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Theory of Constraints Strategy & Tactic Expert System

For the Design, Communication, Planning & Execution of TOC Strategic & Tactic Trees

Why HARMONY?

Sir Isaac Newton defined the foundation of all modern science in his famous quote: "Natura valde simplex est et sibi consona" which, translated into English, means "Nature is exceedingly simple and harmonious with itself".

With his "Theory of Constraints", dr. Eli Goldratt introduced these fundamental beliefs of the "hard sciences" and, as importantly, the thinking processes and methods of a scientist, to the world of analyzing, improving and managing organisations and supply chains that appear to become more and more complex and with many unresolved internal conflicts. Over the past 30 years, thousands of organizations around the globe have shown how the application of these simple yet powerful beliefs, thinking processes and methods can enable managers at all levels in the organization to SEE and UNLOCK incredible inherent potential.

In honour of Dr. Eli Goldratt and Sir Isaac Newton, and because we believe that "any organization can be made exceedingly simple and harmonious with itself", given the right thinking and tools, we have called this TOC S&T Expert System **HARMONY**.

Harmony means "the way parts combine well together or into a whole" (from Greek *harmonia*).

Musical "Harmony" is when a composer and conductor achieves "the successful combination of musical notes, arranged and played simultaneously around the same melody". When harmony is achieved, it means the composer achieved the successful combination of notes into a sound pleasing to the ear (the intended market for the composers' music).

As with music, business leaders, the "composers" and "conductors" of business strategies or the "sheet music of an organization" also search for "Harmony" within their organizations. We can use "harmony" to describe an organization where a leader or leadership teams achieves "the successful synchronization of each of the parts of their organizations around a common market focused vision".

We believe this S&T Expert System can empower and enable Business leaders to create, validate and implement "A Harmonious Business Strategy" that will synchronize all the parts within their organization around a common market focused vision".

Contacting Us

Visit our website at <http://www.goldrattresearchlabs.com>

Contact an S&T Expert: Alan Barnard (alan@goldrattresearchlabs.com)

Contact the System Developer: Riaan Brits (riaan@goldrattresearchlabs.com)

Harmony is available in 3 different versions:

Harmony S&T Viewer

Provides functionality to view and expand on existing S&T trees, both from external sources and the internal, approved library of S&T trees.

Harmony S&T Developer

The developer edition allows the TOC professional to design & validate S&T trees.

Harmony S&T Implementer

Beyond the functionality offered in the S&T Developer edition of Harmony, the Harmony S&T Implementer edition delivers project management functionality in parallel with the design and implementation of S&T trees.

For more information on the different version of Harmony, please contact Alan Barnard at alan@goldrattresearchlabs.com.

Theory of Constraints

The Theory of Constraints (TOC) was developed by Dr. Eli Goldratt through the application of the mind sets and methods of the "hard sciences" to the science of analyzing, managing, continuously improving and predicting the performance of organizations. The most important of these, is the simple premise that "all complex systems are governed by inherent simplicity". The essence of this principle is captured within the statement that "the strength of any chain is governed only by the strength of the weakest link". The application of this basic premise as a focusing tool, enables us to differentiate between the MANY parts, processes and relationships within a system that CAN be improved, from those FEW that MUST be improved to get more goal units.

TOC, as a body of knowledge, has seen tremendous development and expansion over the last 20 years. Over this time period, TOC has evolved into a new holistic management philosophy and approach both to determine what is really limiting or blocking further improvement in your chosen subject matter or system and also how to identify and implement the necessary and sufficient solution to overcome these limitations in a way that will achieve the buy-in and active contribution of all the key stakeholders.

Today, the "Theory of Constraints" consists of five distinct, but interrelated parts – "The Five Focusing Steps", "The Thinking Processes", "Throughput Accounting", "Application specific TOC Solutions", and "The Six Necessary & Sufficient Questions relating to Technology". Before you embark on your analysis, we believe it is important to clarify the purpose and relationship between the different parts of TOC.

The first is TOC's Five Focusing Steps (5FS), a process of ongoing improvement that can be applied to any organization to continuously improve the achievement of more "goal units". The five focusing steps are:

Step 0: Define (or make explicit) the Goal and Goal units of the System

Step 1: IDENTIFY the System Constraint (or Weakest Link)

Step 2: Decide how to EXPLOIT the System Constraint

Step 3: SUBORDINATE everything to the above decision

Step 4: ELEVATE the System Constraint

Step 5: If in a previous step, the constraint was broken, GO BACK to STEP 1. WARNING! Do not let INERTIA become the system constraint.

The second is the TOC's Thinking Processes (TP), a set of necessity and sufficiency based logical thinking and communication processes for identifying the few erroneous or limiting assumptions and associated local or short term optimal rules (called core problems) that limit an organization or individual from better protecting, exploiting or elevating the system constraint and for developing, validating and communicating the new holistic rules that will enable better protection, exploitation and or elevation of the system constraint. These thinking processes include the Conflict Cloud, the Current Reality Tree, Future Reality Tree, Negative Branch Reservations, Pre-requisite Tree and the latest addition the Strategy & Tactic Tree.

The third is TOC's Throughput Accounting (TA), a set of processes for measuring the status and causes of the overall system's financial performance and for judging the impact of local actions/decisions on the performance of the system as a whole. This is achieved by combining insights on the impact of any decision on the system constraint, now as well as in the future, with the quantitative impact on System Throughput (Sales – Total Variable Cost), Operating Expenses (all non-variable costs) and Investment

The fourth is TOC's application specific generic solutions that provide the necessary and sufficient constraint focused rules for improving and managing functional areas, such as managing operations, finance, projects, distribution, marketing, sales, people and strategy

The fifth is TOC's Six Necessary & Sufficient Questions relating to Technology (N&S) to identify the power of a new technology, the limitation it addresses, the rules created to cope with the previous limitation that must be changed, the new rules needed to exploit the power of the technology, the resulting required changes in technology itself and finally how the technology provider, integrator and user can work together to enable the implementation of the required changes on win/win basis

Today, Dr. Goldratt's Theory of Constraints is being used by thousands of corporations, and is taught in over 200 colleges, universities and business schools. His books have sold over 3 million copies and have been translated into 23 languages.

The Growth Challenge

Executives and managers within almost every business today, both within the Private and Public sectors complain about the difficulties in achieving one or more of the following objectives:

1. How to develop a market focused growth strategy that has a high probability to be “necessary and sufficient” for achieving and sustaining the required growth rate financial targets set by their shareholders.
2. How to Achieve and maintain total synchronization between departmental goals, measurements and projects with the overall business strategy in a way that will align priorities and focus and prevent “local optimization” and “silo thinking”
3. How to Communicate clearly the link between the overall business strategy and the required changes in objectives and processes or policies within each part of the business and at each of the levels within each part.
4. How to ensure that the Growth/Improvement Strategy is successfully implemented (the challenge of Execution)
5. How to monitor the execution in a way to that will enable early identification about when additional clarity is needed about WHAT or HOW TO or to identify the implications when in fact it turns out that some of the starting assumptions on which the strategy was based is found (during execution) to be invalid

But is it possible to satisfy all these objectives with one solution?

Criteria for a Breakthrough

“The more complex the problem, the simpler the solution has to be”. But what are the criteria for a solution that will be both simple and powerful? We assume company executives and managers are looking for a simple process and tool that can be used for:

1. Developing a necessary, sufficient and prioritized (sequenced) growth/improvement strategy
2. A way of identifying the resulting changes required to support the business strategy within each part of the business (e.g. changes in objectives, processes, policies etc.)
3. A way to capture the key assumptions on which the overall growth/improvement strategy is based.
4. A tool to communicate this business strategy and their role for each part of the organization.
5. A tool/process for allowing stakeholders to validate/invalidate and if necessary modify the business strategy based on either good analysis or actual execution experience.
6. A tool that will learn from the way the business strategy tool is being used/not used to identify gaps.

The Direction of Solution

The introduction by Dr. Eli Goldratt of a new “Theory of Constraints” based thinking process called “Strategic & Tactic Tree” or S&T is being viewed by many executives and managers around the globe that have been exposed to it, as “*one of the major breakthroughs in strategy development, validation and communication over the past few decades*”. A solution, that probably for the first time, have a chance of meeting all the above “criteria for a breakthrough solution”

But what is an S&T?

Strategic and Tactic (S&T) is the latest in a series of Theory of Constraints thinking processes invented and released by Dr. Goldratt into the public domain, specifically designed for guiding managers to improve their analysis, communication, planning and execution management of the necessary and sufficient and correctly sequenced changes to achieve more goal units now and in the future.

Goldratt claims that for the first time, there is now a “Thinking Process” and “Communication Tool” available that contain not only “Necessity” and “Sufficiency” logic but also the logic of sequence – all three of these critical in defining and communicating precisely the Business Strategy in the form of answering “WHAT”, “HOW TO” and “WHY?” related to the required CHANGES for each level of the organization.

As with many breakthroughs, this breakthrough started with a simple question:

If “Strategy” is really at the highest level of an initiative or organisation and defines the direction that dictates all activities and “Tactics” are lower down in an initiative or organisation and define the activities that are needed to implement the strategy, then where do “Strategy” end and where do “Tactics” begin?

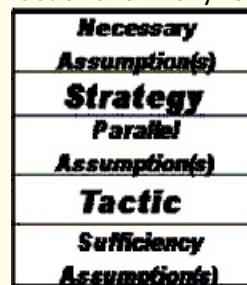


Dr. Goldratt realized that to answer this question, it required that the words “strategy” and “tactic” had to be defined more clearly than before. His new definitions were inherently very simple, yet profound. Since he decided to define “Strategy” as simply the answer to the question “What for?” and “Tactic” as simply the answer to the question “How to?”, its implications were that Strategy and Tactic must always exist as “pairs” and must exist at every level of the organization. For every Tactic (How to) there must be a Strategy (What for) and for every Strategy (what for) there must be a tactic.



With these new definitions, it was clear that the responsibility of managers at every level in the organization is therefore, not just to define both their Strategy (what for) and Tactic (how to) for their parts, but also to show how it links to the higher level objective and ultimately the goal of the company.

At the same time, Goldratt indicated that since “Any logical tree is only as valid as its assumptions”, the responsibility of a manager does not end with communicating the Strategy and Tactic for their areas, but also to answer the “Why?” questions of superiors and subordinates related to each Strategy and Tactic pair or “node”. These include “Why is this S&T pair necessary to achieve the higher level?”, “Why is the Strategy possible?”, “Why is the Tactic the best or even the only way to achieve the Strategy?” and finally, “Why this specific S&T pair might not be sufficient to achieve the higher level objective – why an additional level of detail will be required?”. The answers to these questions are included in the structure of the S&T as “necessary assumption”, “parallel assumptions” (since these are listed in the parallel lines between every Strategy and Tactic) and finally “sufficiency assumption”



The process for constructing S&T’s therefore should provide a systematic approach for answering and communicating the fundamental questions relating to organizational change such as

1. Why Change,

2. What to Change,
3. To what to change,
4. How to cause the change,
5. How to measure the change at every level within an organization.

A well-defined S&T therefore should contain the Strategy (Desired Objective or "What for?") and Tactic (Required Change or "How to?") as well as the Logic (Assumptions or "Why?") for all the necessary and sufficient changes, in the correct sequence for each level of the organization and within each function of the organization to achieve a specific set of Organizational Goals.

The Necessary Assumptions

The broad guide to finding the Necessary Assumptions is defined by the criteria below :

Question: "What specific undesirable effect (GAP) creates the need for a change?"

Example: "The current pressure often causes projects to be in execution without
The needed preparations being completed (detailed specifications, authorizations, etc.)."

So the Necessary Assumption you enter in for each node is based on the problem you have defined in the **Parent Node**. If Meeting Promises is the Parent Node's Problem what assumptions can you make about other problems that fall under the Parent Node's Problem now that you know you have a problem meeting promises? In this case this would be things like Bad Multi-Tasking, Poor Preparation and so on.

The Strategy

The broad guide to finding the strategy is defined by the criteria below:

Question: "What specific desirable effect should be the objective of the planned change?"

Example: "A project is rarely launched before all its preparations (full kitting) are complete".

The Strategy is one of the two most important facts about each node in the system, so you must double check that you have defined it correctly.

The Parallel Assumptions

The broad guide to finding the Parallel Assumptions is defined by the criteria below:

Question 1: "Why do you claim the Strategy/Objective of the Planned Change" is Possible or under what conditions will it be possible?"

Question 2: "What specific factors, risks or implementation obstacles should be Considered in deciding on the best way to achieve the Strategy?"

Example: "1. freezing of projects frees up, for a while, ample capacity of the resources dealing with preparations and
2) The resources dealing with preparations can be caught in a never-ending catch-up cycle"

The Tactics

The broad guide to finding the Tactic is defined by the criteria below:

Question: "How will the Strategy be achieved? I.e. What specifically should be STOPPED and or what should be STARTED to achieve the Strategy?"

Example: "The Company uses the window of reduced load on resources that do the preparations to ensure that "full kit" practice will become the norm and that no projects are released without 'good enough' preparations".

The Sufficiency Assumptions

The broad guide to finding the Sufficiency Assumptions is defined by the criteria below:

Question: "What specific governing law or human behavior, if not considered, will significant jeopardize the sufficiency of achieving the Strategy, while at the same time, is something that is likely to be ignored?"

Example: "An exception to the rule might be misused in order to by-pass the rule"

Theory of Constraints Strategy & Tactic Expert System

For the Design, Communication, Planning & Execution of TOC Strategic & Tactic Trees

System Architect: Alan Barnard

Software Development: Riaan Brits

Special Advisors: Dr. Eli Goldratt and Rami Goldratt.

An **expert system** is a computer program or set of programs designed to simulate the reasoning, problem-solving and/or decision making processes of a human who is an **expert** in a specific discipline. The Expert system contains both the knowledge all the experts within a specific field have at a specific time (e.g. all the generic S&T trees in the form of a S&T Library) and the Logic or Process an expert uses to develop new knowledge which have been codified from the experience of human specialists in that field (e.g. the questions used by TOC experts to develop S&T Trees)

Over the past 2 years, a significant amount of development has been done by Dr. Eli Goldratt and a handful of TOC experts mentored by Dr. Goldratt to develop generic S&T trees for companies that make and/or distribute physical products.

Today, there are S&T templates (Business Strategies) for the following environments:

1. Make-to-Order Manufacturing Companies
2. Consumer Goods (Make-to-Stock) Manufacturing Companies
3. Project based Companies (including manufacturing companies doing "Engineer-to-Order")
4. Distributors
5. Retailers
6. Wholesalers

If your company falls into one of these categories, it is likely that the generic S&T tree will meet most, if not all the requirements to achieve and sustain class leading performance and growth.

How can the TOC S&T Expert System benefit management?

The S&T Expert System not only provides managers access to a vast knowledge base of the latest approved generic S&T trees created by Dr. Eli Goldratt and other leading Theory of Constraints experts but also, for the first time, to the systematic questions, processes and rules to create and/or communicate new knowledge in the form of S&T trees.

This S&T Expert System has been custom developed to contain the most up to date S&T knowledge base and S&T analysis & communication processes and rules as well as the graphical tools to assist management with the development, validation, communication, planning, execution and ongoing validation/improvement of the organization's Strategic and Tactic.

We hope that you will find this S&T Expert system a valuable tool and that as part of our own "process of ongoing improvement", to provide feedback to Alan Barnard at alan@goldrattrsearchlabs.com on especially the following two questions: "what critical functionality should be added and why?" and "what existing functionality is more of a hindrance than a help and why?"

The Basic View

When you start the TOC S&T Expert System for the first time you will be prompted whether you want to open a new file or load an S&T tree from the Library that comes with the program. It is suggested that you work off an existing model for your industry that will be located in the Library. If there is no suitable tree that fits your industry then you can choose to start a new tree from scratch.

Menu Bar

The Menu Bar is located at the top of the screen and is in the same format as standard windows programs.

Toolbar

The Toolbar is located below the Menu Bar at the top of screen. It houses commonly used tools including Save Project, New Project, and Open Project. This toolbar is also used for standard text formatting tools, such as Bold, Underline, and Italic. For a more

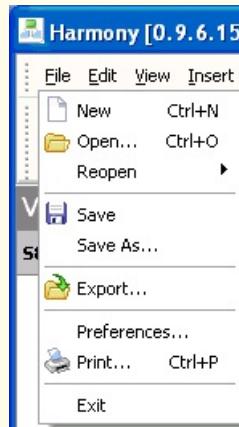
View – Tool Palette

The View Palette is located on the left hand side of the screen and is used for the specific tools needed to make and simulate a Strategy and Tactic Tree. From this Palette you can unleash the power of the TOC S&T Expert System; this includes using different modes which cater for each step of the process.

Customizing your view

You can customize the way in which you view the program. The Menu Bar and Toolbar can be moved around within the room at the top of the screen, and can be put on the same line to save space. The Tool Palette can be re-sized to give extra room to the Strategy and Tactics View Screen. You can decide what view works for you.

The File Menu



New (Ctrl + N)

Use this command to create a new, blank S&T Tree. The process will begin with only the Viable Vision node and you will have to begin building your S&T Tree from there.

Open (Ctrl + O)

Use this command to open an existing project. A standard windows file selector will allow you to choose which saved S&T Tree you wish to open. The File must be a valid Harmony file (.tocxml).

Reopen

This command displays a list of recently opened S&T Trees. To open one of the trees simply click on its title.

Save

Use this command to save changes to the currently open S&T Tree. When closing an S&T Tree that has been modified you will automatically be prompted to save your work. If you choose not to save your work, the changes will be lost. If this is a new S&T tree that has not previously been saved, you will be prompted to specify a file name. At this time you can also chose the location you wish to save the project.

Save As

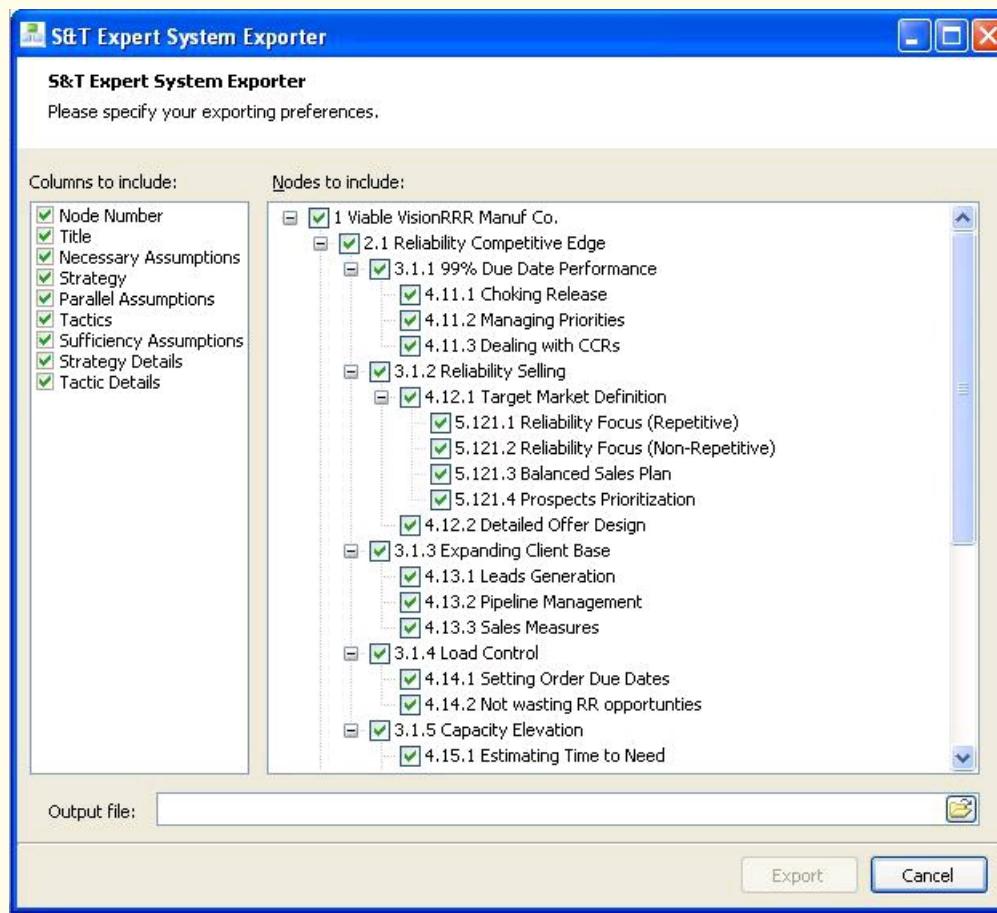
Use this command to save an existing publication using a different file name. If you select a file name which already exists, you will be prompted for confirmation before replacing the original file. At this time you may also choose to keep the original file name but store the file in another location.

Exit

Use this command to exit Harmony. When this option is selected you will be prompted to save your work before exiting. It is highly recommended that you save your work to avoid any potential loss of work.

Export

Use this command to export the contents of each node to a excel spreadsheet.



Columns to include

On the left hand side of the export window there is a section under the heading **Columns to Include**. From this option you can choose what details of each node selected will be exported to the spreadsheet. You can choose between the Node Number, Title, Necessary Assumptions, Strategy, Parallel Assumptions, Tactics, Sufficiency Assumptions, Strategy Details and Tactic Details. If you are unsure of which columns to export simply leave all of them checked. If you are sure you only wish to include certain columns in the spreadsheet deselect the headings you do not wish to include.

Note: The columns you select will apply to every node throughout the S&T Tree.

Nodes to Include

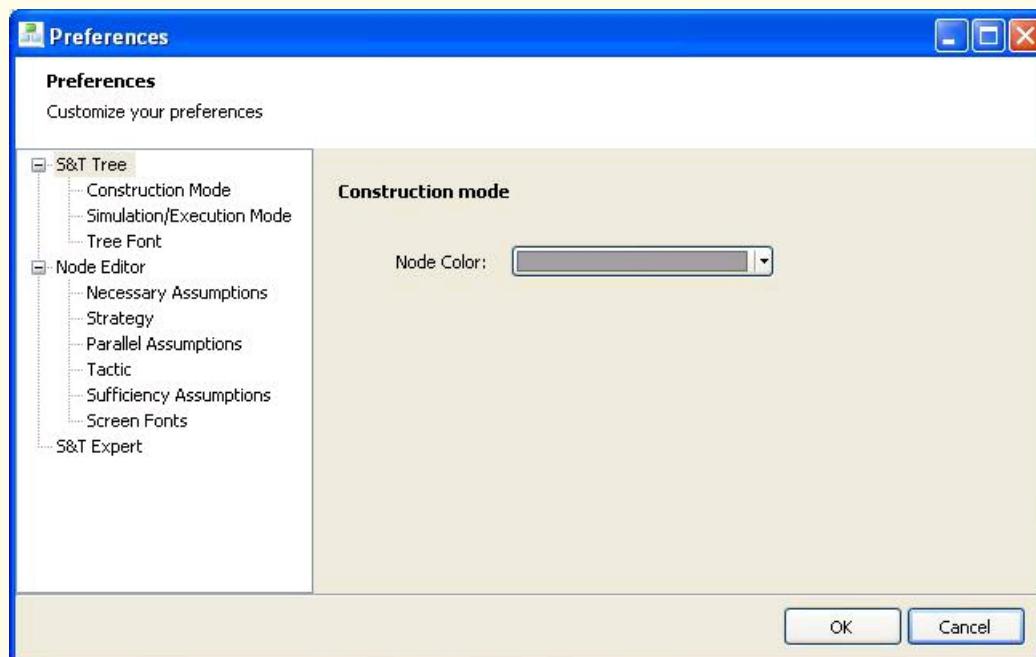
In the middle of the export windows there is a section under the heading **Nodes to include**. Here you can select which nodes information you wish to export. If you do not wish to export a node's information, simply deselect the node by clicking on the checkbox next to the node.

Output to File

At the bottom of the export window you can enter the name of file you wish to export the S&T Tree information to. Clicking on the open location button next to the output file box will allow you to choose where you wish to save the file using a standard windows display.

Preferences

Use this command to edit how Harmony displays your S&T Trees. These options will set the default display settings for S&T Tree that are created after the options have been changed. Changing these options will also change every S&T Tree that you open after the changes have been made. Under preference you can change options for the S&T Tree, the Node Editor, and set up the relevant S&T Expert managing your system (if applicable).



S&T Tree

Under S&T Tree, you can change options for viewing S&T Tree. Clicking on Construction Mode you can change the colour of a node will you are building your S&T Tree. Try not to chose a colour that clashes with the colour of the font in the S&T tree, although the font colour can be changed under the Tree font Menu in the S&T Tree section of Preferences.

Simulation / Execution Mode

Under this option you can change preferences related to Execution and Simulation Mode. These options are very important as when you run these modes the colours can tell you if a Tactic or Strategy under a specific node has been Started, Not Started, In the Danger Zone, and so on. Be sure to make a note of changes you make in this section to ensure you understand the colours of each node when Simulation / Execution mode is run.

Example: If you create a blank S&T Tree and do not edit any of the Tactics, all the nodes will be light brown (default). This will indicate to you that all of the Tactics you have defined have not been started (Not Started).

Under this section you can choose after how much time each node will enter the In Progress Zone or the Danger Zone. These values are related to the colour preferences above and can be changed for each node. Under this section the default values are suggested as changing these options requires a knowledge of how it will affect node's around the immediately affected node.

Tree Font

Under this section the font of each node in the S&T Tree can be changed. By clicking on the Change button a standard windows font editing box will be displayed and the options can then be set. Any changes you make in the Tree Font section will apply to any S&T Tree that is opened after the changes have been made.

Node Editor

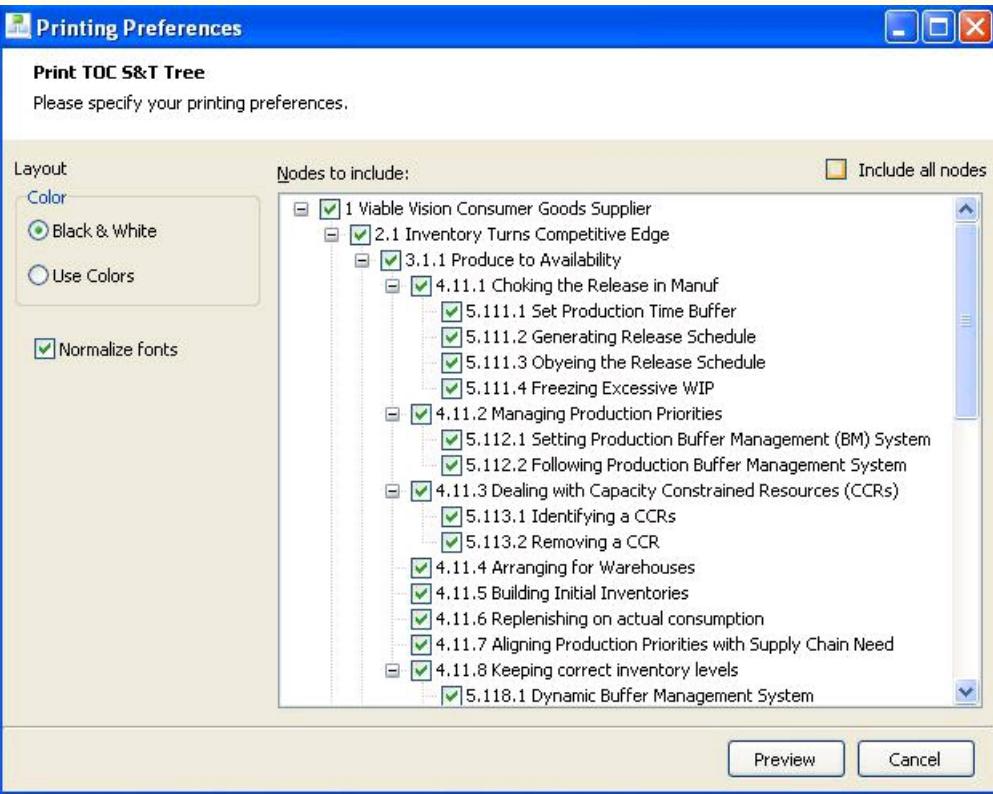
Under this section you can change the default help text available when using the Node Editor. These options are available when you click on the headings (Necessary Assumptions, Strategy, Parallel Assumptions, Tactics, Sufficiency Assumptions) when using the Node Editor. This help text can aid you in creating the correct information for each node. Changing these options is not recommended without a great deal of knowledge in the area of the Theory of Constraints.

Under this section you can also edit the font of the headings in the Node Editor. A Standard windows text editor will be displayed and the settings will apply to the current S&T Tree and any other trees that are opened after the change has been made.

S&T Expert

Under this section you can set up the contact details and name of the S&T Expert who is helping you with your S&T Tree.

Print



Choosing this command takes you to the Printing window. When printing the S&T Tree each node will be displayed on a separate page. The Node Number, Title, Necessary Assumptions, Strategy, Parallel Assumptions, Tactics, and Sufficiency Assumptions for each node will be displayed.

Layout

On the left hand side of the Printing window you can set up the Layout of the S&T Tree to be printed. Choosing the **Black & White** option will print each node without any colour and simply all the relevant information. Choosing the **Use Colors** option will print each node as it appears in the **Node Editor** (blue & White Table with relevant information in it).

Nodes to include

Under this section you can choose which nodes you would like to print. If you wish to print all the nodes simply leave the **Include all nodes** box checked. If you wish to print a selection of nodes but not all the nodes then uncheck the box and select the nodes you wish to print. If you deselect a parent node (ie node 2.1, which is the parent of 3.1.1) then the child nodes (node 3.1.1) will all be deselected as well.

Preview and Print

You can preview your print by clicking on the **Preview** button. This will bring up a standard Print Preview window. From here you can change all options relating the print. If you do not need to make any changes simply click on **File** and then on **Print**. Use the standard windows print screen to ensure your printer is selected and any other options are correct. Then simply press **Print**.

Edit Menu



Undo (Ctrl + Z)

This command removes the last changes you made to the S&T Tree.

Redo (Shift + Ctrl + Z)

This command re-applies the change you used the Undo command to reverse.

Cut

Use this command to remove the currently selected text and place it onto the windows clipboard. The cut text will remain on the clipboard until replaced by another **Cut** or **Copy** command. Use the **Paste** command to place the text into the currently selected position.

Copy

Use this command to place copies of the selected text onto the windows clipboard. The copied text will remain on the clipboard until replaced by another **Cut** or **Copy** command. Use the **Paste** command to place the text into the currently selected position.

Paste

The Paste command places a copy of the windows clipboard contents onto the current selected position.

Select All

Use this command to select all the text in the current area. Once selected you can either **Cut**, **Copy**, or **Delete** the text.

Find

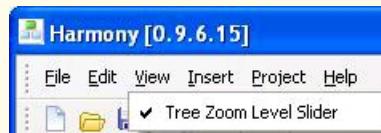
Use this command to find a word or phrase in the currently selected area.

NB. If you use this command while editing the Tactics of a node, only the tactics information will be searched. This applies to all areas of the **Node Editor**.

Replace

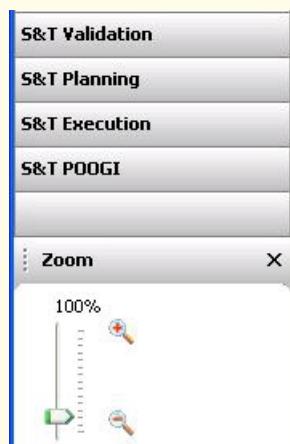
Use this command to replace a word with another word. This only applies to the area you are currently working in.

NB. If you use this command while editing the Tactics of a node, only the particular word in the Tactics field will be replaced with another word. This applies to all areas of the **Node Editor**.



View Menu

Under this Menu, if you deselect the **Tree Zoom Level Slider** you will be unable to zoom in and out of the S&T Tree. The Tool palette for Zooming will disappear from the bottom of your screen . The zooming tool palette is shown below.



Zooming is very important in an S&T Tree when there are many levels and headings it enables you zoom out and get a general overview of what the S&T Tree looks like, or zoom in on a particular section of the S&T Tree.

Insert Menu

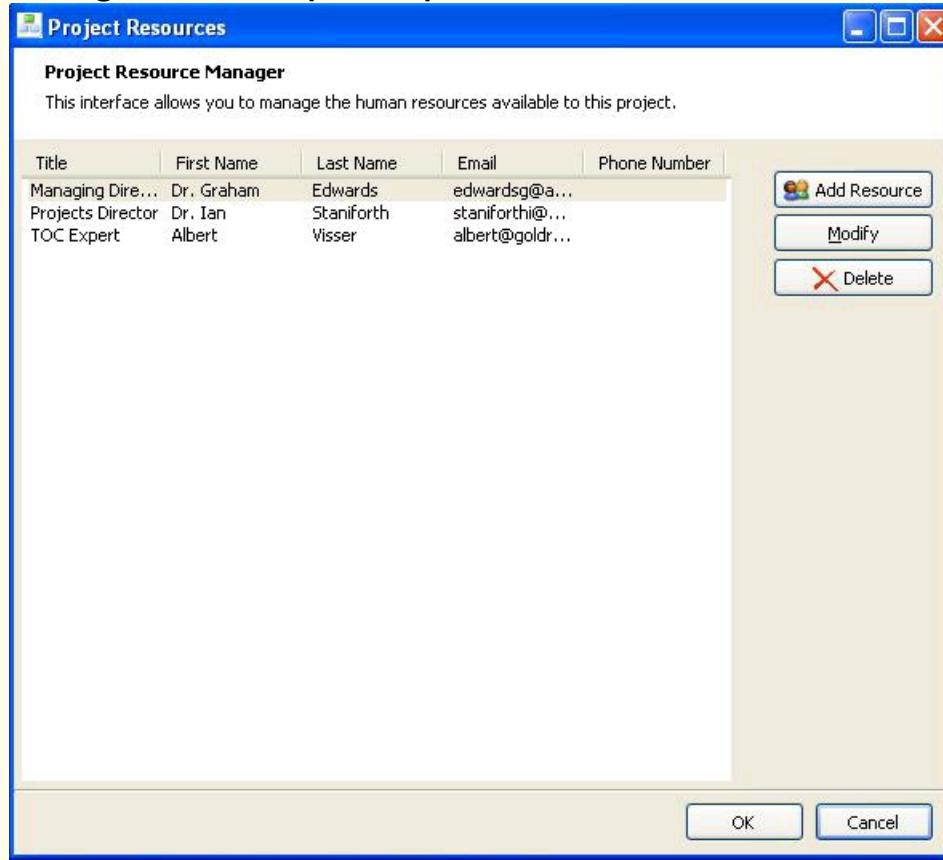
Add Child

This command allows you to add a child to the currently selected node. For example, if you have selected node 2.1 and you click on **Add Child**, the Child node will be added below on level 3.

Add Sibling

This command allows you to add a sibling to the currently selected node. A Sibling will be created on the same level and the selected node and will have the same parent node as the currently selected node.

Manage Resources (Ctrl + R)



Using this command will bring up the Project Resources window. This window allows you to edit the human resources for the S&T Tree. These resources are used for assigning Tactics to a specific person, assigning task participants, and setting up managers on different levels.

Add a Resource

To add a resource, click on the **Add Resource** button. From here you must enter in all the relevant contact information of the human resource and then click on **Ok**. The human resource will now be added to the list in the Project Resources window. From here the human resource can be assigned tasks within the S&T Tree.

Modify a Resource

To modify a current human resource simply **Select** the resource and click on **Modify**. From here you can edit the contact information and name of the resource and then click on **OK**.

Delete a Resource

To delete a resource simply **Select** the resource and click on **Delete**. Please note that this action cannot be undone and should only be used if a resource is no longer available. All the tactics that had been assigned to the human resources will have to be re-assigned if the resource is deleted.

Add from S&T Library (Ctrl + L)

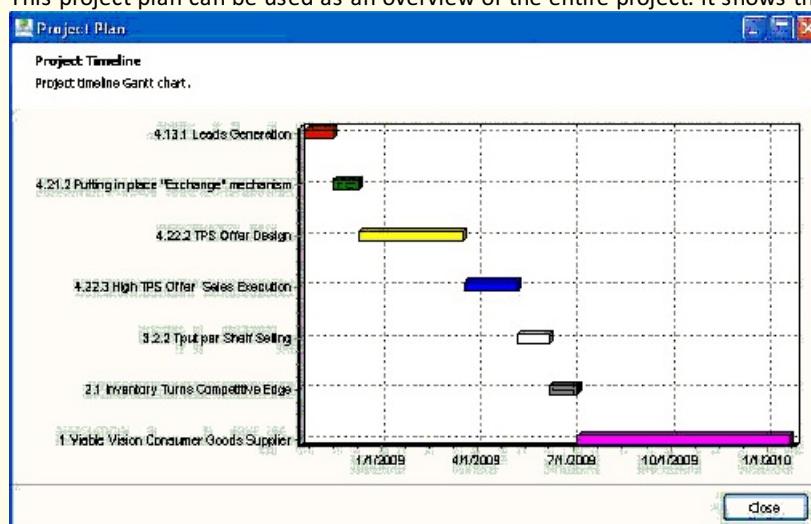
This command allows you to drag and drop nodes from generic S&T Trees into your S&T Tree. From thie view you can click on a node from another generic tree and drag it into the correct place in your S&T Tree. This is particulary helpful when creating a new S&T Tree becausewhatever environment your business is in there is most likely a generic S&T Tree for that environment. Simply find the generic S&T Tree that suits your environment from the left hand side of the windows. Then search the tree for the desired node or drag the entire generic tree in your current S&T Tree.

Please see Dragging Node's for a more detailed explanation on this topic.

Project Gantt chart

This command allows you to see the Project Plan. This sample chart (note, only a simple sample) shows only a few nodes that have been validated and given a Tactic time. The Project Plan works from the lowest level to the Viable Vision. The lengths of the individual nodes block on the chart are based on the length given to achieve the tactic associated with that particular node.

This project plan can be used as an overview of the entire project. It shows the estimated time until the project will be completed.



Financial Model

This command opens up the financial model window.

	Before		% Change in Qty	% Change in Price	After	
	US \$	% of Sales			US \$	% of Sales
Sales Revenue (SR)	100.00	100%	0%	0%	100.00	100%
Variable Cost (VC)	50.00	50%	0%	0%	50.00	50%
Throughput (T)	50.00	50%	0%	0%	50.00	50%
Operating Expenses (OE)	45.00	45%	0%	0%	45.00	45%
Net Profit (NP)	5.00	5%	0%	0%	5.00	5%
Investment (I)	20.00	20%	0%	0%	20.00	20%
Return on Investment (ROI)	25%		0%	0%	25%	
Co. Price-Earnings (PE)	5				7	
Co. Value	25.00		40%	40%	35.00	

[Close](#)

In this model you can edit

any of the figures in blue. Using this model you can see how any change in Sales Revenue (SR), Variable Cost (VC), Operating Expenses (OE), or Investment (I) will change the Throughput (T), Net Profit (NP), Return on Investment, or Company Value (Co. Value).

Using the Model

Under the heading **Before** you must set up your circumstances before any change of thinking or implementation of the Theory of Constraints. Required inputs are Sales Revenue, Variable Costs (as a percentage of sales), Operating Expenses, and Investment (Co Price Earnings is an optional field).

Then to simulate the impact of changing your business or applying the Theory of Constraints, you can change the percentage change in quantity or percentage change in price under Sales Revenue, Variable Cost and Operating Expense. You can also change the Investment Figure under the **After** heading to simulate any investment that will be made.

Once these changes have been made you will automatically see changes under the **After** heading. You can now see the effect of the changes you have made on Throughput, Net Profit and Return on Investment.

Help Menu

Contents

Choose this option to display Harmony's help file, which you are viewing now. The help file contains instructions for using Harmony.

Goldratt Research Labs Online

Selecting this option takes you to Goldratt Research Labs website using your default web browser. This website contains product updates, general information about Goldratt Research Labs and contact details.

License

Selecting this option displays your license information. It will enable you to check when your current license expires and has an option to update your license information if you receive a new license and need to apply it to the program. Simply enter in the new license code and click on **Update Info**.

About

Displays information about your version of the Harmony TOC S&T Expert System. Click on the information to make the window disappear.

Strategy and Tactics Tree View

This screen is located in the center of the application and is used for displaying the Strategy and Tactic tree. From this screen you will be able to view the Strategy and Tactic tree you have created or loaded from the Library. Each node represents a step in achieving the Viable Vision of the company (Node 1). You will notice the progression from the Viable Vision node (1) down the tree until you reach the bottom level. Each level of the Strategy and Tactic tree is designed to fix the problem shown in the level above.

Each node's colour can be changed and the view can be simplified by using the simple "+" and "-" icons. Clicking on the "+" icon will expand the level below the node you clicked on and clicking on the "-" icon will collapse the level below the node you clicked on. To see a more detailed description of the Strategy and Tactics Tree View Screen please click [here](#).

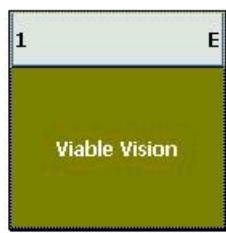
Introducing Nodes

An S&T Tree is made up of a set of dependant nodes; each of these nodes represents a proposed change to the system. For example the highest level node is the proposed change to the system. Level 2 nodes are the necessary and sufficient changes that need to be made to ensure the level 1 node is completed. A series of nodes are the necessary and sufficient set of changes sequenced in a way to achieve the higher level objective.

The characteristics of a node are as follows;

1. Title of the node, this is brief description of the proposed change.
2. Inside the node is a full explanation of the proposed change which includes;

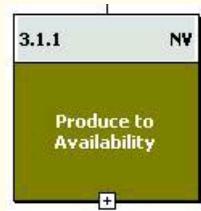
- ? Necessary Assumptions – the reason the change is necessary
- ? Strategy – Answer to the question, what for? Or the specific measurable objective of the change
- ? Parallel Assumptions – the logic of the change ie why we claim the objective of the change is possible and why we claim the tactic is the best way of achieving it
- ? Tactic – The answer to how to? The specific change itself defined as a change in policy measurement in a specific level in an organization
- ? Sufficiency Assumptions – A warning related to the change that will help define the steps required for the level below to achieve the level below..



When you select to begin a new project only one node will appear on the screen. This node represents the Viable Vision of the company and the goals you wish to achieve that all other node you define below are geared to achieve. The Nodes Number (in this case 1) appears on the top left and the Nodes Status (in this case "E") appears on the top right of the Node. Once you have entered in text to any one of the nodes fields the status will change from "E" to "NV." The Heading of the Node (in this case "Viable Vision") appears in the center. You can change the Node Caption by right clicking on the Node and the clicking on Change Node Caption.

Automatic Numbering

Every Child Node is automatically labeled relative to the Parent Node. Since the first node is automatically numbered "1", every Child Node below it will be labeled relative to it. This is to keep track of where you are on the S&T Tree. So the Child Nodes of Node "2.1" are "3.1.1" "3.1.2" "3.1.3" and so on. The "3" or "2" is just to keep track of what level of the S&T Tree you are on.



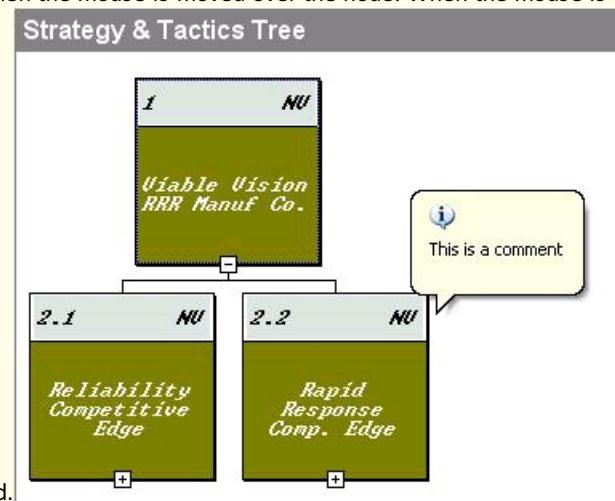
Hiding a Level from View

If you wish to hide a group of Child Nodes from view you can simply click on the small “-“button at the bottom of the Parent Node and the level below will be hidden from sight. If you wish to see the level again you can simply click on the small “+“button on the Parent Node and the row of Child Nodes will be shown again.

Comments

A comment can be added to any node in an S&T Tree. Simply right click on the node in question and then click on **Insert Comment**. You can then enter your comment in the space provided and click **OK**.

The comment will appear in the form of a balloon above the respective node when the mouse is moved over the node. When the mouse is moved over



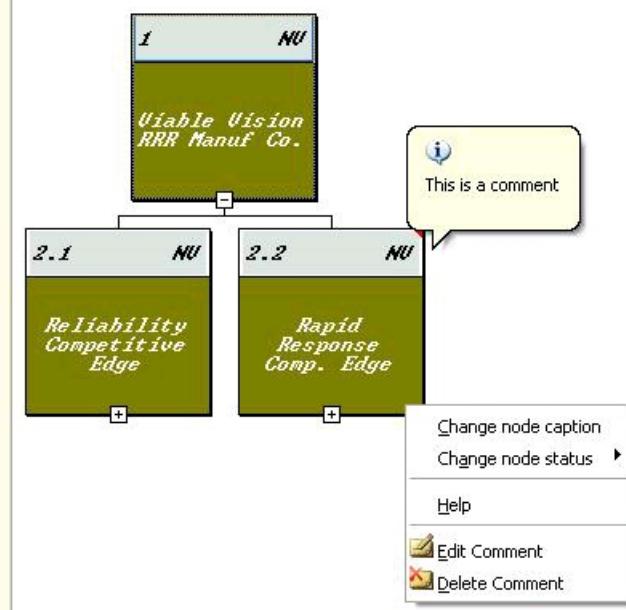
node 2.2 in this case, the comment "**This is a comment**" is displayed.

Deleting / Editing a Comment

If you right click on a node with a caption you have the option of editing the comment or deleting it. If you click on **Edit Comment** you will be able to edit the original comment and then make improvements.

If you click on **Delete Comment** the comment will be permanently deleted.

Strategy & Tactics Tree



Dragging Nodes

If you accidentally placed a node on the wrong level or you simply want to move the node, you can move it around the screen quite easily. If you click on a node and drag it, you can place it under another node or on another level. For example if you wish to place node “3.2.3” (which is a child of node 2.2) on node “2.1” you can simply click on it and drag it across to below node “2.1” You will see the connection is automatically show as you drag the node and in this way you can see where the node will be place while you are dragging the node. In this way you do not have to delete the node and make another node simply because you misplaced it to begin with!



Zooming

Zooming is very important in an S&T Tree when there are many levels and headings it enables you zoom out and get a general overview of what the S&T Tree looks like, or zoom in on a particular section of the S&T Tree. To **Change** the zoom on the S&T Tree you are working on, simply drag the slider UP or DOWN. Dragging the slide UP will zoom in on the S&T Tree. Dragging the slider DOWN will zoom out on the S&T Tree. The current level of zoom is shown just above the slider. In this case the zoom is at 100% (which is the default level for viewing S&T Tree's).

S&T Design View

Most of the basic building blocks of an S&T Tree are found within the S&T Design View. Using this view you can create the basic S&T Tree you want and you can edit all the nodes using the **Node Editor**.

Creating a Child Node



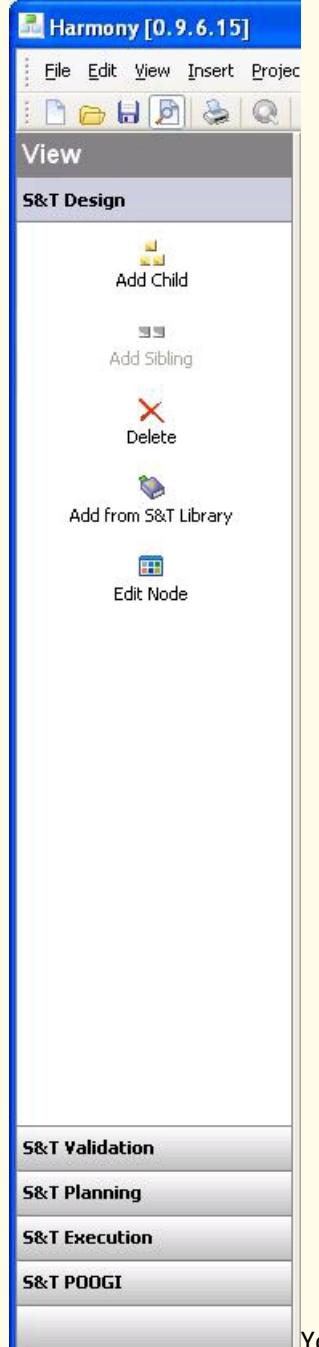
When you load an S&T Tree or create a new one you can add a **Child Node** by clicking on the **Add Child** button on the left hand side tool palette in S&T Design View. First you must select the node you wish to place the child onto. Once you have selected a node you can click on **Add Child** and the new node will be placed below the current node.

Alternatively you can also click on **Insert** in the Main Menu at the top of the program and then click on **Add Child**.

Creating a Sibling Node



Once you have loaded your S&T Tree or if you are creating a new one, you can create a **Sibling Node** to an existing node by clicking on the **Add Sibling** button on the left hand side tool palette in S&T Design View.



You can also create a **Sibling Node** by clicking on **Insert** in the Main Menu at the top of the program and clicking on **Add Sibling**. A Sibling Node is created directly next to the node you clicked on before creating it. So if you clicked on the node “2.1” and then created a **Sibling Node**, it will be created next to that node and be called “2.2” and so on. You can create as many Sibling Nodes at each level as you wish. Each Sibling Node is linked to the Parent Node automatically.

Deleting a Node



At any time you can click on a node and then click on the **Delete** button of the left hand side palette. This will delete the node you have selected and any Child Nodes that are linked to the node you have selected. You will be prompted as to whether you wish to confirm that you want to delete the node and all its Child Nodes. You should be very careful when deleting nodes as you may lose a large amount of work by deleting the wrong node.

Note: Once a Node is deleted it cannot be retrieved.

Add from S&T Library



Add from S&T Library

This command allows you to drag and drop nodes from generic S&T Trees into your S&T Tree. From this view you can click on a node from

another generic tree and drag it into the correct place in your S&T Tree. This is particularly helpful when creating a new S&T Tree because whatever environment your business is in there is most likely a generic S&T Tree for that environment. Simply find the generic S&T Tree that suits your environment from the left hand side of the window. Then search the tree for the desired node or drag the entire generic tree in your current S&T Tree.

Please see **Dragging Node's** for a more detailed explanation on this topic.

Edit Node



This command opens up the **Node Editor**. The Node Editor is where you store all the information about the node. This includes the Necessary Assumption, Strategy, Parallel Assumptions, Tactics, and the Sufficiency Assumptions. [Click here](#) for more information.

S&T Validation View

This view is used mainly for the users of the system to validate each node. The manager or owner of each node must go and validate the node agree to the Necessary Assumptions, Strategy, Parallel Assumptions, Tactics, and the Sufficiency Assumptions. In order to validate a node the user must right click on a node and **Change Node Status** to **Validated**. The user(s) must also watch the introduction flash presentation to get a clear idea of what the purpose of node they are validating is and if it is correct.



Introduction

Introduction

This command launches a flash presentation of the Theory of Constraints view on Strategy and Tactics and the role they play. It is highly suggested that you watch this flash presentation before starting Validation, Planning, Execution, or POOGI processes to ensure that your S&T Tree is has followed the correct principles.



Presentation Mode

Presentation Mode

This launches the full screen **Node Editor**.

The advantage of Full Screen mode is that you can navigate through the Node Editor detail of each node in the S&T Tree. If you opened up the Original Node Editor on node “2.1” you can now simply click on the right arrow button to scroll across the level to node “2.2” if it exists. If you then click on the down arrow button it will navigate to node “3.2.1” because this node is below node “2.2” Clicking on the up arrow button will take you back to node “2.2,” as this node is above node “3.2.1”

In this way you can scroll around the S&T Tree and compare your definitions with those you have defined for the parents/children. If you cannot go any further right across the tree at that level the right arrow button will go blank so that you cannot click it. In this way you know that at that level you cannot go any further right. The above procedure also applies to moving left/up/down.

To close Full Screen mode, simply click on the Full Screen Mode button again and the Node Editor will close down to its original size.



Export...

Export

S&T Expert System Exporter



S&T Expert System Exporter

Please specify your exporting preferences.

Columns to include:

- Node Number
- Title
- Necessary Assumptions
- Strategy
- Parallel Assumptions
- Tactics
- Sufficiency Assumptions
- Strategy Details
- Tactic Details

Nodes to include:

- 1 Viable VisionRRR Manuf Co.
 - 2.1 Reliability Competitive Edge
 - 3.1.1 99% Due Date Performance
 - 4.11.1 Choking Release
 - 4.11.2 Managing Priorities
 - 4.11.3 Dealing with CCRs
 - 3.1.2 Reliability Selling
 - 4.12.1 Target Market Definition
 - 5.121.1 Reliability Focus (Repetitive)
 - 5.121.2 Reliability Focus (Non-Repetitive)
 - 5.121.3 Balanced Sales Plan
 - 5.121.4 Prospects Prioritization
 - 4.12.2 Detailed Offer Design
 - 3.1.3 Expanding Client Base
 - 4.13.1 Leads Generation
 - 4.13.2 Pipeline Management
 - 4.13.3 Sales Measures
 - 3.1.4 Load Control
 - 4.14.1 Setting Order Due Dates
 - 4.14.2 Not wasting RR opportunities
 - 3.1.5 Capacity Elevation
 - 4.15.1 Estimating Time to Need

Output file:

Export Cancel

Use this command to export the contents of each node to a excel spreadsheet.

1.6.1 Columns to include

On the left hand side of the export window there is a section under the heading **Columns to Include**. From this option you can choose what details of each node selected will be exported to the spreadsheet. You can choose between the Node Number, Title, Necessary Assumptions, Strategy, Parallel Assumptions, Tactics, Sufficiency Assumptions, Strategy Details and Tactic Details. If you are unsure of which columns to export simply leave all of them checked. If you are sure you only wish to include certain columns in the spreadsheet deselect the headings you do not wish to include.

Note: The columns you select will apply to every node throughout the S&T Tree.

Node's to Include

In the middle of the export windows there is a section under the heading **Nodes to include**. Here you can select which nodes information you wish to export. If you do not wish to export a node's information, simply deselect the node by clicking on the checkbox next to the node.

Output to File

At the bottom of the export window you can enter the name of file you wish to export the S&T Tree information to. Clicking on the open location button next to the output file box will allow you to choose where you wish to save the file using a standard windows display.



Request Review
by Expert

Request Review by Expert

This feature allows an email to be sent to a TOC Expert (the expert you set up under Preferences) with your S&T Tree attached. The expert will then examine the S&T Tree and see if you are on the right track.

S&T Planning View

Manage Resources (Ctrl + R)

Using this command will bring up the Project Resources window. This window allows you to edit the human resources for the S&T Tree. These resources are used for assigning Tactics to a specific person, assigning task participants, and setting up managers on different levels.

To add a resource, click on the **Add Resource** button. From here you must enter in all the relevant contact information of the human resource and then click on **Ok**. The human resource will now be added to the list in the Project Resources window. From here the human resource can be assigned tasks within the S&T Tree.

Modify a Resource

To modify a current human resource simply **Select** the resource and click on **Modify**. From here you can edit the contact information and name of the resource and then click on **OK**.

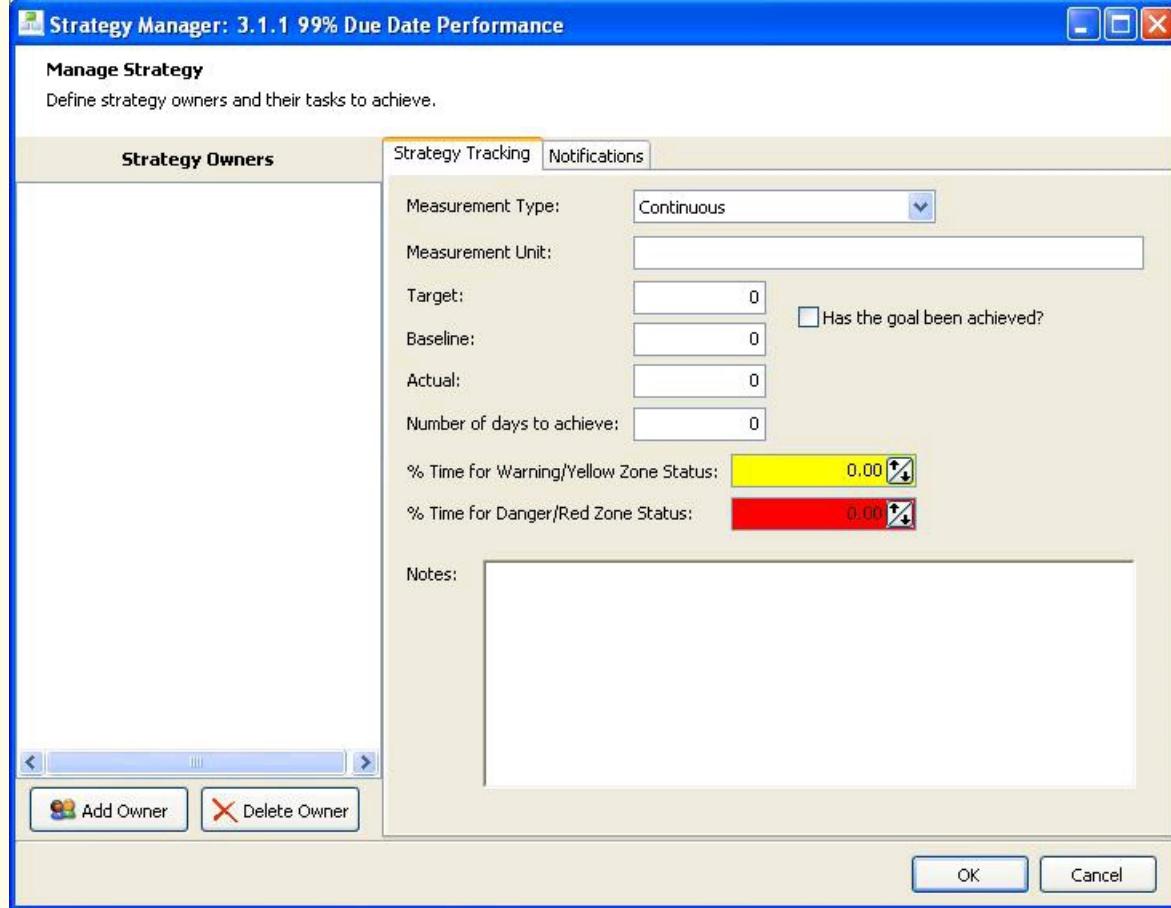
Delete a Resource

To delete a resource simply **Select** the resource and click on **Delete**. Please note that this action cannot be undone and should only be used if a resource is no longer available. All the tactics that had been assigned to the human resources will have to be re-assigned if the resource is deleted.

Strategy Manager

This button will bring up the Strategy Manager window. Alternatively when you are using the Node Editor are you have entered in all your definitions for the five headings you can define your strategy in terms of the objective of the change under the Strategy Manager.

 To access this function simply click on the Strategy Manger button to the right of the text you have enter for the strategy.



Adding a Strategy Owner

Once you have opened the Strategy Manager window you can add a Strategy owner by clicking on the **Add Owner** button found at the bottom left of the screen. From here you can pick the Manager who is responsible for the specific strategy and then click **OK**. The Managers names will now appear under the Strategy Owners Heading. If no names appear when you clicked on the **Add Owner** button you must add human resources to your S&T Tree. This can be done by clicking on the **Project** Menu, and then on **Manage Resources**.

Deleting a Strategy Owner

Once you have the Strategy Manager window open you can simply select the name of the Manager you wish to remove by clicking on their name and then on the **Delete Owner button**.

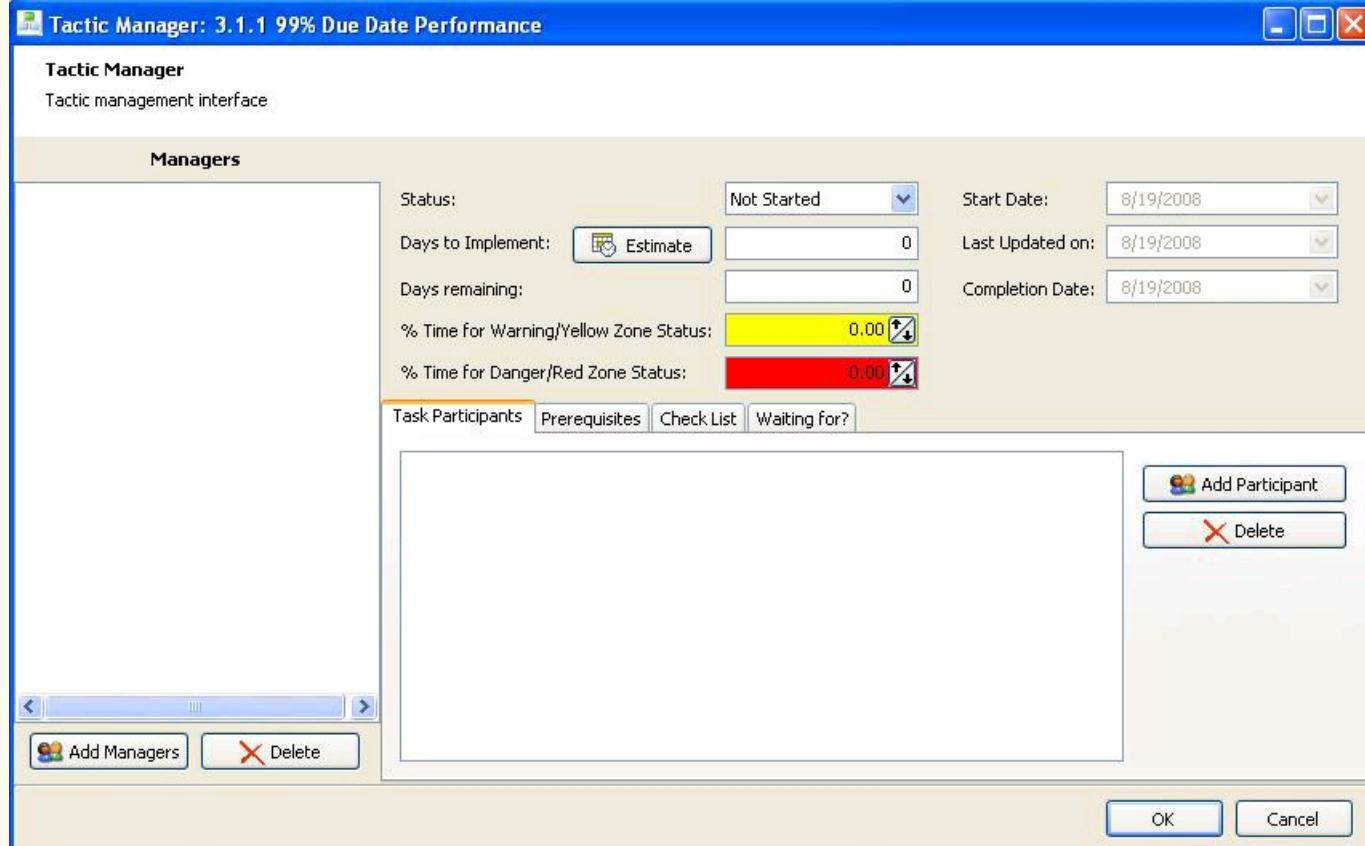
Note: If you delete a Strategy Owner the effects must not be underestimated. The notifications will not be sent until you appoint a new manager for that node and that strategy will head into decay if you do not put the new Manager on the Owners List as soon as possible.



Tactics Manager



This button will bring up the Tactic Manager window. Alternatively once the Node Editor Window is open you can click on the **Edit Tactics Details button** to bring up the Tactic Manager.



Adding a Tactic Manager

Once you have opened the Tactic Manager window you can add a Tactic Manager by clicking on the **Add Managers** button found at the bottom left of the screen. From here you can pick the Manager who is responsible for the specific Tactic and then click **OK**. The Managers names will now appear under the Managers Heading. If no names appear when you clicked on the **Add Managers** button you must add human resources to your S&T Tree. This can be done by clicking on the **Project** Menu, and then on **Manage Resources**.

Editing the Tactics

Once you have the Tactics Manager Window open you are ready to edit the Tactics.

Tactic Status

The Status of the Tactic is important as we must know whether the Tactic has been started, is in progress, or has been completed as the most basic of checks. So the Manager responsible for the node must select the honest position of the Tactic here. In the later development of the S&T Tree we must know whether a Tactic has been started or not. Each phase will show up as a different colour in the S&T Tree.

Days to Implement

The Days to implement the Tactic is self explanatory, it is simply the number of days at any one time that the Manager believes it will take to implement

the Tactic. Note that this figure is not fixed as the Days to implement may change as the particular Manager tackles the Tactic in reality. If you are unsure of how long the Tactic will take to implement, try using the **Estimate** button to give you an answer. This button will use any tactic information that has been set up for lower levels to give you a minimum number of days to implement based on the largest figure available for the levels below. If no information has been set up for the levels below the current tactic then the estimate will be zero.

Days Remaining

The Days Remaining is important because it tells us how much time is remaining in order to complete the Tactic and from there we can work out whether task is on track or not. If the **Days to Implement** is for example 60, then the **Days Remaining** should either be 60 (first day) or a figure below 60.

Percentage Time for Warning / Yellow Zone Status

The **Time % for Warning (Yellow) status** means that you can define when the notification needs to be sent out that this Specific Tactic has had xx amount of time and it has not yet been completed. This zone is set to the default level to begin with but you can change it to suits your needs. This zone definition will also ensure that when the Tactic is in the warning / yellow zone the S&T Tree (under Simulation or Execution mode) will turn the relevant node yellow (or another colour, other than a node that has not been started). This will be calculated on the **Days to Implement** and on the **Days Remaining**.

Percentage Time for Danger Status

The **Time % for the Danger (Red) Status** means that you can define when the notification needs to be sent out that this specific Tactic has had more than xx amount of time and that it has not yet been completed. The Danger zone is used to alert for worst possible case and that something needs to be done on this Tactic immediately. This definition will ensure that the node in question will turn red (under Simulation or Execution mode) to show the manager that immediate attention needs to be paid to this tactic.

Dates

You must enter the **Start Date** of the Tactic so that even though the number of days you think the Tactic will take to be achieved may change the system can still measure you against when the project actually started and against what the current completion time might be.

The **Last Update date** is used to ensure that the Manager is keeping regular checks on the system that he is falling within the correct time constraints to achieve the Tactic. If no activity is recorded then the system will send out a warning that this Manager is not sticking to his responsibility according to system.

If the Tactic has been completed you can select the **Completion date** so that a date can be recorded as to when you finished the Tactic and whether it was in the safe zone, the yellow zone, or the red zone.

Adding Participants

Participants can be added to the Strategy to ensure that they are reminded that they are a part of achieving the all round strategy they have been assigned. Notifications therefore would also be sent to these people to ensure that when the system warns there is a problem it can be acted upon. This can be done by clicking on the **Add Participants** button, selecting a name from the resources list and clicking **OK**. A participant can also easily be deleted by clicking on the person's name and then on the **Delete** button.

Prerequisites

Tactic Manager: 3.1.1 99% Due Date Performance

Tactic Manager
Tactic management interface

Managers

Visser, Albert (albert@goldratt.co.za)	Status: <input type="button" value="In Progress"/>	Start Date: 10/19/2008
	Days to Implement: <input type="button" value="Estimate"/> 10	Last Updated on: 10/19/2008
	Days remaining: 10	Completion Date: 10/19/2008
	% Time for Warning/Yellow Zone Status: 33.33	
	% Time for Danger/Red Zone Status: 66.66	

Task Participants Prerequisites Check List Waiting for?

Timing:

- Wait for the preceding node to complete before starting this node
- Start this node days after the preceding node starts.

Other Prerequisites:

Add Managers Delete OK Cancel

All the tactics in an S&T Tree cannot be done at the same time; sometimes one tactic must wait until another one is finished. Under the prerequisites tab you can set these kinds of options. Under the heading timing you can check the first box and as the heading states the current tactic will not begin until the preceding node has been completed. Use this option with care because you must know how long the previous task will take in order to not jeopardize this tactic.

Alternatively you can check the second box which is where you can specify that this tactic will start x number of days after the preceding tactic. Use this option if you know that in order for the current tactic to be started you simply need x days of the preceding tactic to be completed.

Check List

Tactic Manager: 3.1.1 99% Due Date Performance

Tactic Manager
Tactic management interface

Managers

Visser, Albert (albert@goldratt.co.za)	Status: <input type="button" value="In Progress"/>	Start Date: 10/19/2008
	Days to Implement: <input type="button" value="Estimate"/> 10	Last Updated on: 10/19/2008
	Days remaining: 10	Completion Date: 10/19/2008
	% Time for Warning/Yellow Zone Status: 33.33	
	% Time for Danger/Red Zone Status: 66.66	

Task Participants Prerequisites Check List Waiting for?

Add Item Delete Item
Check All Uncheck All

Add Managers Delete OK Cancel

Under this tab you / other users can create a checklist. This checklist can be anything relating to the tactic at hand. Using the simple buttons you can

Create or Delete a checklist item. You can also use the **Check All** or **Uncheck All** buttons to simplify the deleting process. This checklist is very useful for leaving messages for other users to check up on. If there are two Managers for a specific tactic then one manager can leave a checklist for the other manager of problems in defining the tactic or problems that have come about while trying to implement it.

Waiting For?

This section can be used in the same way as the checklist. The only difference is that information typed into this section is not edited and is simply one large field. Anything typed into this field is automatically saved.

Financial Model

Financial Model

This command opens up the financial model window.

TOC Financial Decision Model

	Before		% Change in Qty	% Change in Price	After	
	US \$	% of Sales			US \$	% of Sales
Sales Revenue (SR)	100.00	100%	0%	0%	100.00	100%
Variable Cost (VC)	50.00	50%	0%	0%	50.00	50%
Throughput (T)	50.00	50%	0%		50.00	50%
Operating Expenses (OE)	45.00	45%	0%		45.00	45%
Net Profit (NP)	5.00	5%	0%		5.00	5%
Investment (I)	20.00	20%	0%		20.00	20%
Return on Investment (ROI)	25%		0%		25%	
Co. Price-Earnings (PE)	5				7	
Co. Value	25.00		40%		35.00	

In this model you can edit any of the figures in blue. Using this model you can see how any change in Sales Revenue (SR), Variable Cost (VC), Operating Expenses (OE), or Investment (I) will change the Throughput (T), Net Profit (NP), Return on Investment, or Company Value (Co. Value).

Close

Using the Model

Under the heading **Before** you must set up your circumstances before any change of thinking or implementation of the Theory of Constraints. Required inputs are Sales Revenue, Variable Costs (as a percentage of sales), Operating Expenses, and Investment (Co Price Earnings is an optional field).

Then to simulate the impact of changing your business or applying the Theory of Constraints, you can change the percentage change in quantity or percentage change in price under Sales Revenue, Variable Cost and Operating Expense. You can also change the Investment Figure under the **After** heading to simulate any investment that will be made.

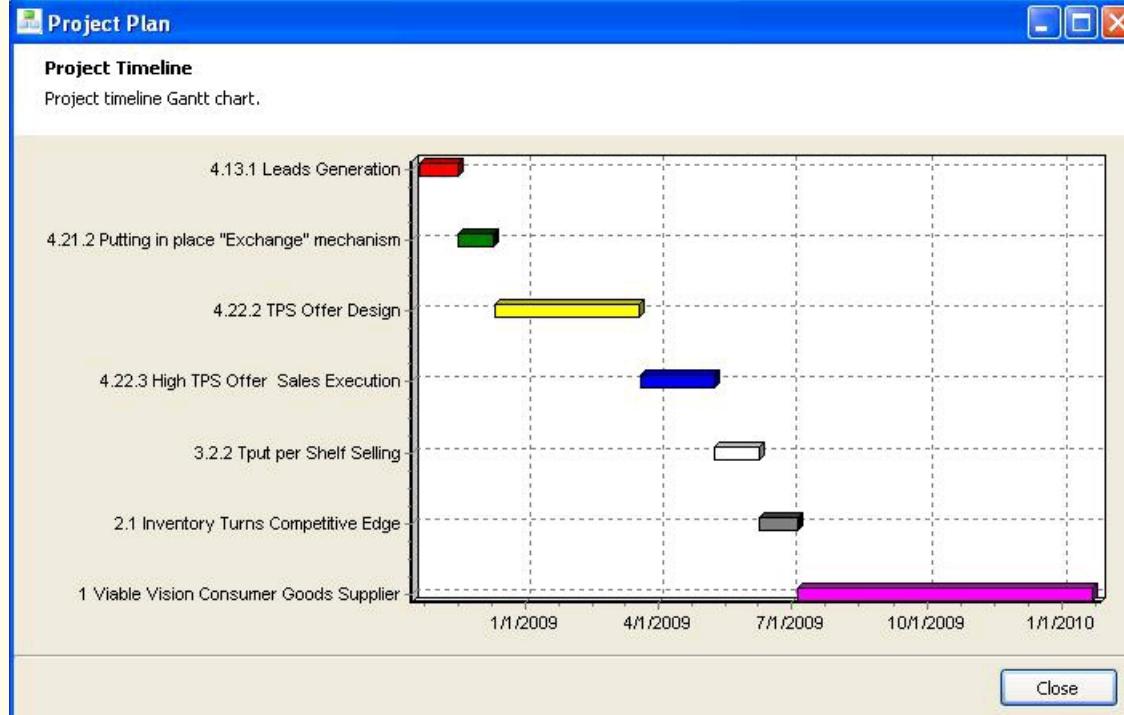
Once these changes have been made you will automatically see changes under the **After** heading. You can now see the effect of the changes you have made on Throughput, Net Profit and Return on Investment.



Project Gantt chart

This command allows you to see the Project Plan. This sample chart (note, only a simple sample) shows only a few nodes that have been validated and given a Tactic time. The Project Plan works from the lowest level to the Viable Vision. The lengths of the individual nodes block on the chart are based on the length given to achieve the tactic associated with that particular node.

This project plan can be used as an overview of the entire project. It shows the estimated time until the project will be completed.



S&T Execution View

Under this view you can physically see the **Node Status** of every node in the tree. This view allows you to see actual situation that every tactic is in. Provided every node's tactic field has been filled in, the view of the S&T Tree given under Execution mode should represent the current situation of the Strategy and Tactics within the business. You will be able to pick up any **Complete, Overdue, Danger Zone, Warning Zone, in progress, and Not Started** Nodes. Be sure to check down all the levels of the S&T Tree and the most likely overdue tactics are usually at the bottom level on the S&T Tree. By double clicking on a node you will open up the full screen **Node Editor** and from there you can click on the **Tactic Manager** button to see why the node is in the state it is in. You can also go back to the **S&T Planning** mode for easier access to the **Tactic Manger**.

Under this view you can also **send a question to an S&T Expert**.

S&T POOGI View

Future Development – Watch this space.



Add Child

Creating a Child Node

When you load an S&T Tree or create a new one you can add a **Child Node** by clicking on the **Add Child** button on the left hand side tool palette.

Alternatively you can also click on **Insert** in the Main Menu at the top of the program and then click on **New Child Node**. The **Child Node** will automatically be placed below the node you clicked on before clicking the Add Child button. If you only have one Node in your project this means that the **Child Node** will be placed beneath the node you clicked on.



Add Sibling

Creating a Sibling Node

Once you have loaded your S&T Tree or if you are creating a new one, you can create a **Sibling Node** to an existing node by clicking on the **Add Sibling** button on the left hand side tool palette. You can also create a **Sibling Node** by clicking on **Insert** in the Main Menu at the top of the program and clicking on **New Sibling Node**. A **Sibling Node** is created directly next to the node you clicked on before creating it. So if you clicked on the node "2.1" and then created a **Sibling Node**, it will be created next to that node and be called "2.2" and so on. You can create as many **Sibling Nodes** at each level as you wish. Each **Sibling Node** is linked to the **Parent Node** automatically.



Delete

Deleting a Node

At any time you can click on a node and then click on the **Delete** button of the left hand side palette. This will delete the node you have selected **and** any **Child Nodes** that are linked to the node you have selected. You will be prompted as to whether you wish to confirm that you want to delete the node and all its **Child Nodes**, Select "Yes" if you wish to continue and "No" if you do not wish to continue. You should be very careful when deleting nodes as you may lose a large amount of work by deleting the wrong node.

Node Editor

The Node Editor is where you store all the information about the node. This includes the Necessary Assumption, Strategy, Parallel Assumptions, Tactics, and the Sufficiency Assumptions. You can access the Node Editor by double clicking on any node in the S&T Tree.



Editing Node Contents

Once you have opened up the Node Editor for a node you can create or edit the definitions you have created in each of the five categories for each node. Simply click in input box next to the heading of the category. You will see that the Standard Windows Cursor will appear to show you were you are currently typing. To start you can edit the text just like in a standard Microsoft Word Document. You can type text, delete text, add new paragraphs and so on. Any text that you type in to the box will automatically be saved when you close the Node Editor. Should you wish to change the text's font, size, appearance, and so on, please see Advanced Text Editing in the Node Editor.

When writing a definition you can get help by looking at a generic question to try and help you solve the problem at hand. For example, if you want help with the Strategy of a Node, simply click on the word Strategy in the Node Editor. This will bring up a balloon with a generic question to try and help you figure out what Strategy will go best for the node in question. This applies for Necessary Assumptions, Parallel Assumptions, Tactics, and Sufficiency Assumptions. When you are satisfied that the question has helped figure out the definition for that field in the node simply close the balloon.

Advanced Text Editing in the Node Editor

When you are editing the definitions of the five categories in a node, you can use some common text tools to make the definition easier to read, or more noticeable. These are standard text editing tools that are used in Microsoft Word or other Text Editors.

If you wish to change the formatting for a particular section of text, simply select the text and then follow the hints below to the change the formatting:

 **Font:** Click on the Font Change Button in the Tools Palette at the top of the screen. Click on the small arrow on the right hand side and choose the text you wish to use. (Note: The toolbar's default text is Arial)

 **Font Size:** Click on the Font Size Selection box at the top of the screen (on the small arrow on the right hand side) and select the text size you wish to have for the selection of text you made.

 **Bold:** Click on bold button in the tool palette at the top of the screen to change the text to bold text.

 **Italics:** Click on Italics button in the tool palette at the top of the screen to change the text to Italics.

 **Underline:** If you wish to underline your text, simply click on underline button in the tool palette at the top of the screen.

 **Superscript:** In order to make the text superscripts simply click on the superscript button

 **Subscript:** In order to make the text subscripts simply click on the subscript button

 **Decrease the Indentation:** To decrease the indentations simply click on the decrease indentation button

 **Increase the Indentation:** To increase the indentations simply click on the increase indentation button.

 **Bullets:** If you wish to add bullets to the selected text simply click on the bullets button.

 **Numbered List:** If you wish to make you texts into a numbered list simply click on the numbered list button.

 **Font Colour and Adding Strikeout's:** You can change the colour of the font or add a strikeout by simply clicking on the "A" (Capital A) button on the tool palette the top of the screen.

Left hand side Text Alignment: To Align the text to the left hand side of the text box simply click on the left hand side alignment button.

Right hand side Text Alignment: To align the text to the right hand side of the text box simply click on the right hand side alignment button.

Center Text Alignment: To align the text to the center on the text box simply click on the center alignment button.

Enlarging a Definition

For presentation purposes or simply for seeing it more clearly, you can zoom in on the text in the definitions boxes.



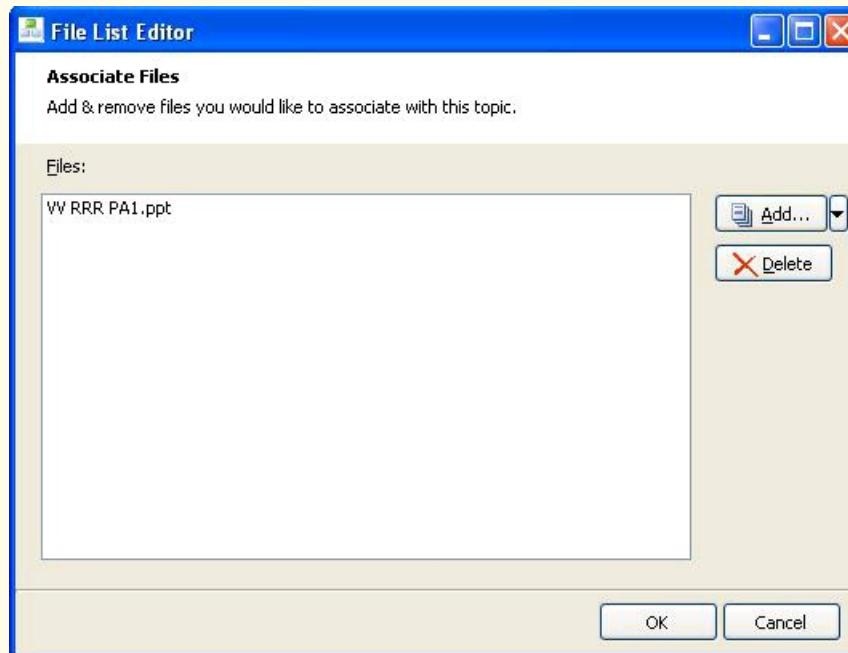
So, if you wish to take a closer look at the Necessary Assumptions for a node during a presentation, you can simply click on the Zoom in Magnifying Glass to the right of the text box you want to expand.

Once you click on this Magnifying Glass for any of the Definitions it will expand the definition to fill the entire **Node Editor**. Once you have finished with the definition simply click on the Magnifying Glass again to zoom out and back into viewing all five definitions at once.

Linking to External Resources

For each definition in a node the S&T Expert System allows you to link a single file or multiples files to help explain the definition. For example if you create a definition for the Necessary Assumptions that you think is incorrect, you can create a link to an external file so that you can come back and check that definition later based on your original ideas.

 You link files to each individual definition by clicking on the Linked Files Button to the right of each definition. Once you have clicked there another windows will appear.



If you wish to add a linked file click on **Add** and then you can choose whether you wish to add a Single file or a link to an internet address. Click on **Browse** and select the file you wish to link. Once you have selected whether you wish to link to an internet address or a file simply click **OK**. If you wish to link to multiple files you can click on the small arrow on the right hand side of the **Add** button and then click on Multiple Files. You will then be prompted to select the Files in a standard Windows format. Once you have selected the files, click on **OK**.

Full Screen Editor

You can choose to use the Node Editor in full screen mode. When you are viewing your S&T Tree simply double click on a node and you will enter the full screen Node Editor.

 Alternatively, once you have the Node Editor open simply click on the Full Screen button at the top right of the Node Editor and this will take you to the Full Screen Node Editor.

In Full Screen mode the Advanced Text Editing Features are not available, but you can still use the zoom and add linked files buttons, and edit the text by typing and erasing.

The advantage of Full Screen mode is that you can navigate through the Node Editor detail of each node in the S&T Tree. If you opened up the Original Node Editor on node "2.1" you can now simply click on the right arrow button to scroll across the level to node "2.2" if it exists. If you then click on the down arrow button it will navigate to node "3.2.1" because this node is below node "2.2" Clicking on the up arrow button will take you back to node "2.2," as this node is above node "3.2.1"

In this way you can scroll around the S&T Tree and compare your definitions with those you have defined for the parents/children. If you cannot go any further right across the tree at that level the right arrow button will go blank so that you cannot click it. In this way you know that at that level you cannot go any further right. The above procedure also applies to moving left/up/down.

To close Full Screen mode, simply click on the Full Screen Mode button again and the Node Editor will close down to its original size.

Frequently Asked Questions**Who is Goldratt Research Labs?**

The vision of Goldratt Research Labs is to develop and apply a discovery process that will result in the creation and dissemination of new TOC knowledge through win:win:win partnerships, typically with organizations that are already considered to be the leaders within their industries, but for which a generic TOC solution does not yet exist or where the application of TOC will require significant translation.

The objective of these partnerships are two fold. Firstly, to use the mindset and methods of TOC to jointly analyze, develop and test the required new TOC knowledge to help these organizations to overcome a specific improvement limitation or achieve what they consider to be an unattainable goal (the "win" for GRL and for the organization) and secondly, to convert this specific problem and specific solution into a general problem and general solution that will enable other organizations within that industry to benefit while protecting key aspects that would be considered decisive differentiators (the "win" for others within this and other similar industries)

The company was established on 1st January 2008 at the request of Dr Eli Goldratt to create an organization that will become the spearhead for new developments and testing to the TOC body of knowledge.

If, after researching the TOC body of knowledge and large reference bank, you believe your organization might satisfy the above criteria (i.e. that no generic TOC solution exist yet or that most likely, the application of a TOC would require significant modifications to achieve the required or desired improvement in goal units), you are welcome to contact Alan Barnard at alan@goldratt.co.za

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