A Framework for Clarifying the Goal and Implementation of ISO

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Abstract

Many organisations are dissatisfied with the outcomes of ISO implementations. This paper proposes that this dissatisfaction is often a consequence of a lack of clarity as to the goal of the implementation and the lack of a clear linkage to the organisational goal over the implementation. The paper proposes that the use of the relatively new tool from the Theory of Constraints – the Strategy and Tactic (S&T) tree can help to provide this linkage and to guide the subsequent implementation. The integration of the S&T Tree and Treacy and Wiersema's Value Discipline model (1993) is used to focus the original goal setting and subsequent implementation. A case example is then presented to illustrate the application of the model.

Keywords

ISO outcomes, TOC strategy and tactic (S&T) tree, Treacy and Wiersema's value discipline model, strategic choice, case study.

INTRODUCTION

ISO is a program that consumes significant amounts of time and money as it involves standardising the processes and work guidelines as well as the work policy through ensuring conformance against ISO procedures. Dissatisfaction and disappointment are commonly experienced with respect to ISO outcomes. For example, Terziovski and Power (2007) suggest that the European Commission's Directorate General of Industry provide evidence that frustration and confusion are common outcomes from ISO implemetation particularly in respect to the perceived value and the outcomes of accreditation process. In addition, Costa and Lorente (2007) conclude that implementing ISO accreditation does not contribute to better company management. Previous studies (Caro et al. 2009; Terziovski et al. 1997; Wahid et al. 2011) also suggest that ISO accrediatatin has a weak and sometime negative effect on the business performance. Similarly, Feng et al. (2008) conducted a survey study which included 613 Australian and New Zealand accredited companies and report that ISO implementation has a weak effect on the business performance compared to the operational performance. In other words, ISO standards tend to improve the internal operations or work procedures more that enhancing the overall organisational performance. Rodríguez-Escobar et al. (2006) argue that much of the source for dissatisfaction with the outcomes of ISO accreditation is unrealistic expectations as to benefits. Douglas et al. (2003) suggest that a big part of the disappointment with ISO accreditation is related to the high cost of maintenance of the accreditation. They assert that the ISO accreditation only gives value for money when the accredited organisation is able to apply for contracts previously unavailable. For organisations that aim to maintain accreditation, the source of failure to maintain the ISO accreditation according to Costa and Lorente (2003) is the lack of effective processes for ongoing improvement to address the identified non–conforming areas of the system.

There is perhaps always a level of dissatisfaction with the outcomes of the improvement programs–as Barnard (2010) suggests "despite the impressive reference bank of success and powerful instigates of today's mainstream continuous improvement methods, they all seem to struggle with achieving higher level of adoption, with sustaining and expanding on initial improvements, and probably most importantly, with finding ways to reduce the significant percentage of failures and wasted scarce resources due to the these failures".

Publically available certification programs like ISO are quality assurance programs with an ultimate goal to confirm (assure) to others (competitors, customers, suppliers, and/or the organisation itself) that the quality in specific area/s (product/service characters, process procedures, and/or the organisation itself) match certain standards and criteria. Yet as Williams (2004) suggests internal motives are often also important. The study grouped the basic motives for implementing ISO into two groups:

Coercive external motives: customer demand, pressure from competitors, the need to satisfy non-EU-government, the need to satisfy EU regulations. Internal motives: seeking quality improvement benefits, being part of a larger strategy, being part of a marketing strategy

The research examined organisations satisfaction with the ISO 9001:2000 certification outcomes in relation to the motive for adoption (Williams 2004) and suggested that organisations following non-coercive internal motives have better outcomes than those for which ISO is enforced. Similar studies (Heras-Saizarbitoria et al. 2013), (Prajogo 2011) and (Santos et al. 2002) find similar results.

Clearly there is a linkage between the goal of the ISO program and the satisfaction with subsequent implementation. In line with Williams (2004) this paper suggests that the ISO goal needs to be in line with the organisational goal and that targeting customer intimacy or operational effectiveness (refer to Treacy and Wiersema's value discipline model) can be well-supported by ISO implementation. The paper suggests the adoption of the Theory of Constraints (TOC) to guide the implementation process and provide a clear focus on What to change, What to change to, How to cause the changes, and most importantly what not to change.

An important tool for managing the change process within the TOC approach is the Strategy & Tactic Tree– this paper will argue that this tool will provide a valuable platform for managing ISO implementation as it seeks to keep the goal of the change program clearly in focus.

The study first will introduce relevant aspects of the Theory of Constraint Thinking Process, and then summarize Treacy and Wiersema's strategic choice model. Then a case study example of ISO implementation will be presented and analysed using one of the newer TOC Thinking Tools, the Strategy and Tactic tree. This is aimed at addressing the observed existing unclear connection between the organisation goal and the ISO implementation's goal. The analysis demonstrates that the S&T tree can provide benefit in clarifying and communicating how the ISO accreditation process links to the organizational goal.

THR THEORY OF CONSTRAINTS THINKING PROCESS (TP)

The Theory of Constraints (TOC) is a holistic methodology that can be used to guide quality programs. It does not focus specifically on the improvement of quality, but adopts quality principles deeply within its underlying grounding, in particular by its use of the five Focusing Steps (5FS) (see below) TOC has helped many organisations to survive by achieving competitive advantage (Mabin et al. 2000). Its premise is in every system there is at least one constraint which prevents the organisation from reaching its goal. The constraint usually represents the weakest point that keeps the system from improving their overall performance. The theory of constraints has been built on three interrelated principles (Shoemaker et al. 2005):

1. Each system has a goal, and to achieve this goal, a set of necessary conditions need to be satisfied.
2. The overall performance of the system is not the sum of its components performance.
3. Only a few constraints limit the system's performance at any time.

The core argument within TOC is that at any one time every organisation has at least one or two constraints limiting achievement of their goal and it suggests a **focus** on this area. It suggests the adoption of the 5FS to "break" these constraints. The aim of these steps is to maximise system improvement and encourage a process of ongoing improvement. It represents the first stage of managing the constraint. These steps are:

1. identify the constraint;
2. exploit or get the most out of the constraint without extensive investment;
3. subordinate all other areas to address and break the constraint;
4. elevate or allocate resources to break the constraint, and assuming that the constraint has been broken;
5. go back to the first step to avoid inertia.

Ideally the constraint is broken early in the process and Elevation is thus avoided for service and not–for–profit organisations where the goal is often unclear. These 5FS have been adjusted by Pass and Ronen (2003) to seven steps to include 1) stating the organisation goal and 2) defining global performance measures. Constraints can vary according to the organisation type, for example, Ronen et al (2003) suggests that the constraints within services' organisation are in two areas: sales and marketing, and IT. Goldratt (Rahman 1998) classified constraints into physical constraints (materials, machines, people, and demand level) and non-physical (policy related) constraints. Constraints could be also classified, into internal and external constraints.

An important tool within TOC is the Strategy and Tactic (S&T) tree. This technique can be seen to provide a new approach to strategy implementation. The traditional approach is that strategy is at the top of the organisation and tactics would be at a lower level or the operational level (see the left side of figure 1). However, under such a model it is not clear where the strategy ends and where the tactic starts –the implementation is not clear and predictable. Goldratt (2010) defines strategy as the answer to 'what for' and the tactic as to answer 'how to' - he proposed a more intimate linkage between strategy and tactic by suggesting that their linkage be managed in decreasing hierarchical levels through the organisation suggesting that strategy and tactics should be presented in pairs (Goldratt et al. 2002). By clearly delineating the link between strategy/tactic pairs and the organisation goal the S&T tree will avoid the disharmony and the contrast between authority and responsibility since it provides a clearer understanding of the role of each person within the organisation (Barnard 2010). By properly communicating the S&T tree, each level within the organisation will be able to see their role in achieving a higher level strategy thus building the needed commitment to achieve the improvement process. Furthermore, the specific nature of the S&T tree and its definition of underlying assumptions clearly identify what not to change – this sets the boundaries of the improvement process and also resolves the gap between authority and responsibility (Barnard 2010).
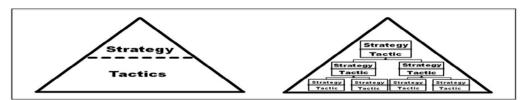

Figure 1: traditional vs. TOC strategy and tactic

S&T tree is a logical tree structure that enables focusing (Huang et al. 2013). It is valid as the assumption on which it is based. Thus, the responsibility of managers at every level in organisation to identify and communicate the strategy and tactic for each proposed changes. Most importantly, they are responsible of defining and communicating the logic behind the proposed changes. This includes, why the proposed changes is necessary to achieve the higher level objective (necessary assumptions) (Barnard 2010). Necessary assumption represents the current damage of not taking the proposed change in the step. It clearly provides motivation for the necessity to the step (Ferguson 2010). The second set of assumption is the logical sequence which leads us from strategy to what the tactic must be. This assumption refers to that strategy and tactic are parallel in effect or matches to each other. The third set of assumption, the sufficient assumption is guidance on what should be considered when reviewing the next level of S&T tree since it connects to the level above. This assumption is on sufficient-based logic which means it needs to verify that all the listed component are enough or sufficient to achieve the desired result (Ferguson 2010).

The S&T Tree can be seen as an important tool for defining, validating, communicating and implementing organisational strategy (Barnard 2010). It is useful to incorporate ISO implementation as a tactic within the S&T tree to help the organisation to reach its goal.

As discussed above ISO is generally used to achieve external market advantage or internal operational improvement –that is, under the S&T tree framework, ISO can be seen to be a tactic to achieve a particular strategic goal. The reminder of this paper will seek to clarify this linkage and to develop particular S&T trees for each of these primary motives underlying ISO adoption. It will link these motives to the widely adopted value discipline model of Treacy and Wiersema (1993) to better clarify the strategic intent of organisations. The paper will then provide a case example demonstrating the difficulties that a particular service organisation had with clarifying the linkage between ISO implementation and the organisational goal. It describes the effects of this poor linkage and suggests that the S&T tree can guide their ongoing ISO adoption process.

Based on the above argument and the case study example, it suggests that organisations will be able to use the particular "customer intimacy" S&T tree or "operational effectiveness" S&T tree to manage their implementation program dependent on their specific motivation. It further suggests that the frameworks could also be used to guide subsequent re–accreditation whereby an organisation might target external motives first followed by internal motives (as for the case example) or vice versa. The argument that ISO can be seen to have external and internal motivations is in line with the arguments provided in value discipline model of Treacy and Wiersema (1993).

THE ORGANISATIONAL STRATEGIC CHOICE

Treacy and Wiersema (1993) determine three value disciplines to focus the organisation's activities. According to the value disciplines model whilst aspects of all components are needed successful organisations can only concentrate their efforts on one of customer intimacy, operational excellence, or product development at a time

Customer intimacy has (Treacy et al. 1993):
1) An obsession with the core processes of solution development (i.e. helping the customer understand exactly what is needed), results management bracket (i.e. ensuring the solution gets implemented properly), and relationship management
2) A business structure that delegates decision-making to employees who are close to the customer
3) Management systems that are geared towards creating results for carefully selected and nurtured clients
4) A culture that embraces specific rather than general solutions and thrives on deep and lasting client relationships

Operational excellence has:
1) Processes for end–to–end product supply and basic service that are optimised and streamlined to minimise costs
2) Operations that are standardised, simplified, tightly controlled and centrally planned leaving few decisions to the discretion of rank-and-file employees
3) Management systems that focus on integrated reliable high-speed transactions and compliance to norms
4) A culture that abhors waste and rewards efficiency

Product leadership has:
1) A focus on the core processes of invention, product development, and market exploitation
2) A business structure that is loosely knit and hoc and ever-changing to adjust to the entrepreneurial initiatives and redirection that characterise working in unexplored territory
3) Management systems that are results–driven, that measure and reward product success, and that do not punish the experimentation needed to get there.
4) A culture that encourages individual imagination, accomplishment, out-of-the-box thinking and mindset driven by the desire to create the future

Treacy and Wiersema suggested that only a few organisations have managed to lead in two disciplines and they managed this through focusing on one area first before commencing a second one. Such an argument has certain synergies with that proposed by TOC in the way it argues for a focus on the constraint and its suggestion that the ultimate aim of the 5FS is to have the constraint eventually move to a market constraint as with progressive breaking of internal constraints (Barnard 2010). For the newly founded organisation logically they would seek operational improvement first in order to be able to seek customer intimacy. Without effective internal processes organisations generally would not be expected to be able to get in to a market (i.e. seek customer intimacy). But applying the TOC arguments we can see that the strategic choices may well jump from operational excellence to customer intimacy as the constraint moves variously from internal to external and vice versa. The TOC argument adds to the Treacy and Wiersema model as it provides an implementation focus for the model. For example, the third strategic choice of product leadership again would logically follow as organisations try to break the market constraint.

ISO implementation can be seen to be a tactic used most effectively to address operational excellence or customer intimacy. ISO would not generally be seen as an avenue for new product development since it is primarily a 'best practice' model that reflects the common practice in the industry. It also would be seen as a tactic to elevate the constraint rather than exploit or subordinate. ISO is an expensive undertaking that involves considerable organisational disruption and change and thus would only be adopted if earlier exploit and subordinate steps were successful.

For example as discussed below the initial adoption of ISO can be seen to be consistent with the "elevating" focusing step in TOC where, in this case, ISO is used to break their market constraint. In this case ISO accreditation provided the proper assurance for the market, including clients and competitors that the organisation had conformed to international standards. Using such a tactic helped them to attain the customer intimacy that they needed to break the market constraint.

METHODOLOGY

The organisation examined is a service based organisation providing professional services to various clients within the region. It recently achieved ISO accreditation with mixed results and was preparing for a second

round re-accreditation process. The research used a case study approach, collecting data through in depth, semi–structured interview. Six in depth interviews were conducted with managers and supervisors of the case study organisation and parent organisation (table 1). In addition, multiple sources of data and perspectives were used to validate the assertions made from the interviews (for example: the organisation's website, internal audit procedures, audit criteria and report, documentation reviews and checklists, ISO standardisation interpretations, a copy of the accreditation certification, ISO re-assessment report).

Table 1: The interviewees' roles and experiences

Interviewees position	Years of experience	Roles
The manager of the organisation	More than 10 years	Administrative tasks and project manager
ISO manager and internal auditor	6	Administrative tasks and ISO tasks
Supervisor and internal auditor	8	Supervision on operations and ISO tasks
IT officer	6	Processing projects
Business manager	8	Administrative tasks within the parent organisation
Co-director	More than 10 years	Strategic and administrative role within the parent organisation

A case study approach was used to provide in depth rich data to examine possible causes of poor ISO outcomes.

THE CASE EXAMPLE

Overview

The case example is a NFP organisation that provides professional services generally involving multiple one-on-one customer interviews. This organisation is an important component of a bigger organisation, 'the parent organisation':

> "it is a critical part of our operation; we obviously have different programs or business units which operate underneath the umbrella of the institute................., so this organisation is another critical I wouldn't say business unit, but it is a critical department or component of the institute's operations" (a co-director in the parent organisation)

Consequently, this organisation abides by the strategic plan and priorities of the parent organisation. The parent organisation has an aim to establish a strong engagement with the external community, and to strengthen the processes based on integrity as a core value.

The selected organisation is in the category of medium size organisations based on the number of employees (Australian Bureau of Statistics, 2013) –less than 20 employees is a small business, from 20 to less than 200 medium, and more than 200 is a big business– the organisation has three full time employees and between 40-100 casual staff depending on the projects underway and the associated business requirements. The connection between this organisation and the parent organisation is not only structural but also financial, as any profits that the organisation generates and does not need itself is passed upwards. In return the parent organisation provides logistic and systems support. The organisation is independent in decision making, development and work procedures, but financial reporting to the parent organisation is required. Classifying this organisation, it falls within the Professional, Scientific and Technical Science (PSTS) service sector where professional service is provided to meet the requirement of a client. For this organisation to able to work with many of their clients, they need ISO accreditation.

The organisation always works on a number of projects at a time, thus the work procedures require significant multi-tasking as employees work on different projects over the same work shift. Even though these projects are similar in the nature of the outcomes and the work procedures; they are relatively different in the targeted interview sample and the level of sensitivity of the provided outcomes. The organisation use same procedures to process all projects, however, the content of these projects is different.

Prior to ISO accreditation the organisation had limited formalized strategic planning with the focus being on maintaining credibility and reputation within the market to ensure continuity of the business. ISO accreditation helped the organisation to formalise their policies:

> "we learned and we developed our policies. Actually we stated our policies because actually we didn't have policy before the ISO accreditation, we had them but they weren't formal, … the process of ISO accreditation formalised our policy, we were then able to link policy to basically all areas of the organisation" (The manager)

The organisation goal

Goldratt (2010) states the goal for any not–for–profit organisation is to increase the goal units now and in the future - in this case it should be to deliver more finished projects. However, managerial staff of this organisation expressed varied understandings as to the organisation goal. For example, a co-director in the parent organisation sees the goal of this organisation id to enhance the impact on the community

> "their goal is to provide very high level and ethical professional services to the parent organisation community and the wider community and industry partners…… the goal is to have an impact on the quality and the quantity of life of the communities that we serve" (a co-director in the parent organisation)

The ISO manager who functions also as internal auditor believes the goal of the organisation is a daily operational goal

> "our goal in the sense of business purpose is to do what we are hired for, and our goal in the sense of audit is to operate within all of the ISO standards, to operate in a way where we can meet all them" (ISO manager and Internal auditor).

Another internal auditor who work also as a supervisor stated that the main goal of this organisation is perhaps the continuity of the business

> "I suppose to keep people employed, I'm not sure, …to keep going" (supervisor and internal auditor).

For the IT officer the goal was not clear

> "I'm not sure if we have got vision and mission statements and things like that, I think our overall aim is to provide quality service, good response rates, part of that is providing work for people and making sure that we are profitable enough to continue running, I mean some of what we do is provide income for good purposes and people like that, but it is to do with quality research in health related areas" (IT officer).

These perceptions reflect a lack of clarity regarding the organisation goal. S&T tree can help in dealing with this confusion and clarify and provide the organisation with clear vision about where to start and what to focus on for the future.

The ISO accreditation

In 2008 the organisation was significantly changed as the organisational sponsor/parent saw the importance of the organisation in improving the parent's reputation and operation and sought to achieve substantial new funding. The organisation went through structural and locational changes which had a significant impact on its development. These changes included the location, staff, and the work procedures. This realignment and new funding provided an opportunity for the manager to refresh personnel-introducing a new perspective to the business and eliminating the old-fashioned ideas and perceptions of 'there is only one way to do the work'. In other words, this step aimed to set a new culture for the organisation by presenting new concepts and new staff that better serve the business. This first step was a preparation to turn organisation from paper based business to electronic based business:

> "I actually changed supervisors with new supervisors; the supervisors who had always thought of a particular way of doing things, and trained of doing it in old-fashioned way. When we were at previous institute the supervisors didn't even have an email, and when you deal with a large casual staff and there was no formal form of communications, so coming to a new institute which was all part of the accreditation, I was able to implement a good communication system, the supervisors all have emails which means maintain communications between casual staff specially the supervisors who need to be aware of that, everything is centralised now there was no centralisation prior to ISO" (The manager)

Prior to 2008, the organisation already had an Australian accreditation as a part of the industry requirements, but they found themselves obligated by the market requirement to get ISO accreditation as the next step of their development, and to enable them to apply for government tenders –government bodies are considered very important clients for their business credibility and market reputation, as well as giving the parent organisation a

competitive edge over other similar organisations. The organisation actually was using the ISO accreditation to attract certain clients.

The goal of the ISO accreditation

The case study demonstrates a level of confusion within the managerial staff regarding the aim of attaining and maintaining the ISO accreditation - whether it is for achieving organisational improvements or for the purpose of assuring their quality system for their market and competitors. The manager, for example, sees the goal of going for the ISO accreditation as a mean of targeting certain customers/clients and at the same time for establishing internal operational enhancements:

> "The primary goal was to achieve the accreditation to allow us to apply to government tenders, the secondary goal, once we started undertaking the process was to learn from the process and utilise it to improve our day-to-day operations, but the primary goal was to enable us to have the accreditation to apply for tenders" (The manager).

Similarly, the ISO manager who is also an internal auditor sees that the goal of ISO accreditation is to satisfy the market requirements and provide the assurance that the operations within this organisation abide by the ISO standards:

> "the goals would be obviously to meet the market standards for all the work that we do, and obviously to keep the parent organisation's name in high regard and our institution name, and to meet all of the standards and do it right" (ISO manager and Internal auditor).

However, a supervisor who is also an internal auditor believes that the goal for attaining the ISO accreditation is because ISO is an important factor for business continuity through maintaining the contracts with the current clients and getting more clients:

> "I would say that the goal is to maintain our contract and even to get other contracts of a similar nature" (supervisor and internal auditor).

As a member of the managerial staff, the IT officer's perception about the goal of seeking and maintaining the ISO accreditation as a necessary condition for the business to be able to get their targeted clients and maintain the business credibility:

> "I don't really understand the goal for having the accreditation, I guess we don't have any sort of measurements to say once we got the accreditation we will gain (x) number of clients or will give us this client or we will have 50,000 more outcomes or whatever; we maintain the accreditation a bit like you would maintain a licence to be a doctor, it is part of what we do, without it I think we would suffer as a business. So it is something that we have to do to ensure the quality of our product for us to maintain market share I could say.
>
> It's kind of our ethos is to make sure we meet the ISO standards, but it's not because it is ISO standards, but because it is necessary for our business to behave in this way, to have this process flow in the structure with our processes and the client interaction that we have; we really have to have these steps otherwise they will be holes in our outcomes and our process, and it means if we spent all this time operating and we find that one of the documents wasn't signed off, for example, then the client won't be happy with that and we have to go and redo the work and it will just fall apart, so I think following the process is what we are about, it's not necessarily having the accreditation, but obviously the accreditation comes with that, and therefore it does provide credibility" (IT officer).

These perspectives about the real goal of the ISO accreditation show a lack of agreement within the managerial level of this organisation regarding the organisation goal and also the purpose of attaining and maintaining the ISO accreditation. However, it is clear now that the goal of ISO accreditation is not connected to the organisation real goal. ISO accreditation is a tactic that can attract more clients (more projects) and achieve the customer intimacy strategy. In other words, it will increase the demand on the services, but it has no direct effect on increasing the finished project. It is suggested that the S&T tree will help to clarify this confusion by guiding the organisation to prioritise their strategic goals towards a sequential improvement by targeting the constraints one after another. The first S&T tree is aimed at defining what the goal should have been and how this can be linked to ISO as a tactic, while in the second S&T tree is aimed at helping the case organisation to gain benefit from their ISO re-accreditation.

DISCUSSION

Strategy and Tactic (S&T) tree

The Strategy and tactic tree is a planning tool that provides a clear vision for the organisation on what they need to change and why. In developing and communicating the S&T Tree participants are able to see clear linkage of

a change process to the organizational goal. In this case, we are proposing using S&T tree to link the ISO implementation with the organisation's goal and strategic priorities. If done in advance of a proposed ISO implementation it will help to clarify the goals of the implementation and potentially minimize the possibility of dissatisfaction with the ISO outcomes. In addition, for the organization under study we are recommending that renewing the accreditation for this organisation should focus on the strategic choice of operational excellence thus providing the business with a new focus for managing the growth achieved through previous customer intimacy goals.

It is important to appreciate that the ISO implementation should be considered as part of the TOC "elevation" step in that it is an expensive and time consuming process – it should only be considered if the exploiting and subordinating steps were unsuccessful in breaking the targeted constraint. The below S&T Trees thus would represent only a part of the sequence of focusing steps.

In this map of the organisation strategic orientation toward its goal, the first S&T tree (figure 2) is to support the aim of completing the initial accreditation to attain customer intimacy. While the second S&T tree (figure3) is focused on the re-accreditation to achieve operational excellence. The first S&T tree (figure 2) is about achieving the strategic choice of customer intimacy. The intention is to use ISO to build a base for their business in the market. The S&T tree for this strategic choice has two growth boxes. The first box is the base growth, which focuses on establishing the organisation credibility. This requires three S&T steps to be met, one of which is attracting targeted clients. This S&T step is important for the business as it allows them to build their client base. In this S&T step, attracting the targeted clients is a strategy and to achieve this strategy the ISO accreditation is used as a tactic because it provides the proper assurance to attract the targeted clients.

Each and every step in the S&T tree has to be supported by three types of assumptions- the necessary (assumptions behind the strategy), parallel (assumptions behind the tactics) and sufficiency assumptions (Take Note!) that clearly justify the S&T step (Wadhwa 2010). The necessary assumptions (assumptions behind the strategy) and the parallel assumptions (assumptions behind tactic) need to be developed along with the organizational stakeholders in order to develop and build commitment and understanding of the change process.

The first S&T Tree is developed in hind-sight and highlights the fact that the organisation was using ISO accreditation as a way to attract clients and ultimately achieve customer intimacy – this aim has been very successful to build their client base. The enhanced growth box is where they are now and thus are seeking to sustain this growth.
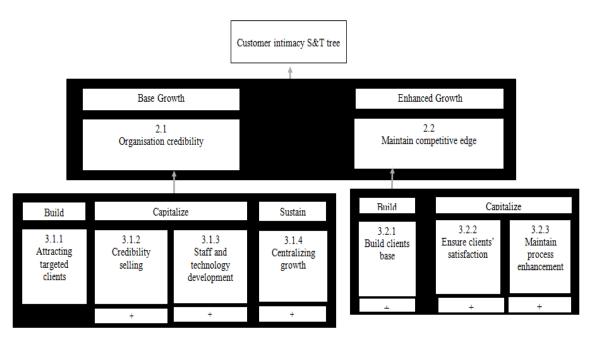

Figure 2: S&T tree for customer intimacy
(based on Kendall, G. (2010) Theory of constraints strategy," in *Theory of Constraints Handbook,* J. F. Cox lll and J. G. Schleier Jr (eds.), Mc Graw-Hill: New York, USA, pp. 533-539.)

Table 2: Assumptions of customer intimacy S&T tree for 3.1.1 Attracting targeted clients

3.1.1	Attracting targeted clients
assumptions behind strategy	For the organisation to establish their credibility within the market and competitors, it has to build this credibility through doing business with 'important' clients such as governmental departments. Getting such clients is crucial for the organisation to build their position within the market, as well as strength the organisation reliability, reputation, and credibility.
Strategy	Attracting targeted clients
assumptions behind tactic	ISO accreditation will enhance our reputation The parent organisation will fund the process The resources are available within the organisation to complete the process Clients do not use organisations that are not ISO accredited
Tactic	Attaining ISO accreditation
Take Note! (Sufficient assumptions)	Attaining the ISO accreditation is a long journey. Maintaining the accreditation is a challenge Communicating the reasons for ISO and linkage to the organisational goal is essential

The second S&T tree (figure 3) encourages the organisation to have a clear focus on operational excellence for future development. To attain this goal, the organisation needs to focus their effort on internal operation improvements - maintaining their accreditation can be seen as an important tactic to achieve this. The S&T tree in figure (3) again has a base growth box and an enhanced growth box. Within the base growth box several S&T steps have to be achieved, meeting the project promises is one of them. To achieve the project promises, process improvement is one of the strategies that the organisation must use to meet project promises. To achieve this strategy ISO accreditation will be used as a tactic. Deploying ISO accreditation as a tactic for a different strategic choice required a valid justification. The necessary, parallel and sufficiency assumption (table 3) are used to justify and validate this S&T step. Each assumption needs to be examined before proceeding with the second accreditation.

The assumptions for the second tree now need to be validated by organisational employees to ensure that they are in agreement with the goals and assumptions underlying the operational excellence strategy and associated ISO tactic.
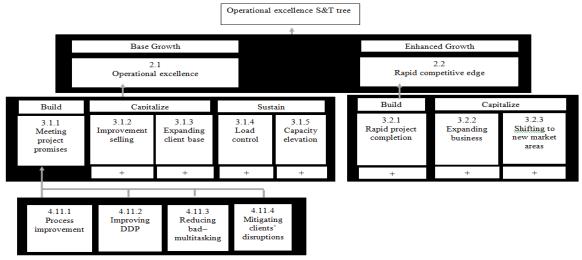

Figure 3: S&T tree for operations excellence
(based on Wadhwa, G. (2010) Viable Vision for Health Care System," in *Theory of Constraints Handbook,* J. F. Cox lll and J. G. Schleier Jr (eds.), Mc Graw-Hill: New York, USA, pp. 928-945.)

Table 3: Assumptions of customer intimacy S&T tree for 4.1.1 Process Improvement

4.11.1	Process Improvement
assumptions behind strategy	Without robust processes to ensure meeting projects' promises, the system is at a risk of failing to fulfil their projects and not being able to maintain customer satisfaction.
Strategy	Internal process improvement
assumptions behind tactic	The ISO standards will work in a project-based organisation "Average" ISO practices will lead to better on time delivery No strategic processes will be "over-written" by ISO processes
Tactic	Following the procedure of the ISO accreditation
Take Note! Sufficient assumptions	Adopting the ISO accreditation leaves no space for the organisation to apply advanced developments because it restrains the organisation with ISO standards. The way to attain operation excellence is to meet all projects promises through processes and operational improvement to the extent that will satisfy both the organisation and the clients' need

Using the S&T tree to apply the Treacy and Wiersema value discipline will sequentially help to guide the implementation of strategic choices and with employee input in to the Tree development can provide the necessary commitment and understanding of how ISO fits in to organisational strategy.

CONCLUSION

The S&T Tree is a powerful new tool that can support the implementation of organisational strategic choices. It has the potential to provide a platform for sequencing the various strategic choices and with proper committed development by concerned stakeholders can help ensure the linkage of ISO implementation with the organisational goal, together with committed implementation.
ISO implementation outcomes have been disappointing in Australia until now. We conclude that there is support for the assertion that the S&T tree provides a useful and workable tool for focussing and giving direction to an ISO project. Further work is required to validate this assertion, including more detailed empirical field work. Future action research in applying the tool in a live implementation would also add strength to these conclusions.

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