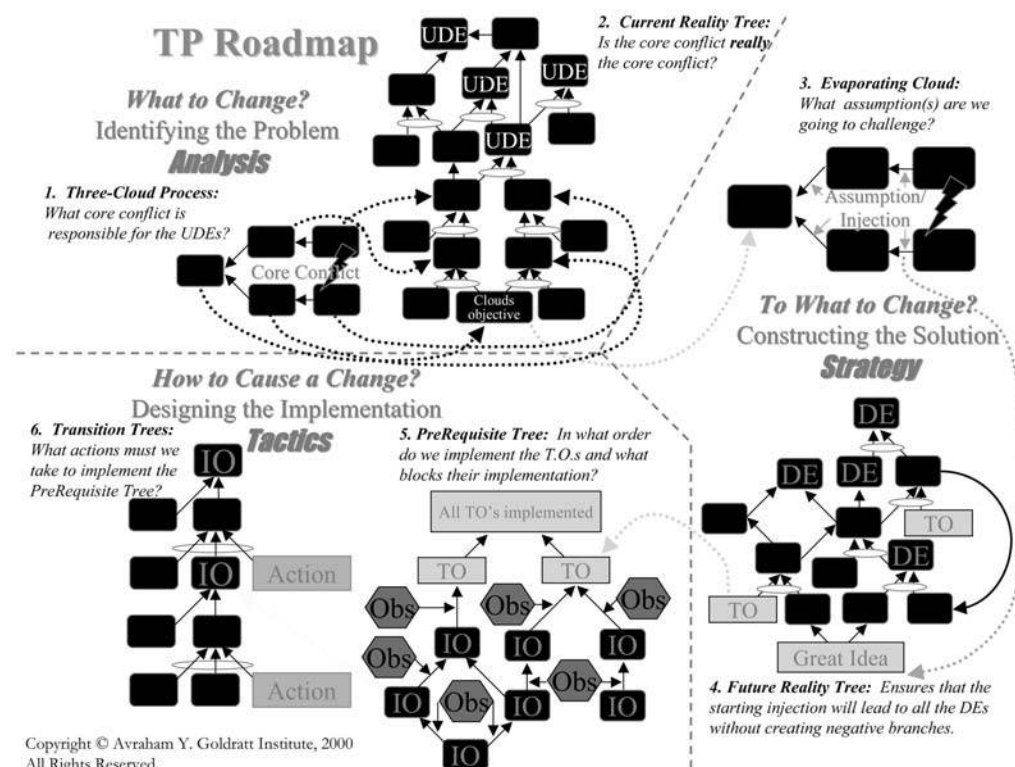
thoroughly prepare themselves to successfully develop and implement change solutions. They appear to provide practical guidance to achieve what Pascale, quoted earlier, recommends for an organisation, in terms of honestly appraising the current situation, and planning sensible responses by revealing invisible patterns of thinking and behaviour, and by resolving conflicts. We will now provide a worked example to illustrate how TOC can be used to assist change management.

Illustrative case study (WestpacTrust)

Background to the case

The case that is used to illustrate the TOC tools just described was a real application that was conducted for two purposes: to address a real managerial problem and at the same time serve as a final practicum component of a Master of Management (MMgt) degree at Victoria University of Wellington. This degree is run by a

Figure 1
TOC thinking processes roadmap



consortium whose member organisations sponsor a select number of their employees to take part in the programme. Participants on the programme take a personalised educational programme tailored to suit their own learning needs and the needs of their organisation. The project's success was to be assessed not only by the sponsoring organisation, WestpacTrust, but also by Victoria University of Wellington as the final MMgt practicum, for which the participant had to design and successfully implement a major change initiative. The second author was area manager for the Wanganui Area of WestpacTrust, in which the project was carried out, while the first author was his learning advisor.

Company background

Westpac Banking Corporation purchased Trust Bank New Zealand in June 1996, the purchase making the new bank, WestpacTrust, with 1.3 million customers, the largest financial service organisation in New Zealand. The combined retail branch network at the time of merger announcement consisted of 414 branches, and in many cases there were branches from the two banks in close proximity. The merger business case was founded on the rationalisation of such "duplicate" branches: specifically, the

merger strategy called for a reduction in branch numbers to 260 by August 1998. However, since each of the remaining branches would be expected to serve customers from both banks, and given combined business volumes, the limitations of proposed premises and expected branch traffic at merger roll-out, such rationalisation would mean significant capacity problems in a number of branches, unless customers switched to other (available and new) forms of banking – such as electronic and telephone banking, and drop boxes. Accordingly, a number of "displacement strategy channels" (DSCs) were developed to displace (remove/reduce or speed up) the many transactional activities that are undertaken in the branches. Such displacement was deemed to be absolutely essential to the success of the merger.

The project assigned to the Wanganui area manager (one of the authors) was to take responsibility for implementing the displacement strategy channels in the Westpac and Trust Bank branches in Wanganui to achieve the required reductions in transaction volumes prior to roll-out. The project had high relevance and importance to the organisation. It also carried a high degree of risk: the Wanganui site is strategically

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important to WestpacTrust as it is the organisation's third largest branch, with the third highest customer base in the new organisation. Also at risk was the organisation's image as a community bank with an interest in provincial New Zealand: a failed implementation may send signals that these values were no longer rated as important with the new organisation.

WestpacTrust considered the Wanganui project had a less than average chance of success for various reasons, including the following:

- the lack of organisational testing or evidence as to the effectiveness or otherwise of the displacement initiatives;
- the resistance to change factors influencing customers and staff; and
- the low level of existing branch management skills.

These factors had the potential to negatively impact on the implementation of the project.

As far as the bank was concerned, the task was non-negotiable: it was up to the area manager to enact the strategy agreed at a higher level. The area manager was in an unenviable position. Not only had he been given a high-profile, high-risk project, but also he had little support. Customers, staff and managers would all feel threatened, and would set out to make his job as difficult as possible. The area manager's approach to this challenge was to attempt to make the changes as humanely and smoothly as possible with the fewest possible adverse effects on his managers, staff and customers. He was determined to make the process as palatable and the outcomes as favourable as possible.

As we will explain next, the area manager used the analytical, strategic and operational tools supplied through using TOC to assist with the smooth and successful implementation of displacement strategy channels in the project site. This required the planning for, implementation and management of, as well as the measurement of, the major strategic change initiative just described, entailing:

- defining the problem(s);
- diagnosing the situation and planning the change;
- implementing the change; and
- reviewing its success or otherwise.

Applying TOC to WestpacTrust

Our review of the change management literature produced lists of the many prerequisites for successful change management, with little in the way of concrete suggestions for how actually to go

about change management. We needed something else to help translate those ideals into reality. Based on the experience of one of the authors, we thought that the TOC might provide a set of tools to address and manage change issues. We saw TOC as possibly providing the framework for the analysis, as well as the nuts and bolts tools for devising and implementing a successful solution. The change management literature does not normally include TOC, but as it is a systems methodology dealing largely with change management, it seemed highly appropriate.

The first two authors attended a workshop, run by Alan Wright, to learn how to apply the complete TOC thinking process toolkit. When attending these workshops, each participant used the knowledge and techniques taught on the workshop to analyse and develop workable solutions to a problem of their own choice, the present case being one such problem. The problem analysis and solution development took place both in the workshops themselves and during the periods between and since them. The TOC analysis provided the framework for synthesis of the diverse data collected, subjecting it to systematic cause and effect analysis. It also allowed the participant to develop a detailed implementation plan.

During the implementation phase, which was a three month period from November 1997 to January 1998, the WestpacTrust Project Team (which was responsible for implementing the DSCs elsewhere in the organisation) was requested not to visit the Wanganui branches, so the Wanganui project could serve as an independent test case.

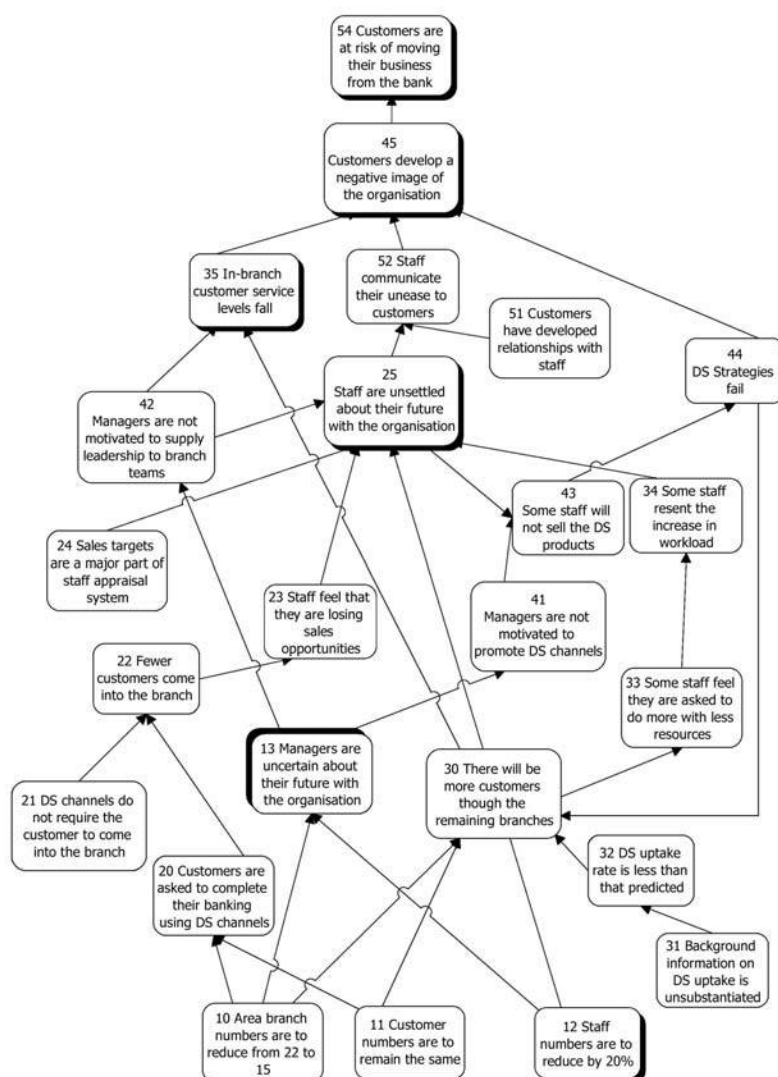
Application of the TOC tools

The following diagrams show the trees and cloud developed for this problem (Forgeson, 1998). First, the CRT in Figure 2 shows the situation as perceived at the time (August, 1997). The diagram is read from the bottom using IF ... THEN statements, as follows: IF area branch numbers are to reduce from 22 to 15, AND staff numbers are to reduce by 20 per cent, THEN managers are uncertain about their future with the organisation. Where more than one arrow leads to a box and these arrows are joined (either by arrow heads touching as here, or with a curved line linking the two arrows), then these are read as AND. If two arrows leading into the same box are not linked, then they are read as OR: e.g. the arrows leading into box 45: IF in-branch customer service levels fall, OR staff communicate their unease to customers, OR DS strategies fail, THEN customers develop a negative image of the organisation. To summarise, the CRT shows the then-current

situation that IF branch numbers are to be reduced ... customer numbers are to remain the same ... and staff numbers are to be reduced, THEN managers are uncertain about the future, ... THEN staff are unsettled, ... branch service levels fall, and customers are at risk of moving their business from the bank, i.e. the current situation is not looking good. Something needs to be changed.

Interestingly the CRT created was initially a surprise, as at the outset no-one understood the complex interactions from a systemic viewpoint, and no-one thought the situation was as bleak as the CRT depicted. Apparently, some had felt that it would be preferable for some to adopt the “don’t co-operate” strategy, but the CRT made painfully clear the negative consequences – for everyone – of a failed project. Once the inter-relationships were stated, and depicted

Figure 2
Current reality tree

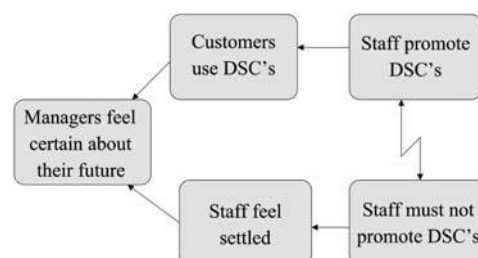


in a systemic context, the situation became obvious and the logic for change compelling.

However, in order to decide what to change, we needed to identify the core problem: the lowest entity in the diagram that leads to most of the UDEs (directly or indirectly). The branch and staff reductions (at the base of the tree) were unchangeable, so the core problem that the area manager could deal with inside his span of control was therefore “Managers are uncertain about their future with the organisation”. This then becomes the focus of the cloud (EC): how could he make managers feel certain about their future?

The cloud in Figure 3a shows the dilemma: that in order for “Managers to feel certain about their future”, we need “Customers to use the DSCs”. And in order for “Customers to use the DSCs”, “Staff must promote the DSCs”. On the other hand, in order for “Managers to feel certain about their future”, “Staff must feel settled”, and in order for this, “Staff must not promote the DSCs”. But this is in direct conflict with the upper branch. Hence we can see that making managers settled about their future is not an easy thing to do. To resolve this dilemma, we verbalise the assumptions or reasons why we believe each of the arrows to hold, as shown in Figure 3b. For example, in order for managers to feel certain about their future, customers must use the DSCs because this will avoid the threat of further job losses. Put another way, if they don’t use DSCs, the bank will lose business and close more branches. We continue with all the other arrows, stating the assumptions that underlie them. Finally we find at least one of the assumptions/reasons that we think we can invalidate: in this case, we can challenge the assumption that “New ways cause staff to feel unsettled”, by the proposal “Implement a change programme to ensure all staff feel comfortable about the DSCs and why they’re needed” (Figure 3c). The conclusion that a change management programme is required is hardly surprising. However the analysis just performed provides excellent insight

Figure 3a
Conflict cloud



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Figure 3b
Conflict cloud assumptions

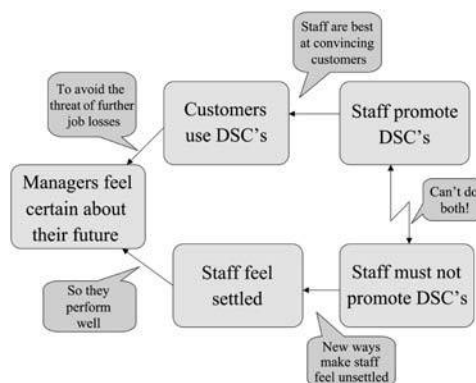
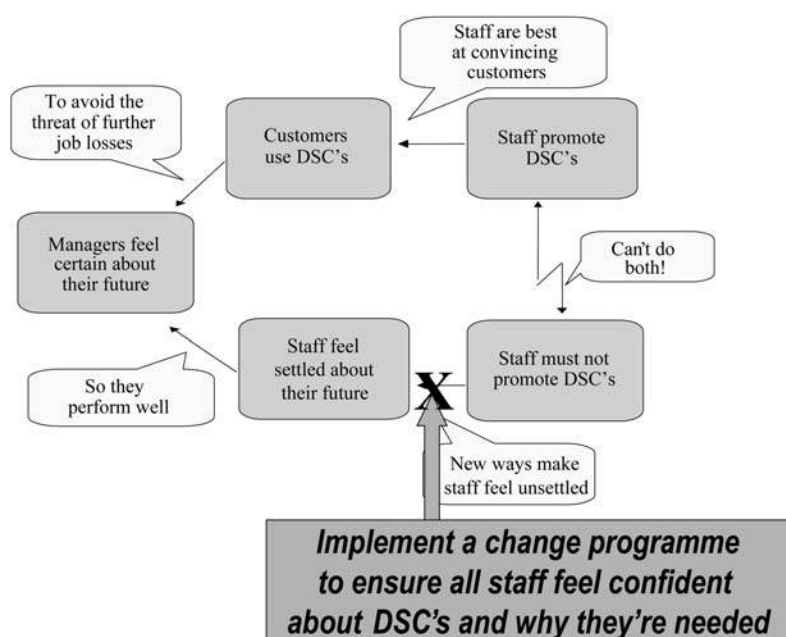


Figure 3c
Conflict cloud proposed solution



into the bind that staff find themselves in, and the inevitable negative impacts arising from such a conflict. Hence a change programme must deal with these issues directly if it is to be successful.

Next the FRT (Figure 4) was created, showing what would change if a change programme was successfully implemented. A number of other changes can be seen to be needed, such as "Promotion of DSCs is rewarded by the organisation". Normally the PRT would be done next, identifying obstacles to successfully devising and implementing the change programme. In this case, the area manager didn't feel it necessary to detail these, and so the TT (Figure 5) was used directly, to achieve the aim at the top of the tree. The PRT (Figure 6)

was used later to plan around obstacles (showed in hexagonal boxes) to getting the change management programme running in other branches. It may be worth noting that these trees and clouds were the first real attempts by the area manager, and as with any first attempt they are not perfect yet overall they captured the situation very well. Their practical success or otherwise will be discussed later.

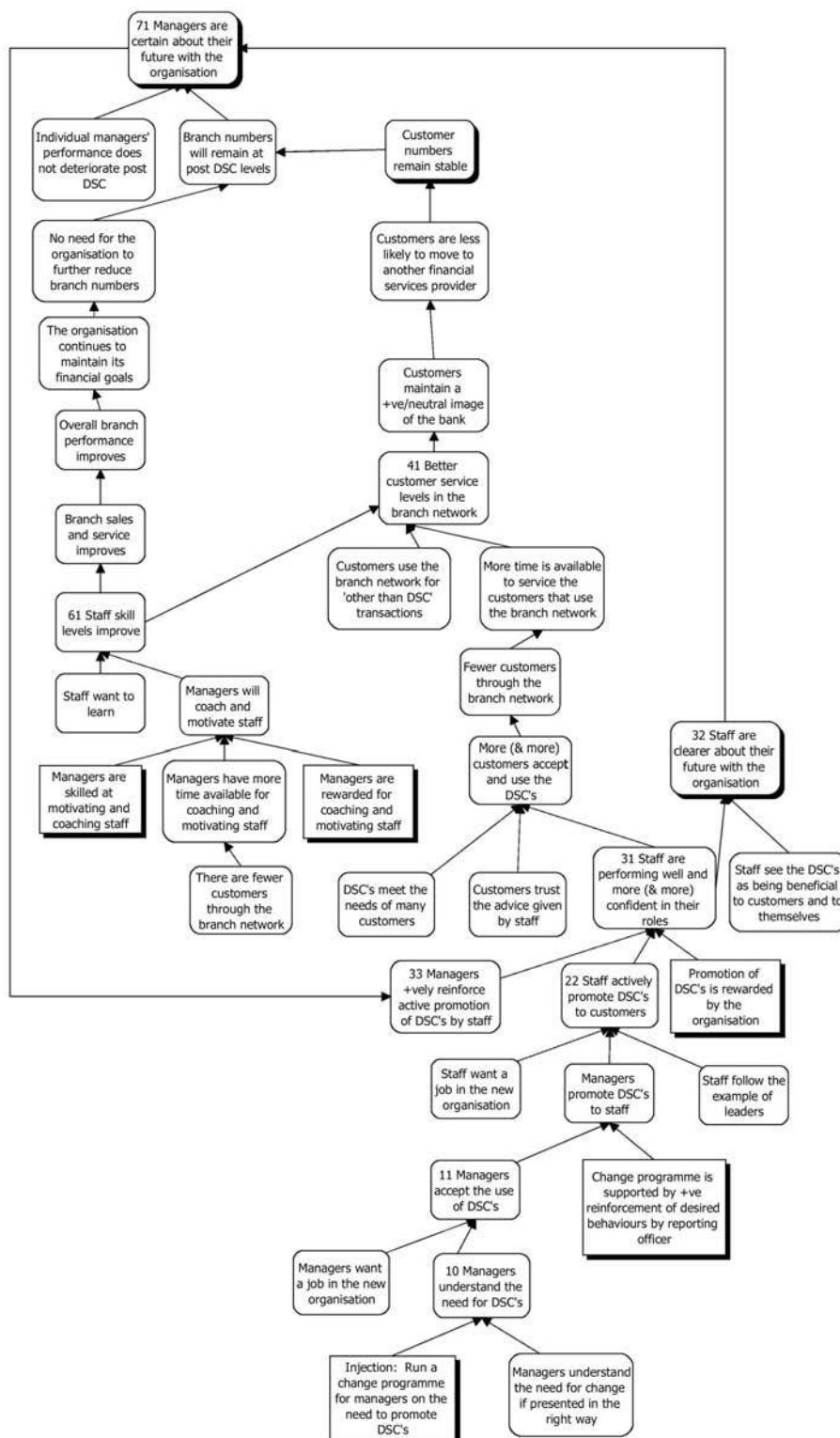
One possible "improvement" is the use of the new-style CRT which is shown in Figure 7. This form of CRT (which was taught after the date of this project, with this figure being constructed after the project had been completed) starts with a desired objective ("We wish to make the merger successful") at the bottom, and as with the old-style CRT is read from the bottom up using "IF ... THEN ..." logic. The boxes directly above the desired objective have come from a conflict cloud (turned on its side and with assumptions added to turn it into sufficiency logic). The conflict cloud was derived from the three-cloud method, and as such is a more general statement of the conflict than the earlier cloud. And then further up the tree can be seen the UDEs as before.

Once the analysis had been carried out by the area manager, he ran four two-hour workshops with the branch managers responsible for the Trust Bank and Westpac Wanganui sites, in order to share his understanding gained from the TOC analysis. The idea was to expose them to, and have them work through, the TOC trees with the area manager. In this way it was thought that an understanding of the basis and the problems associated with the project would be obtained, and commitment gained to go forward. The branch managers were not trained in the TOC processes *per se*; rather, TOC was utilised to provide a framework for the change and a clear logic-based argument for the changes proposed.

Results of the application of TOC to WestpacTrust

Table III uses as a performance measure the percentage of displaceable transactions, i.e. those transactions taking place at the branch using tellers that could have been performed using the DSCs. Table III shows the original percentages and the percentages as at December 1997. The target set by WestpacTrust was that no more than 40 per cent of transactions (assessed by performing scheduled counts at branch level) should be displaceable, and the lower the number reported, the better. The percentage reduction achieved is shown in the last column, the larger the better.

Figure 4
Future reality tree



The results indicate that the target was achieved in the Wanganui branches overall, and so the project can be considered a success. We were able to benchmark the Wanganui result against branches selected

by the project team as having similar characteristics which were also undertaking displacement activities at the same time. This reveals a far better picture of performance with the Wanganui sites clearly

performing better in terms of volume decrease. However, the Westpac site showed a 6 per cent advantage over the Trust Bank site, and the level of commitment displayed by the two branches studied varied markedly.

As stated earlier, the TOC methodology was used to explain the situation and

solution to the branch managers involved. However, there was no requirement on them to continue the TOC approach in detailing project requirements to their staff (and in fact they couldn't have used TOC on their own without considerable training). We were interested in testing the hypothesis that leadership has a great impact on the attitude displayed by staff, and hence on the result obtained. To get a balanced view of the project outcomes, an independent third party conducted focus groups at the conclusion of the implementation phase of the project. The focus groups were divided by bank of origin (Westpac and Trust Bank staff) in an effort to obtain a view of their manager's approach to change. So what were these findings?

The Westpac experience

Westpac staff responses

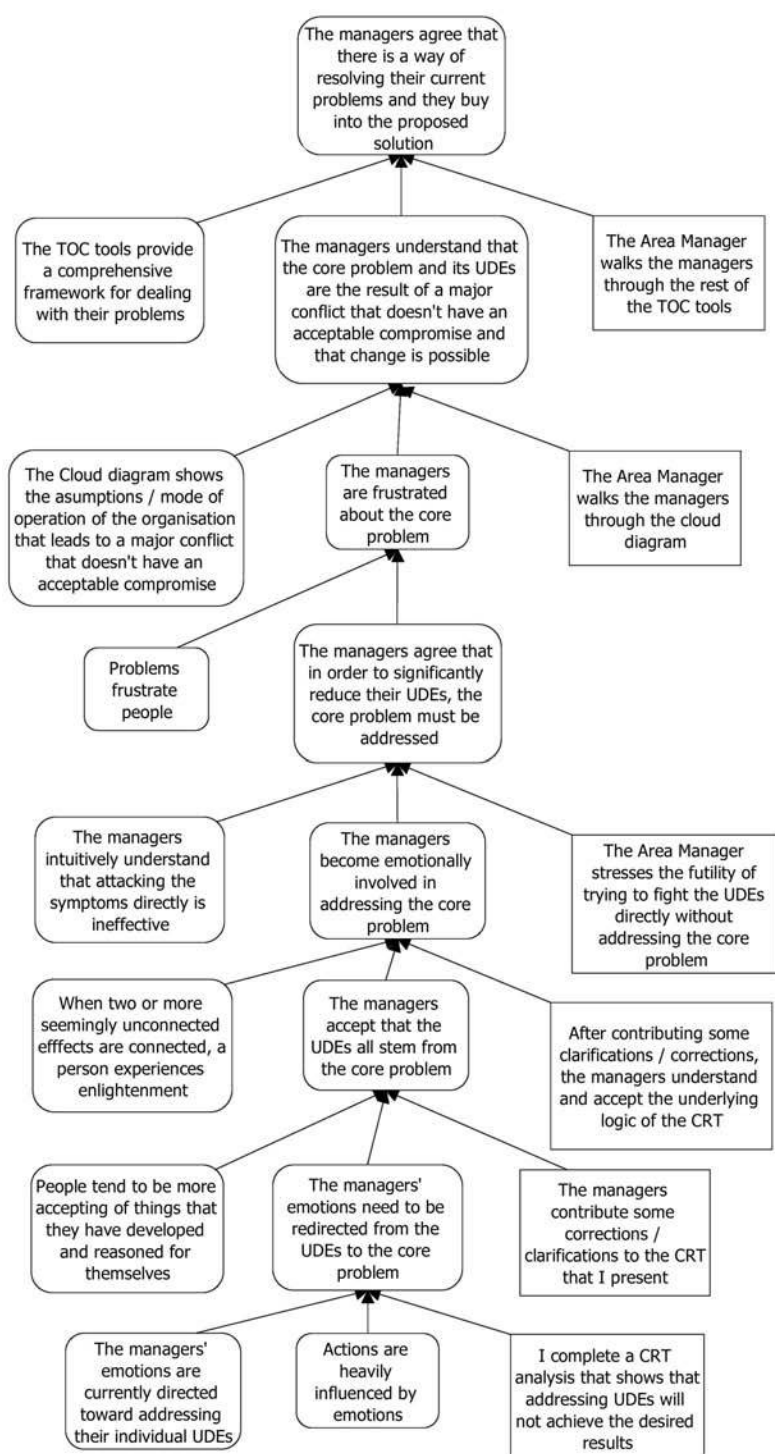
The Westpac staff group outlined the importance of the displacement strategy channels to Wanganui because of the size of the new organisation, the need to provide service and retain all of the customer base. They also stated that the displacement initiatives were important because nobody was sure of exactly how the new bank would operate in Wanganui. Their motivation appeared to stem from a desire to protect their existing customers from an environment that the staff themselves were unsure of. The staff stated that they considered the displacement strategy channels to be important, for the reasons outlined above and also to give sales staff more time to discuss other banking means/products in more depth.

The staff basically reiterated the manager's summary of implementation. The group placed emphasis on the time taken to fully explain the concepts, the overall importance of the strategies and the need for them in relation to the branch. The group was extremely proud of their own initiatives and all admitted having had initial concerns over approaching tasks they had not previously been involved in (e.g. "queue walking"). The staff reported the positive thing about the way the need for displacement strategy channels was communicated by their manager was the relating of the importance back to their branch.

The group was uncertain as to the effect the displacement strategy channels would have on the branches once they were merged: they felt that a successful implementation would lead to lesser overall staff numbers, that perhaps service levels would not be as personal and that sales targets may be harder to achieve because of the reduction in client

Figure 5

Transition tree



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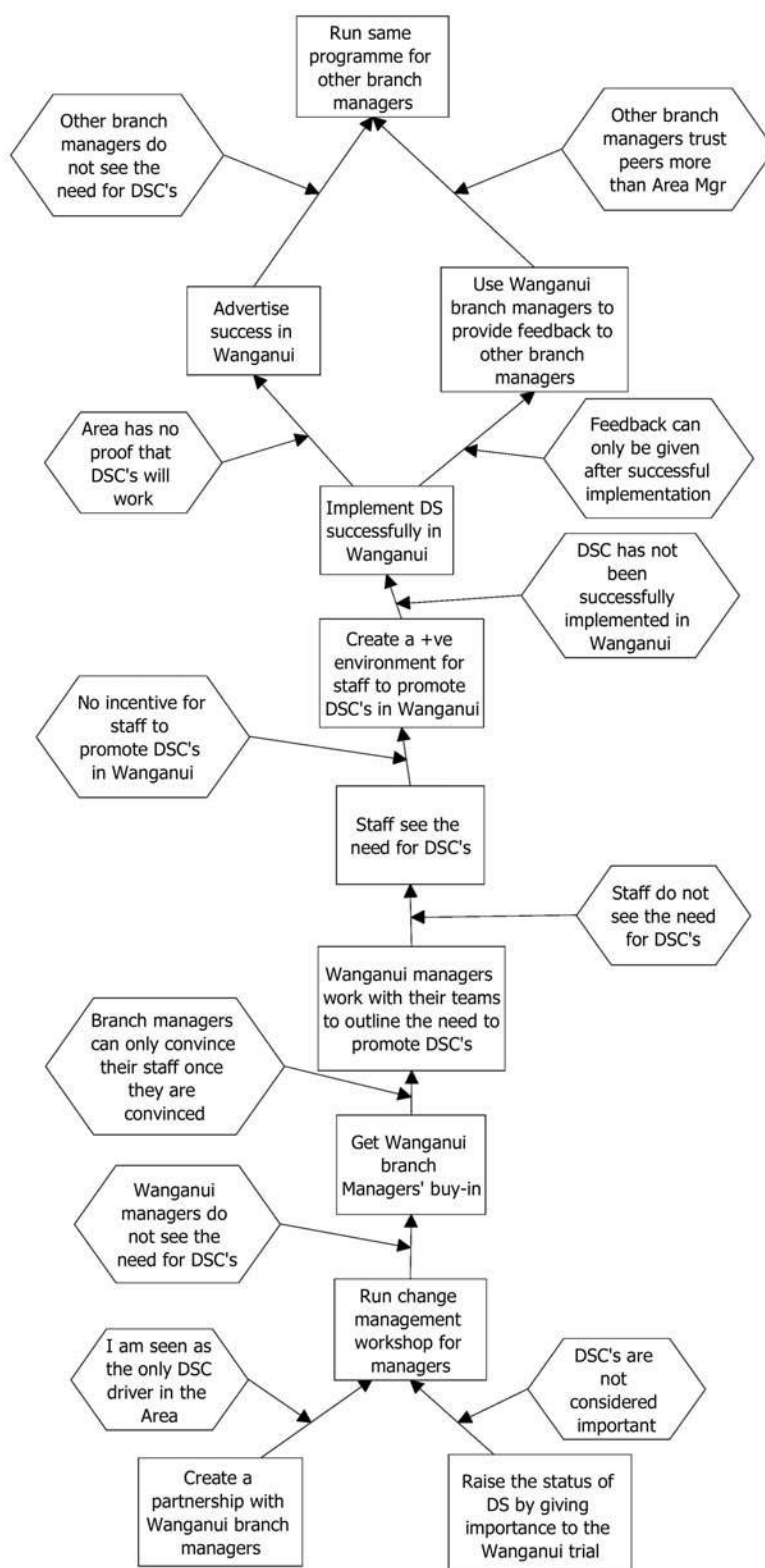
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traffic. The group's concerns over the displacement strategy for WestpacTrust were, similarly, a loss of personal contact and a reduction in branch numbers. They did,

however, indicate a high level understanding when they formulated this response.

Our first concern was job losses. However, we see that if we don't continue to work with

Figure 6
Prerequisite tree



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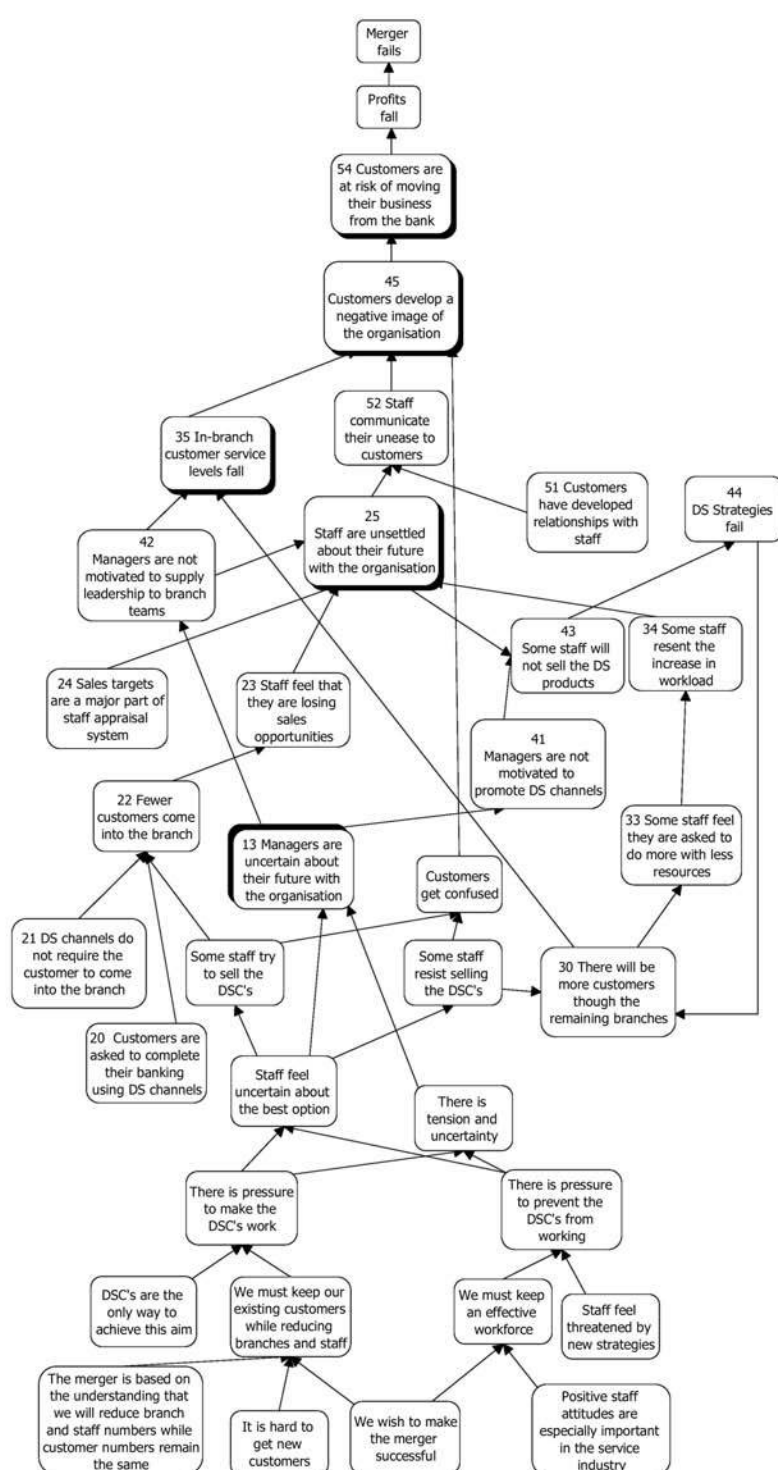
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WestpacTrust to build the best bank, then we
won't have jobs anyway – because the
business won't succeed. Customers will go
where they can get these services.

This verbalises the initial conflict reflected
in the cloud.

Figure 7

Revised current reality tree incorporating core conflict cloud



Westpac manager's behaviours

The Westpac manager's approach was to identify and use staff who had the skills to drive the change; this manager sought change through these staff. He devoted sufficient time to convincing them of the need to change and obtaining their commitment. He provided support for these staff and reinforced messages when appropriate. The manager also ensured all staff were involved in the change process. The Westpac manager addressed early the staff's unease at potential job losses. He was candid in his approach, confirming the potential. But also turning it back into a "future reality" scenario by stating that WestpacTrust would staff the branch on the basis of a successful implementation. This also removed the risk of staff attempting to manipulate future staff numbers through unsuccessful implementation. The result of the manager's actions was that Westpac staff took ownership of the process and displayed a certain amount of pride in the outcomes they achieved. They were able to accurately relate the "big picture" to their activities.

The Trust Bank experience

Trust Bank staff's responses

Trust Bank staff believed that the prime need for change appears to be solely organisationally driven, that the project's main driver to be a reduction in staff numbers and they considered the project's stated aim of customer service to be a deception. The manager acknowledged that while the size and ability to service adequately the customer base could be problematic, his prime motivator appeared to be that the branch was a pilot, and so he would ensure a level of compliance would be forthcoming because the situation was being monitored. The manager effectively relinquished control of the project to a staff member. Delegation was not evidenced, which signalled to staff that the manager was not committed to the process. The manager's actions in pushing for the pamphlets on the displacement issue reinforced to staff that direct interaction with customers on displacement issues was not a recommended behaviour.

Customers would have taken to these strategies a lot easier if we had stayed as Trust Bank, a community bank, and taken a more gradual approach.

This quote is remarkably telling – The Trust Bank staff appear not only to be resistant to this project but also to harbour resentment at the merger and the change to WestpacTrust. Their views were markedly different views from those of their Westpac counterparts,

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they still displayed a real resistance caused by a lack of understanding of their current reality. The Trust Bank staff saw the effects of the strategies as a reduction in teller staff numbers and a loss of the personal touch. The quote also displays some unresolved change issues as well as an unawareness of current reality. The group stated that what they would have liked to see was a structure in place, more feedback and full branch participation. They also responded that the importance of the displacement strategy to the bank and especially to the branch, needed to be communicated more forcefully.

Trust Bank manager

The Trust Bank manager appeared to feel it was not his role to outline the need for change and the importance of the project to staff. His responses indicated that he believed he could not motivate or obtain commitment from his own staff, and that staff did not display any commitment to project goals. The manager did not make an active attempt to ensure all staff took part, and those from the sales area that were involved appear to have been included by default. The manager appeared to be quite happy with this approach. Staff were very resentful of the fact that not all staff were involved. The manager's responses indicated that he found the staff's resistance to change to be acceptable and understandable. Both manager and staff are united in their opinion on the difficulties that converting the customer base represent. Despite poor implementation, lack of project ownership and the resistance evidenced, Trust Bank's results were still better in terms of improvement than the "control" branches.

Summary – managers' behaviours

Leadership was seen to have an impact at branch level, with differences in project implementation from the Westpac and Trust Bank sites due to the involvement and leadership displayed by the respective branch managers. Both managers had access to exactly the same training and support levels, yet the approach by the Trust Bank

manager was clearly inferior. An analysis of his behaviours shows that he:

- was not clear in the direction he set for his staff;
- did not take ownership of the project;
- did not seek full staff involvement for the change process;
- reinforced and supported negative behaviours.

We will return to this later.

Meeting the issues and needs of change management

We would now like to consider how TOC meets the issues and needs of change management. The ability to create trust and to use power from an appropriate source to create an environment where the people that make up an organisation feel change is required and then commit to that change process are, as indicated earlier, two of leadership's most important qualities. The ability to deal with or better still, harness resistance as it arises, is also crucial. Having seen the TOC TP tools in action, we can now examine how TOC handles these leadership issues.

Leadership

One of TOC's most beneficial uses is as a leadership tool. First, let us review leadership v. management and the differences between the two (see Table IV).

Our experience is that today's organisational leaders need to understand themselves, their people, and the potential sources of conflict. We all recognise that change generates stress, and that a leader must maintain a balance between having people feel the need for change and being overwhelmed by change. To be successful, leaders require a deep understanding of the pain of change and the fears and sacrifices associated with it, and also require the ability to hold steady and maintain the

Table III

Percentage of transactions that could have been performed through the DSCs

Branch	Original proportion of displaceable transactions (%)	Proportion as at December 1997 (%)	Reduction in displaceable transactions (%)
Trust Bank Wanganui	71	41	30
Westpac Wanganui	74	38	36
Trust Bank Chartwell	60	43	23
Westpac Te Rapa	72	47	25

Table IV

Behavioural differences: leaders v. managers

Leaders' behaviours	Managers' behaviours
Innovate	Administer
Long range perspectives	Short term views
Eye the horizon	Eye the bottom line
Challenge the status quo	Accept the status quo
Focus on people	Focus on structure
Communicate	Command
Originate	Imitate
Do the right thing	Do things right

Source: Bennis (1997)

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tension. Unless this is done the stimulus for learning and change may be lost. So, in this context, leadership can be seen as a key role of change, and because change is one of today's constants, leadership has never been in more demand.

If we take these needs and consider them against TOC's potential to deliver, we have an extremely powerful leadership model, one that is based on mutual empathy formed by the communication processes built into the model, leading to an inherent joint understanding not only of the "big picture" and the needs that are associated with that, but also of the concerns of individuals that are acknowledged as part of the process. The solution often advocated for management v. worker tensions is empowerment, stating that empowerment represents a way in which organisations can build, release and focus the energy and talents of all employees. It is suggested that leaders need to learn to support rather than control, and let people take initiative in defining and solving problems, and provide them with the tools to work together to achieve this. If we reflect on the outcomes required, and cast our minds around for a set of tools that would enable us to build, release and focus the energy and talents of staff, then the TOC tool set stands up to the line.

TOC and trust

Other researchers have focused on the use of trust as a major tool in a leader's change management strategies. Zand (1997) states that information, influence and control are the three signal posts of trust, and says that when people see these demonstrated by a leader they in turn are more likely to demonstrate those behaviours, creating a virtuous circle. He has identified conditions (see Table V), which he states cause trust.

Today's leadership model states that a successful leader has to engage people in confronting the challenges, adjusting their values, changing perspectives, and learning new habits. Leadership is not technical – a

combination of grand knowing and salesmanship; it's about people. TOC provides a model and structure, a tool kit and roadmap, all contained in one methodology, to work through these issues.

TOC as a method for harnessing resistance

The TOC approach to resistance

Goldratt's ideas on resistance come through in his early writings, and underpin the thinking process tools and the manner in which they have been used by trained practitioners. Goldratt (1990a) explains his thinking behind the need to develop a set of tools such as the thinking processes in addition to the solutions contained in *The Goal*, saying he wanted to help people learn how to "use the psychological aspects to assist, rather than to impair, the implementation of those solutions in a mode of an on-going process".

The following quotes (Goldratt, 1991) reveal his frustration with the way we have in the past tried to rationalise the notion of resistance to change: "The people know the inventors (of the change plan) haven't got it right, and get disillusioned ... Managers often blame failures on resistance of the implementers (employees), but it's the inertia of the inventors, not the implementers that is to blame", i.e. it is the inventors' fault that they did not listen to the implementers, and change/modify their change plan, taking on board the valid insights from the implementers. He concludes the discussion by saying, "I cannot respect the claims that people are stubborn and dumb, that people will resist something that is coherent, logical and beneficial, just because it is new".

TOC as a tool to utilise resistance to change

Several authors (e.g. Bennis, 1997) have pointed out the importance of being able to gain commitment, leverage support and obtain resources for change. To this end they state that the communication process is vital in achieving that desired result. They state that the case for change should be well articulated, compelling and logical. The TOC trees provide the means to articulate the need for change by describing the current environment (CRT) and outlining a future changed environment (FRT) from which the core problems have been removed (EC). The methodology used is logic-based and tested, resulting in an argument for change that is compelling.

Table V

Conditions leading to trust

Competence	A demonstration that the leader can do the job
Openness	A willingness to share relevant information
Supportiveness	An acceptance of people as they are and tolerance for disagreement
Reward systems	Win-win reward systems where everyone benefits from a person's or a department's success – or at least no one suffers
Intentions	A demonstration that the leader has only the best intentions for the organisation and its people

Source: Zand (1997)

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For the implementation phase, the key communication tools of TOC are the PRT, which deals with perceived obstacles to the implementation of the intended solution, and the TT, which has been specifically designed to better facilitate communication and persuasion to set the implementation on its way.

Goldratt further emphasises the importance of communication through the provision of the CLRs, and using these to focus on the issue rather than on the person making the statement. The CLRs provide a communication process that is:

- non-threatening;
- allows people to find their own errors; and
- engenders co-operation.

Goldratt's tools, particularly the use of CLRs in group discussions, aim to get the group to share the vision, agree on common values, gain understanding of others' views and find ways to accommodate different views, in developing an agreed action plan. Senge (1990) talks about shared values through dialogue, learning through listening, suspending judgement and people being open enough to share their values. Pascale (1990) stresses the need to resolve conflict and remove the blinkers from our thinking which requires the ability to disagree in an agreeable fashion. All of these seem to be facilitated by using Goldratt's tools.

Five levels of resistance, six levels of knowledge, six steps to buy-in

Houle and Burton-Houle (1998) described how TOC addressed resistance, breaking it down into five layers of resistance. These have since been expanded and relabeled as the six steps to buy-in (Burton-Houle, 2000). These pertain to the nature of the reservations being expressed during the course of a change process, the nature of the resistance, and the levels of knowledge or understanding that need to be mastered, and buy-in achieved, before a change is successfully implemented. Dettmer (1998a, Ch. 11) performs an analysis of the psychology of change and has identified six common psychological barriers – reasons, excuses – why people offer resistance. The excuses, layers the appropriate TOC tools for each layer, and the steps to buy-in, are summarised in Table VI.

As suggested in Table VI, the appropriateness of the various TOC TP tools depends on the nature of the resistance being felt. For example, someone at layer 1 is expressing doubts about the existence or nature of the problem. There is no point discussing a proposed solution before there is

agreement as to the existence of a problem, and the nature of that problem. In order to determine if there is a problem, and the nature of the problem, the CCC/CRT can be used. Only once this is agreed upon does it make sense to proceed to the next level of knowledge, determining a possible course of action, a possible solution to the problem.

Having looked at the way TOC addresses resistance, we now return to the ten sources of resistance identified by Kanter (1985), listed earlier, and explain how each of these is dealt with within the TOC framework. Table VII outlines the ten causes of resistance to change, together with the TOC TP tools that would assist in overcoming that resistance. In addition to the TP tools listed, there are several other TOC tools (see Table VII), taught by the Goldratt Institute in their Managerial Skills Workshops, that help recognise and overcome resistance.

The above shows that TOC addresses many of the “soft” or emotional issues surrounding change. TOC works by giving credence to these issues, validating them in people's understanding and providing ways of dealing with them through buy-in and reassurance. (Dettmer, 1998a) stresses the need to ensure that any change is feasible on three dimensions: economic, technical and political. As one moves through the layers, technical and economic feasibility issues are worked through. However the final level is crucial for implementation, and it is here that political infeasibility issues can make a good idea run aground. It is here that we need to surface, very tactfully, issues relating to loss of status, security, satisfaction and authority that stand in the way of a successful change. Dettmer (1998a) illustrates the use of conflict clouds to resolve such issues.

Analysis of Trust Bank manager's behaviour

Using this framework, we can analyse the behaviour of the Trust Bank manager, described earlier (see Table VIII). We see that the manager's stated concerns relate to fears that others will not buy into the changes, but he is probably resisting because he stands to lose out by the change, and these losses were not identified and resolved during the intervention.

So you might say that the result was a bit of a mixed bag, but we do not think so. The performance of the Westpac branch was excellent, the results fell within the target range and they started from a very high base point. The responses of the staff who attended the focus groups indicated that they had understood the message being sent by the

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manager. The manager demonstrated strong leadership through the project, his actions were motivated by his understanding of the situation – an understanding gained through the use of TOC methodology. It is clear that he in turn painted a picture to his staff of current reality and what the future held if change was not implemented, he used logic to address staff concerns.

But sometimes the real learning takes place in the not so successful endeavours we undertake. The absence of any leadership in the Trust Bank site resulted in staff friction, non-acceptance of change and flowed through to an implementation that did not achieve as good a result as its counterpart down the road. Had the issues for the Trust Bank manager been identified and resolved, the results would probably have been better. However despite Trust Bank's failings, its result was as good as, if not better than, the control branches. This may suggest that the communication processes used by WestpacTrust in the project generally could have been improved, and it could be partly the result of the Hawthorn effect for the particular Wanganui sites. However given that the Wanganui sites had been expected to perform worse than average, this better than average performance for the two branches and better performance for Westpac, would seem to support the theory that TOC was certainly not harmful and probably beneficial.

The project was structured for no further follow up during its course, so it was not possible to intervene and provide further guidance to the Trust Bank branch. The TOC tools were used to develop the message to tell

the managers, who were then responsible for dealing with the situation as they saw fit. The more usual use of the tools would be to work with others to develop strategy together. If they had been used with the managers to jointly develop a strategy we would have expected more buy-in and better results, especially if, as stated earlier, the levels of resistance were used to check for voiced and unvoiced concerns. TOC is not a panacea: the TOC tools have to be used carefully, and resistance acknowledged and addressed at each stage of the process. The findings emphasise the need for this ongoing involvement in all change projects.

Conclusions

In this paper we have briefly reviewed the change management literature, surfacing numerous prerequisites for successful change, but revealing little about how they are to be achieved. Moreover the literature does suggest that if such prerequisites are not present, then change will be impeded by what is often termed "resistance to change", which in most cases is seen to be problematic – something to be managed and overcome. Waddell and Sohal (1998), quoting literature from the 1960s and 1970s, argue that there is utility in resistance, but lament the absence of change management models and theories that actually incorporate the possibility of utility in resistance. However there is at least one such methodology, the theory of constraints, which views resistance as a necessary and positive element in any change process, arguing that managers need

Table VI

Layers of resistance and their relationship to buy-in

	Layer of resistance (excuse)	TOC TP tool(s) to be applied	Six steps to buy-in
1	The problem doesn't exist, or we don't agree on the problem	Core conflict cloud (CCC) and the current reality tree (CRT)	Get consensus on the core problem
2	We have no control over the outcome – it's out of our hands	Core conflict cloud (CCC)	Get consensus on the direction of the solution
3	The proposed solutions won't deliver the desired results	Future reality tree (FRT)	Get consensus that the solution solves the problems and achieves the desired results and strategic objectives
4	The proposed new solution will create new problems (or more than it solves), often expressed as "Yes, but"	Negative branch reservations (NBRs)	Ensure all significant negative side-effects have been surfaced and trimmed
5	We'll never be able to get around the obstacles that stand in way of implementation	Prerequisite trees (PRTs)	Ensure all major obstacles to implementation have been surfaced and addressed
6	Those whose support we need will never buy into the idea	Transition trees (TrTs)	Ensure we have commitment of all leadership to making the implementation successful

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Table VII

Resistance to change factors and TOC tools to help utilise them

Cause	Outline	TOC tools
Fear of the unknown	Being uncertain about the nature of a change, feeling that you do not know what is going on and what the future is likely to hold	CRT, FRT
Loss of control	Feeling that the change is being done to you, not by you, worrying that you have no say in the situation and the events taking place	FRT, assisting or giving input into building this would assist
Loss of face	Feeling embarrassed by the change and viewing it as a testimony that the way you have done things in the past was wrong	Usually a problem is due to conflict (e.g. over priorities) CRT and EC can help
Loss of competency	Feeling that existing skills and competencies will no longer be of any use after the change	FRT would assist people to think the issues through
Need for security	Worrying what your role will be after the change	FRT and NBR (see also loss of face)
Poor timing	Being caught by surprise with a change that has been sprung on you, or being asked to change at a time when you already feel overworked	FRT would assist people see outcomes and overcome this fear PRT and TT would help plan for future
Force of habit	Not liking to change existing ways of doing things, feeling comfortable in existing routines and habits	Need for change could be helped by the CRT, while PRT and TT would provide practical steps needed to change habits
Lack of support	Lacking important support from direct supervisors and/or organisation, not having the correct resources to properly implement the change	TT is designed specifically for this use
Lack of confidence	Lacking in personal confidence that things, once changed, really will be better than before	FRT would assist people understand the proposed solution and its benefits
Lingering resentment	Being recalcitrant because of a lack of respect for the people involved and/or because of anger over the way you have been treated during past change efforts	NBR, FRT and PRT all address these issues

to identify resistance and engage others in testing and honing change strategies and action plans, to enable a full, complete and successful implementation. While TOC is not normally thought of as being part of the change management literature, it is clearly a systems methodology dealing largely with change management. TOC is now used worldwide by companies of all sizes. Many managers who routinely use TOC believe they understand their businesses for the first time. From this understanding they gain a sense of control and of being able to act proactively. This is because TOC empowers managers by providing a consistent framework for diagnosing and resolving problems. It does this by providing a set of “thinking process” tools that can be used to achieve successful implementations, by answering the key questions in any change

process, namely: what to change, what to change to and how to cause the change? The purpose of this paper was to briefly describe these TOC thinking process tools and illustrate how they may be used to manage change.

The main focus of this paper has been on the resistance to change, and we have shown how TOC provides tools and an overall framework to utilise resistance, breaking down resistance into layers, and ensuring the layers are addressed in sequence, thus harnessing its potential. An actual intervention in a bank merger situation was described. Based on this experience, we believe TOC can be very useful for answering the question of “How to lead change?” We can look to TOC for a framework and tool kit that is well equipped to address leadership and change management issues: to assess our

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Table VIII

The layers of resistance to change and Trust Bank manager's behaviour

TOC's resistance levels	Trust Bank manager's behaviour
1 Lack of consensus on the problem	Manager agreed that problem existed
2 Lack of agreement that one can do anything about the problem	Manager agreed that we could do something
3 Arguing that the proposed solution cannot possibly yield the desired results	Manager agreed that the solution proposed was logical
4 Expressing concerns about the potential side effects of the proposed solution	None were expressed at the time of discussion or in the days following. It was only during the interview following implementation that the manager expressed concern about the effects of the project on the elderly customers. This was not mentioned through the lead up to or during the implementation of the project itself. The way in which the manager has worded his opposition tends to suggest that he is passing on information/concerns obtained from staff
5 Obstacles stand in the way of implementing the complete solution in your environment	In this case it would appear that the manager perceived the resistance shown by staff to the proposed changes to be a serious obstacle
6 Raising doubts about the collaboration of others, resulting in "wait and see" behaviour	Manager also exhibited these behaviours, generally quoting staff reaction

current competitive situation, to reveal hidden assumptions and resolve conflict, to help us identify new solutions to our problems, and to plan and implement such changes. In particular, we showed how the various types of resistance, identified in the change management literature, can be handled within the TOC framework, and how TOC goes a long way to providing practical steps to achieving the prerequisites for successful change.

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