



# NOWECO

Northwest Controlling Corporation Ltd.

## PATHMAKER

Project Pathway		Project Information	Team Members	Action Items	Discussion History
	Open	Description			
1	<input checked="" type="checkbox"/>	<b>Create and review organizational vision</b>			
2	<input type="checkbox"/>	Brainstorm: Why does the organization exist?			
3	<input type="checkbox"/>	Cause & Effect Tool: Organize the results of the brainstorm			
4	<input type="checkbox"/>	Brainstorm: What are elements of our vision? What do we picture for five years ahead?			
5	<input type="checkbox"/>	Draft Working Organizational Vision Statement			
6	<input type="checkbox"/>	Cause & Effect Diagram: Translate vision into first cut at strategy			
7	<input type="checkbox"/>	<b>Establish Financial Objectives and Measures</b>			
8	<input type="checkbox"/>	Do SWOT Analysis			
9	<input type="checkbox"/>	Brainstorm: What should the organization's financial goals be?			
10	<input type="checkbox"/>	Cause & Effect Diagram: Map main goals and sub-goals			
11	<input type="checkbox"/>	Agree on the importance of different goals			
12	<input type="checkbox"/>	Data Analyst Tool: Use Radar chart to display team's assessment of current performance			
13	<input type="checkbox"/>	Brainstorm: What are scorecard factors for organization's performance in each area?			
14	<input type="checkbox"/>	Data Analyst Tool: Set up Financial Scorecard tracking system			
15	<input type="checkbox"/>	Tree Diagram: Disseminate draft objectives and collect feedback			
16	<input type="checkbox"/>	etc.			

**Software to manage  
improvement projects**

## DIFFERENT IMPROVEMENT PROJECTS - ONE SOFTWARE TOOL

What do projects such as Balanced Scorecard, Six Sigma Quality, implementing ISO9000 or TQM, Benchmarking, Strategic Planning, Hoshin Planning, or Process Re-engineering have in common? They are all built with the same material. They consist of project management tools, they require meeting support, they employ both logical and creative thinking, they are about decision making, and they make use of data and its analysis.

Now, if these different projects have a common basis, does it make sense to use different software tools for each of these projects? Hardly! And this is the reason why you need PathMaker and nothing else. PathMaker supports all the features mentioned above.

Please, join us to learn more about a unique approach and read on.

## PATHMAKER - THE PROJECT PATHWAY TOOL

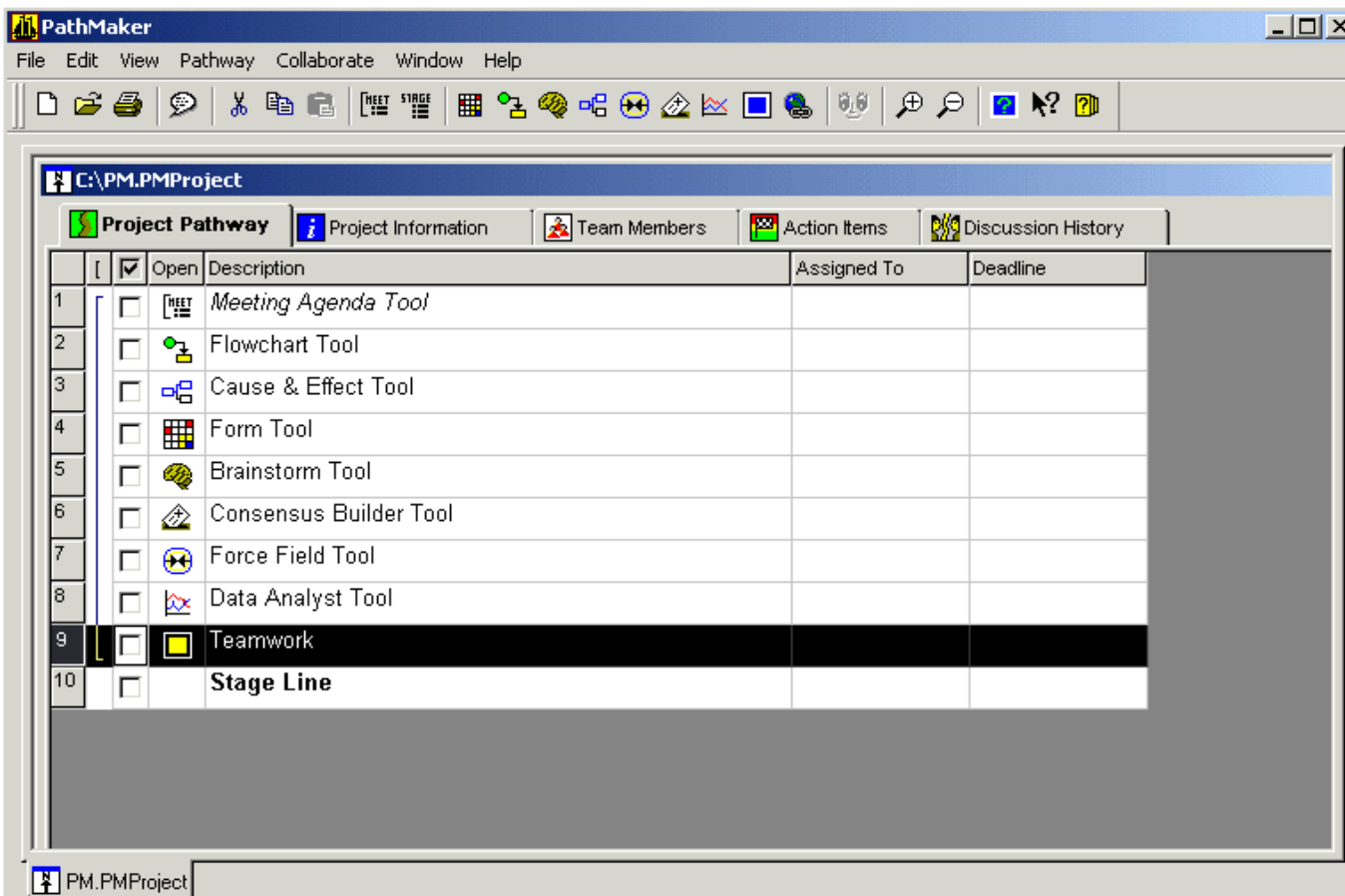
At the heart of PathMaker lies the unique Project Pathway, the clearing-house for all project information. In this one window, you can construct a pathway, track progress towards goals, launch tools, slide shows, forms and agendas, and show project highlights.

The Pathway defines the steps required to implement a project. Each step being associated with one of PathMaker's tools, or with a document, spreadsheet or other file from another program. All the information generated by the tools on a single Pathway is saved in a single file, so you do not have to worry about tracking many files, possibly in different folders.

After you add a step to the Pathway, a line appears with a description and a "launch" button which is used to activate the tool associated with the step. After you carry out the activity related to the step, you can return to the Pathway and add another step. Alternatively, you can add several steps to the Pathway at once and "launch" the tools at random. You can even construct and store template Pathways for your company's typical projects, e.g. the "XYZ Company's Problem-Solving Method".

The Pathway can save you an enormous amount of time. Team leaders, facilitators, steering committees, team members - all can bring up a project file, review the latest progress, refer to old work, or add new data. You can say good-bye and good riddance to messy flipcharts, tedious reports, lost documents, and floundering teams... when you say hello to PathMaker.

Below graphic is a screenshot of a sample project pathway. For illustration purpose you see each of the tools added to the pathway.



## Meeting Support Tool

You can schedule team meetings right on the Project Pathway by placing meeting brackets and stretching them to include the steps you want to cover. When you do this, an agenda is automatically created, which includes the designated steps and a list of attendees.

The agenda is accessible with a click of a button, and most of it is editable, including time, location, meeting duties and topics. A finished agenda is easily printed for distribution. You have complete control over fonts, colours, column widths, row heights, adding extra rows and columns, adding agenda items which are beyond PathMaker's compass, etc.

During a meeting, you can launch tools just as you would from the Pathway and record discussion points, decisions and action items, turning your agenda into electronic minutes, which are automatically saved with the project. This can save time in two ways: first, no one has to transcribe notes of a meeting, and second, there is no time lag before team members get to see minutes. It's not even necessary to publish minutes on paper. Networked team members can simply pull up the file, and preview agendas or minutes at their convenience.

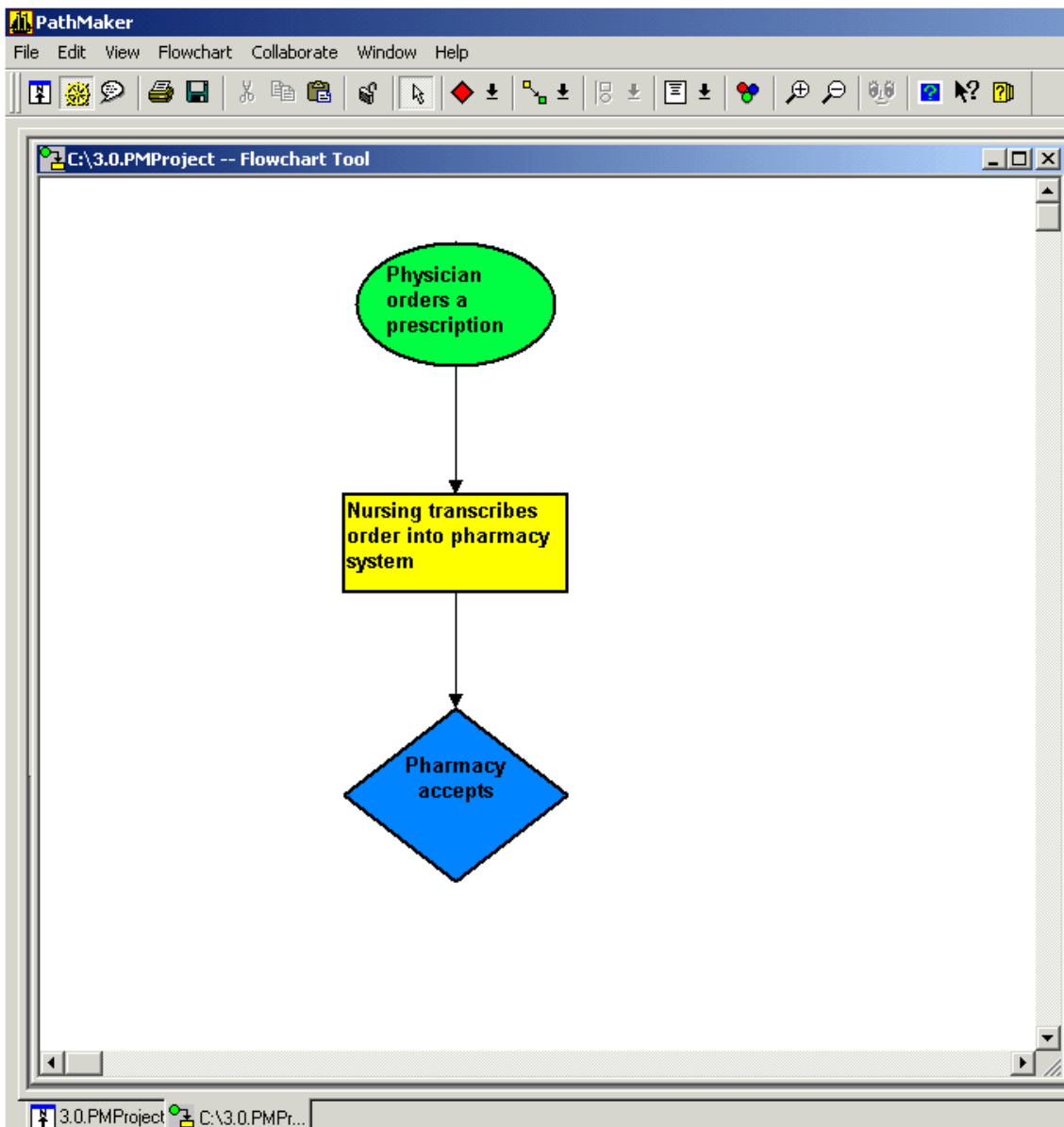
The screenshot shows the PathMaker software interface. The main window is titled 'C:\3.0.PMProject -- Meeting Agenda Tool'. The interface includes a menu bar (File, Edit, View, Meeting Agenda, Collaborate, Window, Help) and a toolbar with various icons for editing and navigation. The main content area is a table with the following sections:

Meeting Agenda/Minutes			
<b>Logistics</b>			
Meeting Title	Meeting Agenda Tool		
Objective			
Date:	6 /26/2001	Location:	
Start:	12:52 PM	Preparation:	
End:	12:52 PM	Please bring:	
<b>People Involved</b>			
Name	Responsibilities	Please attend	Did attend
I		<input checked="" type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>
<b>Agenda Items</b>			
Launch	Item	Time	Notes/Conclusion
1	Flowchart Tool		
2	Cause & Effect Tool		
3	Consensus Builder Tool		
4	Enter your own manual step		
<b>Action Items</b>			
Item	Person responsible	Deadline	Current Status
		6 /26/2001	
<b>Miscellaneous</b>			
Ideas Bin		Other Notes	

## Flowchart Tool

With PathMaker's full-featured flowchart tool, you can easily create process flow diagrams and relations diagrams. You get the set of ANSI standard symbols recommended by Dr. Juran: rectangle, circle, oval, diamond, and delay. We've added a cloud symbol, which we use to indicate a step where we're not sure what exactly is going on. Users have control over fonts, colours, connection styles, and text alignment. Shapes can be automatically resized to fit text, automatically aligned, evenly spaced, snapped to a grid, zoomed, and all made to grow proportionally.

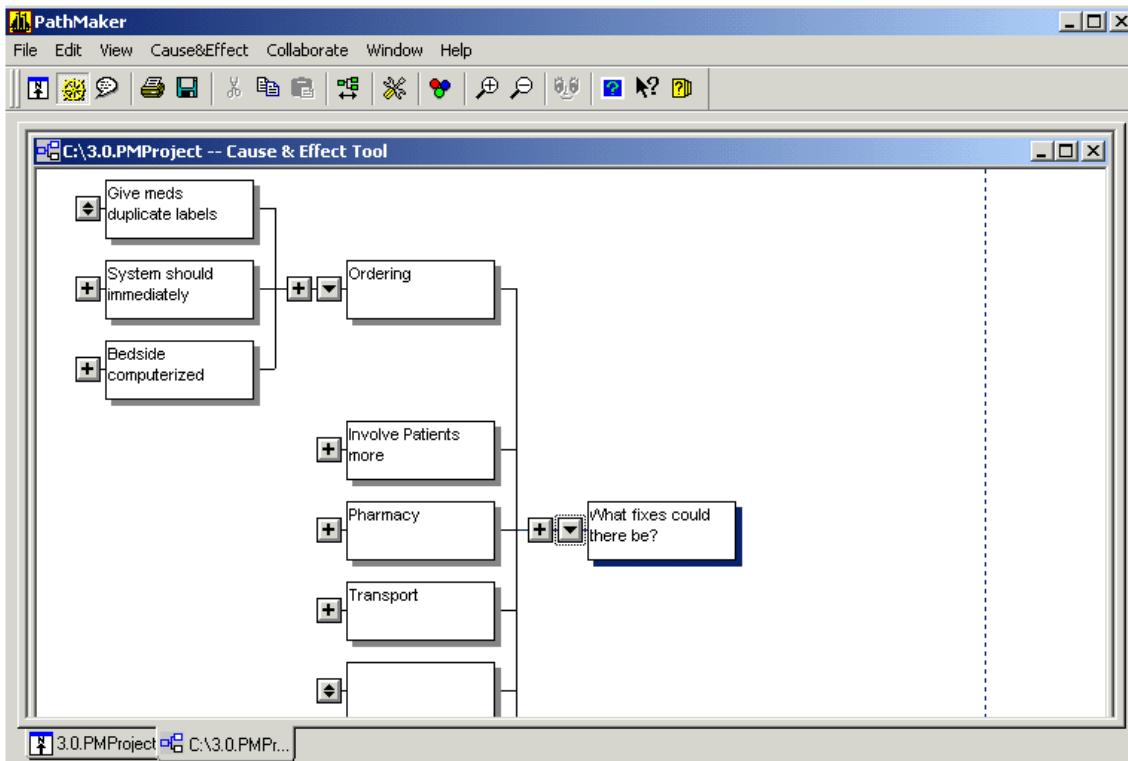
PathMaker's Flowchart tool does not include 5 MB of clip art, 4000 shapes, or templates for home interior design. It does, however, give you an easy learning curve, and a very rapid shape creation, labelling and connecting method. This tool is very well suited to live use in a team setting, and compares favourably to more expensive single-tool packages.



## Cause & Effect Diagram or Tree Diagram Tool

PathMaker's cause and effect diagram, or Ishikawa diagram tool helps users discover the root causes of problems. The traditional fishbone shape has been superseded by a right-angled structure, which is easier to construct, read and use. Zooming in and out permits viewing either the forest or the trees. Branches can be collapsed and expanded, and the tree can flow from left to right or vice-versa. You can auto-fit text, adjust spacing, change colours, edit via drag and drop, and more.

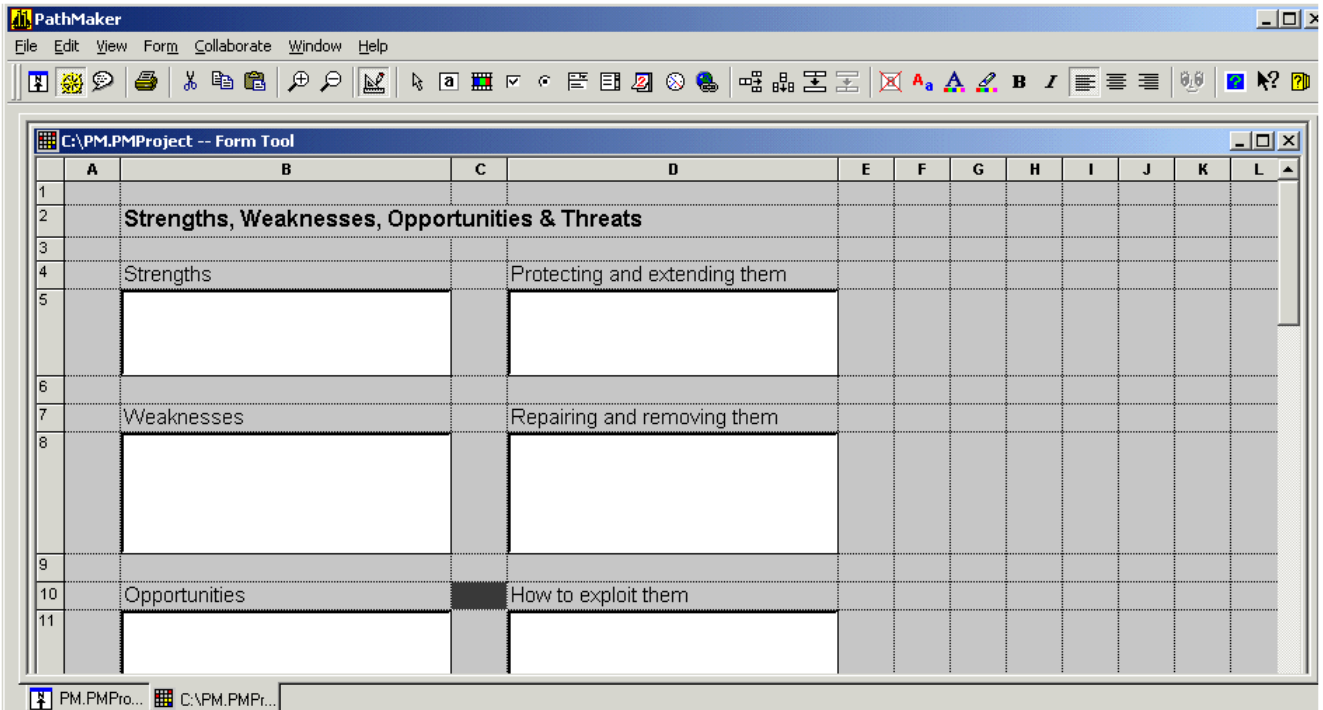
Diagrams may be built from scratch or from data copied from a brainstorm and affinity diagram. This tool can also be used as a tree diagram, a contingency planner (PDPC Chart), a classifier and an organisation chart maker.



## Form Design Tool

PathMaker includes a variety of standard form templates: Mission Statement, SWOT Analysis, Customers and Suppliers, Process Boundaries, Ground Rules and many more. These are useful; people use these forms as needed as projects move along, and responses to the questions are saved for easy referral and reporting.

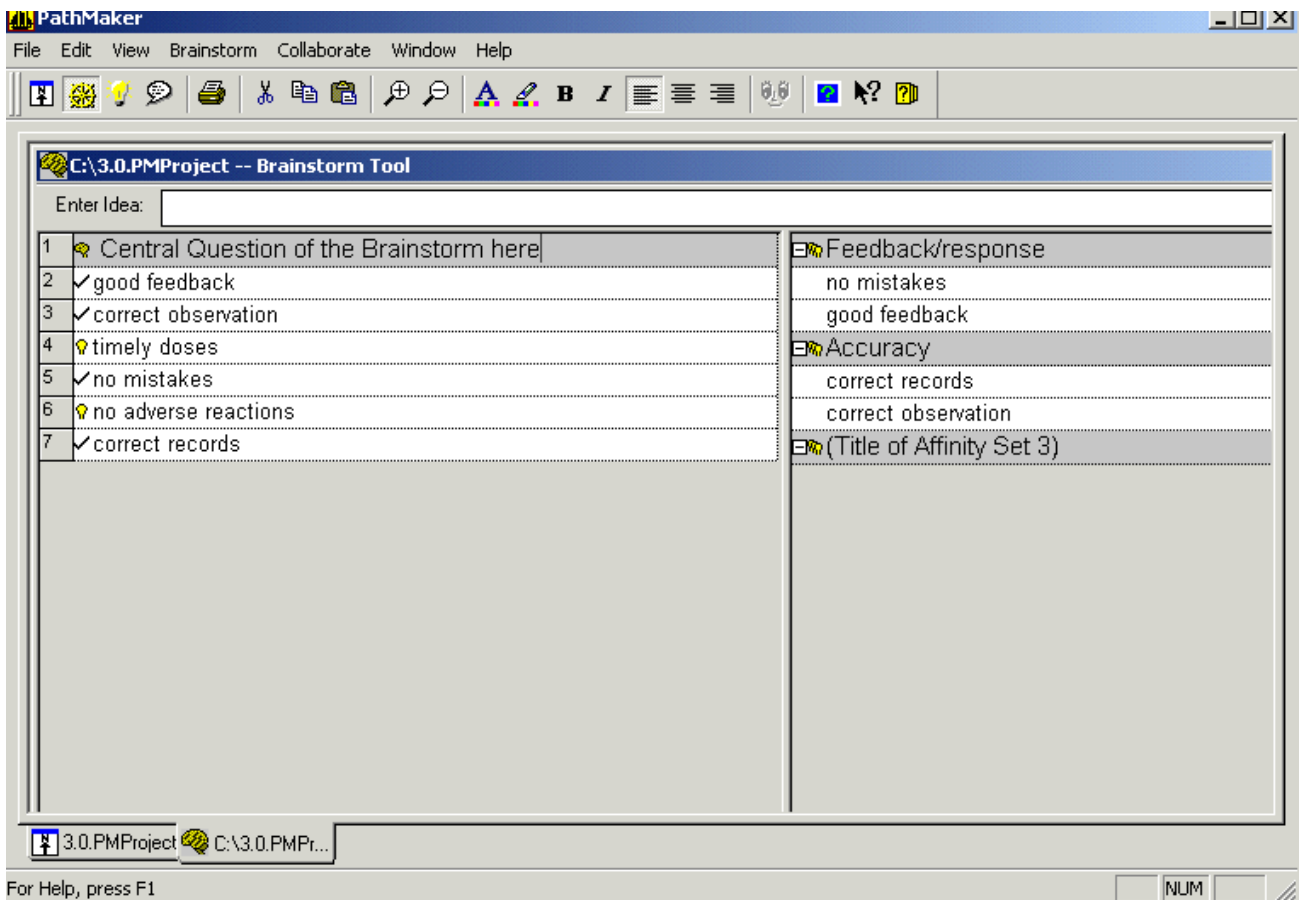
This is only the beginning. If you want to make your own form, switch to design mode, and quickly modify one of the standard forms, or make a new one from scratch. You can save your new form in a list of standard form templates, which makes it available for future use. Your whole organisation can have access to the standard forms you design, which enables you to have a consistent approach to problem solving, documentation, ISO 9000 compliance, and more.



## Brainstorm and Affinity Diagram Tool

PathMaker's brainstorming and affinity diagramming software tool combines two important creative processes in a split window. The brainstorm tool permits easy recording of creative ideas that answer a central question. This tool's design, based on the classic brainstorming method invented by Alex Osborne, allows the team recorder to keep pace with group thinking. Using a "drag and drop" technique, ideas can then be rapidly sorted into affinity sets, or groups, in the affinity diagram (also known as the "KJ" diagram after its creator, Kawakita Jiro).

Like the brainstorm, affinity groups can grow to accommodate any number of ideas. All ideas are editable, as are the central question and affinity set headers. You can collapse and expand affinity sets, and slide the central splitter bar right and left. Data from this tool may be used to start a Cause and Effect Diagram or for voting in the Consensus Builder.



## Consensus Builder Tool

PathMaker's consensus builder tool is to help teams discover "shared thought" through multivoting, rating and discussion. This helps teams whittle down long lists, choose the best options, and reach the point where a well considered decision can be made.

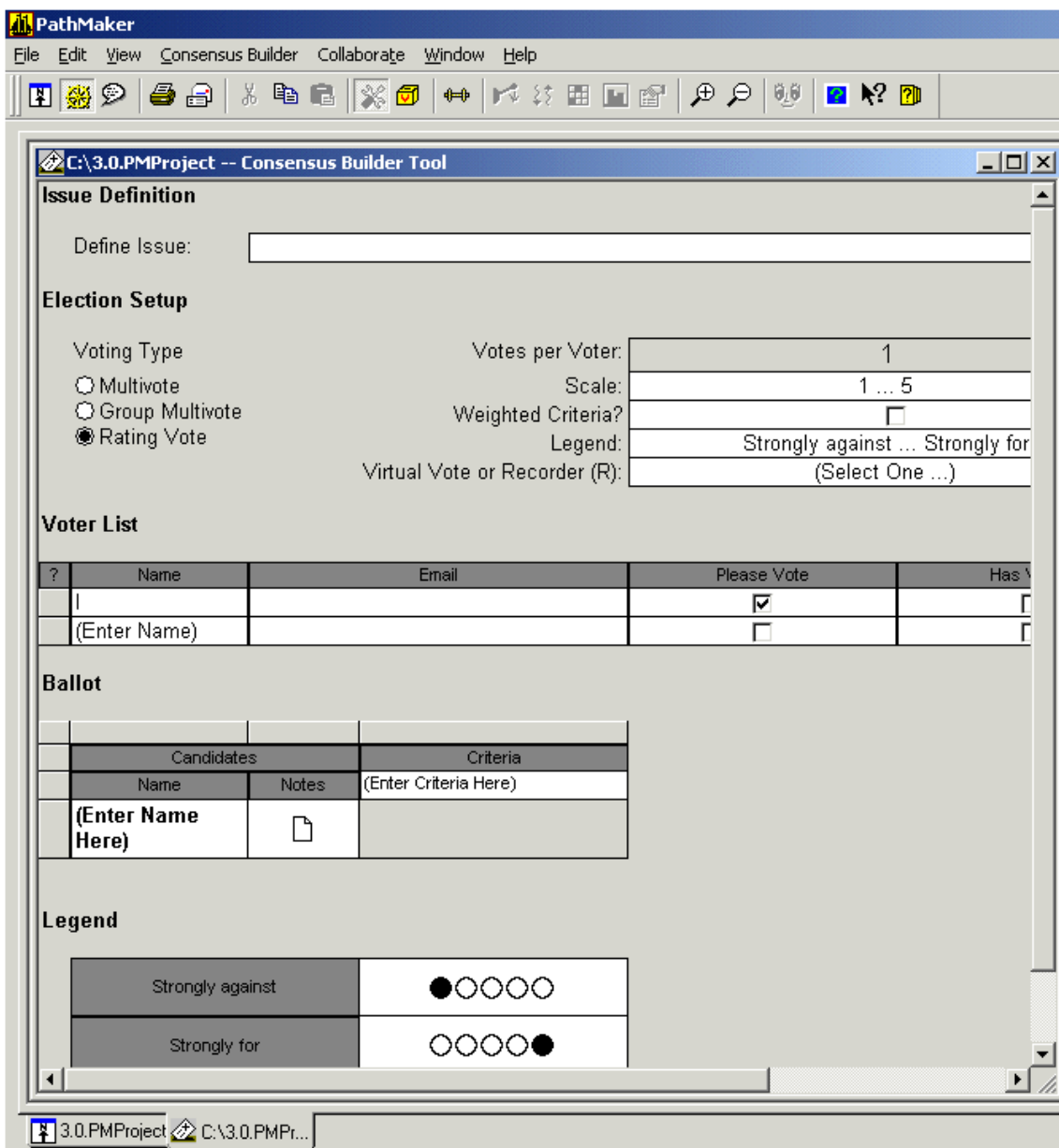
The unique matrix framework for the consensus builder tool allows multivoting, simple rating and multi-criteria rating in a single tool. The design minimises the conformity effect and offers rapid, iterative voting, anonymity, quick overall tallies, and graphs of results.



Multivoting is used to narrow down a long list of candidates. In the setup dialogue, you enter all the candidates, set the number of voters, and decide the number of votes that each voter will cast - usually 1/3 of the total candidates. Then, each voter casts a ballot. When all ballots are cast, you can summarise the results, sort candidates by totals, and view graphic outputs.

With rating, the process is much the same. This time, however, you can use one or more criteria to rate candidates against. you can choose a rating scale anywhere from 1-3 to 1-10. You can weight the criteria, too, if you like. With rating, the final results are summarised in a grid. You can click on cells to see graphs of voting patterns. The consensus threshold can be used to highlight the areas where there is the most disagreement - a signal that more discussion of that issue may be needed.

Discussion is at least as important as the actual voting. Discussion points about each candidate are recorded before and during the election, giving you a ready reference, and a PathMaker's consensus builder tool is to help teams discover "shared thought" through means to prevent circular arguments.

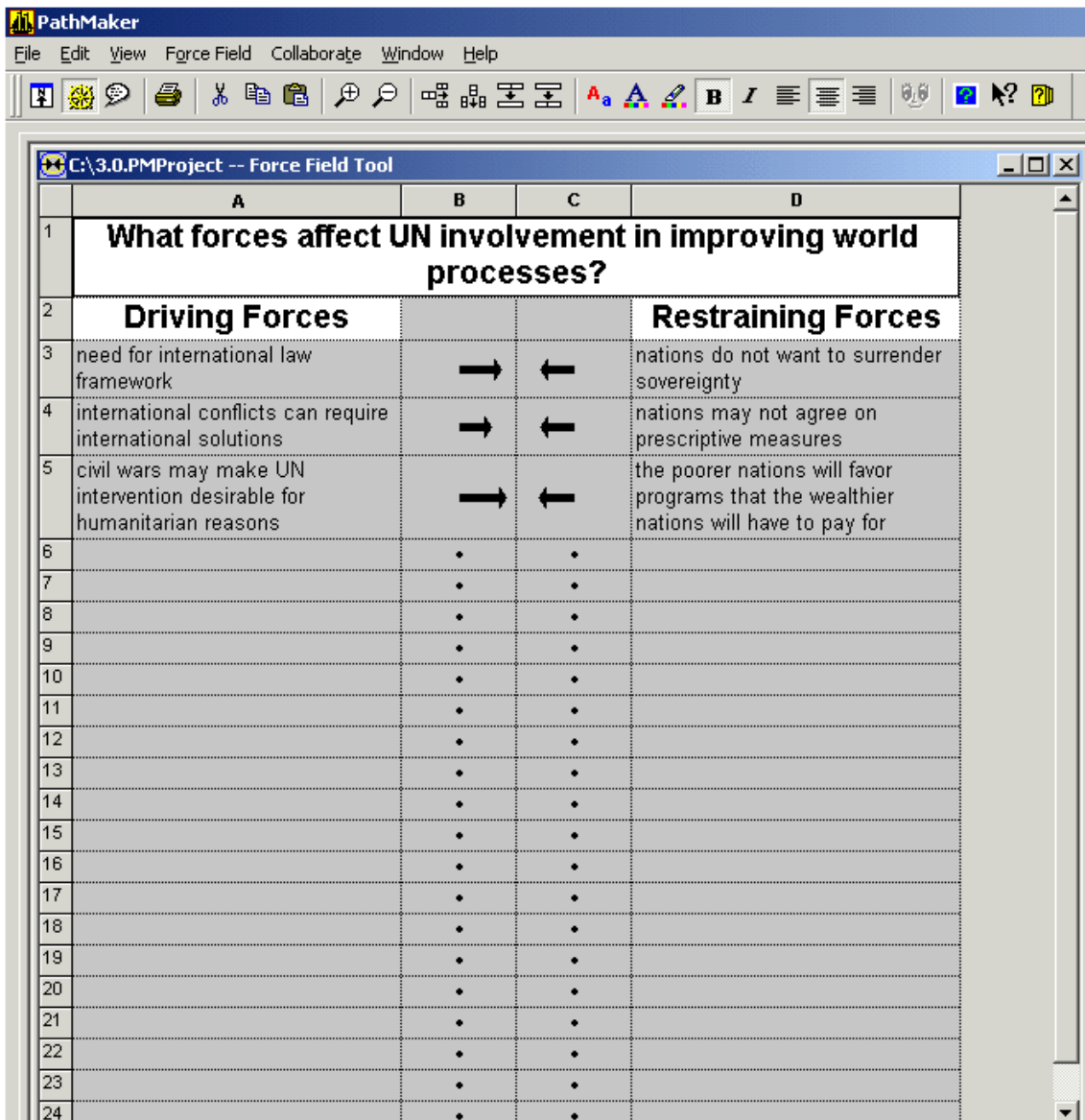


## Force Field Diagram Tool

Developed by the American social psychologist Kurt Lewin, the force field diagram helps in decision-making or contingency planning. The force field diagram is built on the idea that forces - habits, customs, attitudes - both drive and restrain change.

The diagram is very simple - just two columns - but is surprisingly powerful. It is generally constructed with driving forces on the left and restraining forces on the right. All of this information is entered by the team and is fully editable.

The force field diagram can help a team make wiser decisions about implementing change. The balance structure also allows the tools to be used to list pros and cons, strengths and weaknesses, actions and reactions, "What we know, What we do not know" and so on. Users who are new to force field analysis are often amazed at the way this very basic structure helps to clarify a muddy problem or issue.



## Data Analyst Tool

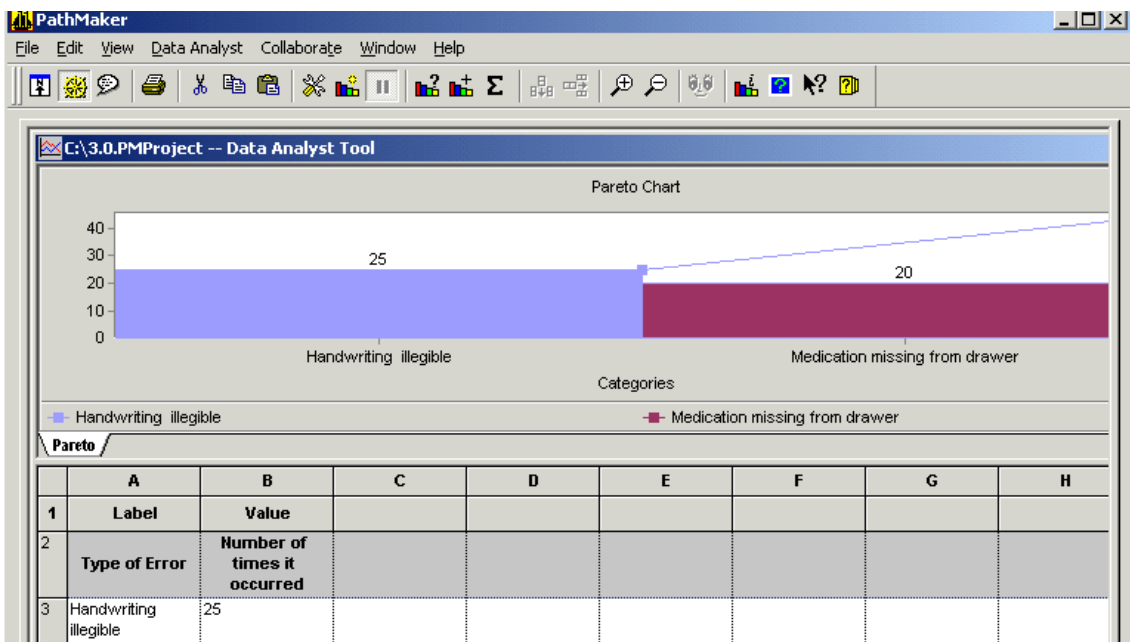
PathMaker's Data Analyst tool helps you integrate actual process data with management and planning tools. That's unusual in itself. The Data Analyst also has innovations which mean that non-statisticians can easily make useful, accurate, professional charts. With all the statistics done for you.

Data Analyst offers all the major chart types required for process improvement and SPC. In a chart wizard, you can choose run charts, pie charts, scatter plots, bar charts, histograms, Pareto charts, normal test plots or one of seven common control charts (x bar S, x bar R, individual and moving range, c, u, p, and np). The wizard will even give you advice on which chart type is appropriate for your task.

Your Data Analyst window is split, with a chart in the top pane, and a spreadsheet in the bottom pane. Data can be entered into the spreadsheet by hand, or imported from Excel, Lotus 1-2-3, or any other ODBC-compliant data file.

The Data Analyst is extremely easy to use. If you choose a Run Chart in the chart wizard, the spreadsheet adjusts itself to offer you column headers which are appropriate for run chart data. Your chart is automatically drawn from the data you enter. Just one button stands between you and all the relevant statistics you need.

Data Analyst is easy to use, but it is definitely not a lightweight. In the spreadsheet, you can sort, filter, exclude rows, hide and unhide, protect, validate data entries, and much more. With charts, you can control colours, titles, scales, point markers, 2D/3D views, legends, point labels, and many more functions. With control charts, you can opt to use given standards, and apply up to 4 out-of-control tests. With histograms, you can enter specification targets and limits, and calculate process capability indices. Scatter plots offer lines of best fit, and Pareto charts can automatically count and sort all entries in a designated column. Finally, guidelines for both data collection and interpretation are available, and are written in clear language which assumes no prior knowledge of statistical process control (SPC).

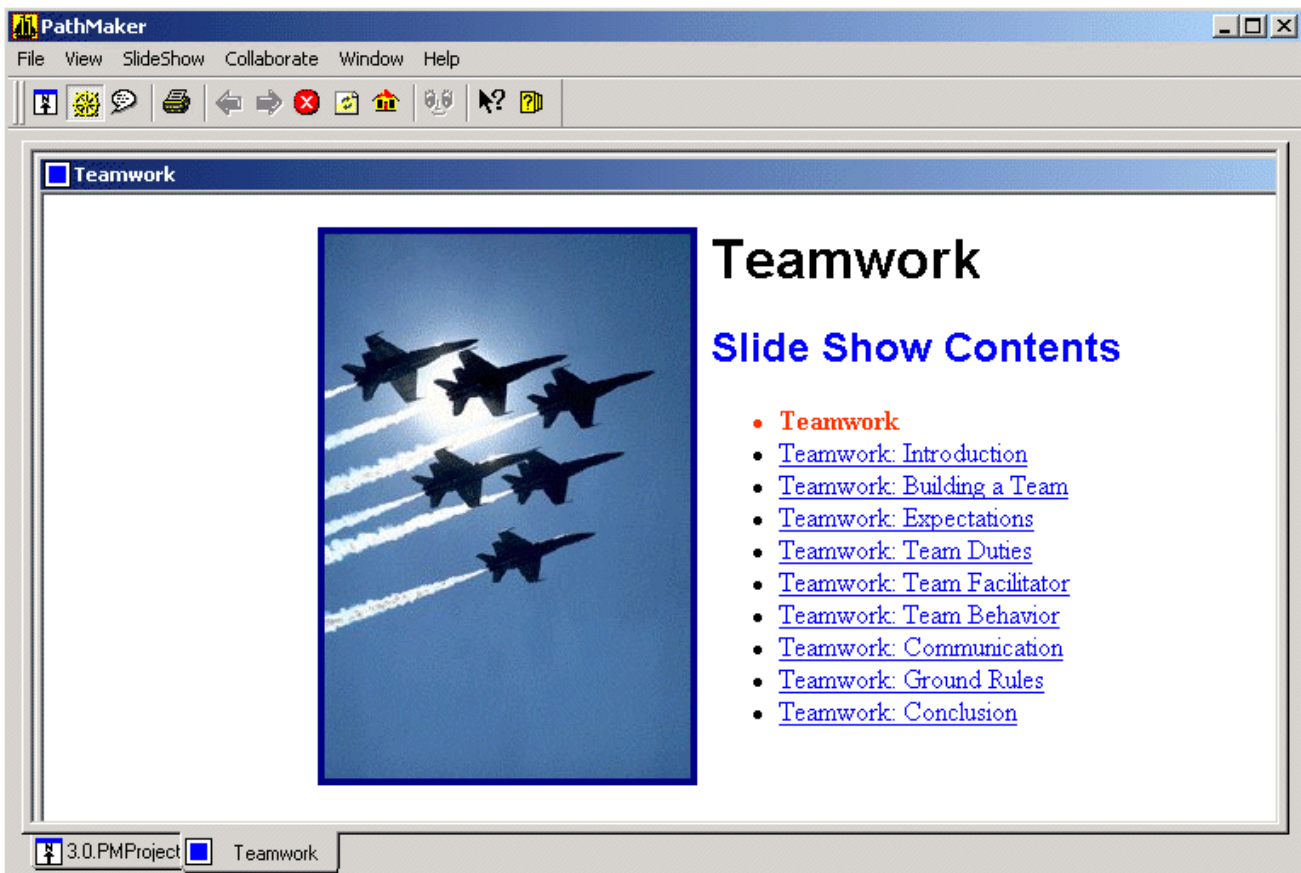


## Slide Show Tool for Just-in-Time Training

One of the classic problems of quality training has been the lag between training and action. It does not work to sheepdip an employee in quality management theory, and then have six months go by before he is involved in a process improvement project. Everyone, and especially adults, are impatient with learning something that they do not see themselves using right away. Plus, the half-life of knowledge is very short, unless it is cemented by being used. PathMaker does not stop at tools. It also teaches, combining learning with doing.

Embedded in the software are 27 slide shows which provide just-in-time training on a wide variety of subjects, covering everything from the basics of quality improvement and teamwork to how to use each tool. Any slide show may be added to the project pathway, and launched from there. The most relevant slide show to your active window can be launched right from the toolbar, for instant training.

You can move through any slide show at your own pace and exit at any time. If you have your own training slide shows which were constructed in PowerPoint or another presentation package, you can easily add them to your pathway, too, and use them in much the same way.



The screenshot displays the PathMaker software interface. The window title is 'PathMaker' and the menu bar includes 'File', 'View', 'SlideShow', 'Collaborate', 'Window', and 'Help'. The toolbar contains various icons for navigation and actions. The main content area shows a slide titled 'Teamwork' with a blue header. On the left is a photograph of four fighter jets flying in formation against a blue sky. On the right, the text reads 'Teamwork' in large black font, followed by 'Slide Show Contents' in blue. Below this is a bulleted list of links:

- **Teamwork**
- [Teamwork: Introduction](#)
- [Teamwork: Building a Team](#)
- [Teamwork: Expectations](#)
- [Teamwork: Team Duties](#)
- [Teamwork: Team Facilitator](#)
- [Teamwork: Team Behavior](#)
- [Teamwork: Communication](#)
- [Teamwork: Ground Rules](#)
- [Teamwork: Conclusion](#)

At the bottom of the window, there is a taskbar with two buttons: '3.0.PMProject' and 'Teamwork'.

## PATHMAKER: SAMPLE APPLICATIONS

After you have learnt about the tools provided by PathMaker we now want to take a look at some sample applications. Please also refer to our presentation which includes several sample pathways.

### Strategic Planning

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Have you ever worked in an organisation which had no known strategy? Or one which had a strategic plan, developed by the corporate planning staff, which languished in a handsome binder on the shelf until it was replaced by the next year's version? It's not pretty.

PathMaker can help. There are three critical elements of strategy: purpose, alignment, deployment.

Knowing and sticking to a purpose, building alignment, and deploying resources is very tricky. The Japanese use Hoshin Kanri, also called Hoshin planning, which is an organisation-wide management system for getting these things done. There is not any special magic about it; it is simply a structured way of moving ideas up and down the organisation, and tracking key indicators.

There is a huge strategic planning literature. There are many methodologies proposed, and there are critics of each. What one finds, though, is that there are common threads, most of which are common sense. There must be communication between organisational layers. Strategic, long-term issues are usually determined at or near the top of the organisational hierarchy. The lower one descends in the hierarchy, the more tactical the decisions become. There must be some factors, metrics, which can be used to represent the performance of different groups, or their progress towards goals. It's all well and good to say these things; it is rather more difficult to make them happen. Now, PathMaker can be used to help formulate strategic plans, and to help monitor progress.

PathMaker is designed to provide the infrastructure for systematic planning, review, and the movement of ideas through hierarchies. The tools for evaluating a purpose, or for reaching consensus, are built in. The project pathway provides a facility for reference, sharing, and documenting. There is also a pathway template for Strategic Planning, which is a fairly generic synthesis of the various steps recommended by different experts. You can use it as is, or modify it to suit your organisation's purposes.

The stages of Strategic Planning that need to be filled with steps can be:

- ◆ Create and review organisational vision
- ◆ Establish 3-5 year organisational priorities
- ◆ Develop key objectives for the current year
- ◆ Deploy objectives for detailed planning
- ◆ Implement the plans and review progress

Please, visit our presentation to view a project pathway for strategic planning.

## Business Process Re-engineering

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The tools of business process re-engineering are pretty much the same as those of total quality management, or continuous improvement. The same basic thinking has to get done...creativity, logical analysis, data collection, decisions, meetings, reporting - all the functions that PathMaker supports so nicely.

Three years ago, re-engineering was the hot management buzzword. Michael Hammer and James Champy, who popularised the re-engineering concept, held that continuous improvement might not be radical enough. An unnecessary process does not need improvement, but rather eradication. Which is quite right.

Now, some of the luster has gone from re-engineering - mostly since so many people have lost their jobs through so-called re-engineering efforts. In many cases, real re-engineering was not done - it was just a fancy name for layoffs. In other cases, re-engineering efforts lacked balance, or a proper regard for motivation, or for the long-term.

Re-engineering is neither the answer to all our prayers, nor is it anathema. It is actually a useful way of thinking. We do not see this as fundamentally different from TQM, but there is a valuable new emphasis on fresh thinking, on evaluating the need for a process before trying to improve it, and a questioning of all assumptions.

PathMaker provides an effective template for re-engineering processes. It starts with a slide show review of re-engineering principles. It works through steps in which the process's right to exist is examined. The pathway leads through clear definitions of the goals of the process, flowcharting of a new process, trials, data collections and analysis, consensual decisions, and eventually to the standardisation on a new process.

As with all PathMaker templates, you can use them as a model to build from, or you can build your own re-engineering pathway from scratch.

The stages of Reengineering a Process that need to be filled with steps can be:

- ◆ Prepare as a team.
- ◆ Look for reengineering opportunities.
- ◆ Study the possible processes in depth to understand how they work now.
- ◆ Identify what is required in the reengineered process.
- ◆ Seek ways to fulfill these requirements.
- ◆ Design the reengineered process.
- ◆ Implement changes.
- ◆ Standardise if successful.

## Process Improvement

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Joel Barker calls TQM, or Total Quality Management, the most important paradigm shift of the latter part of the 20<sup>th</sup> century. It is not complete yet, and it does not really matter if it ends up being called TQM or something else. The fundamentals are going to be with us for a long time to come, because they work.

Around 1500, Francis Bacon described the scientific method, with the development of a hypothesis, the design of experiments to test it, and the subsequent rethinking of the original thesis. The famous cycle, of Plan, Do, Check, Act, outlined by Walter Shewhart and popularised by Dr. Deming, is pretty much a reiteration of the basic scientific method.

You start by looking at your organisation as a big process, comprised of sub-processes, all of which should align with the overarching goals of the organisation. All processes can be improved, but the Pareto effect holds here, as in so many places. A few of your processes will be creating most of the poor quality, or wasted effort, in the organisation.

One way to identify the most troubling processes is to ask people what constrains them from doing their best work. Or what constrains the organisation from turning in better performance. Usually, the answers will point to some key bottlenecks or malfunctioning processes.

Once you have chosen a process to tackle, you will need examine what it is supposed to do, what actually happens now, and what sort of results are being achieved. Process analysis forms, cause and effect diagrams, and flowcharts are good tools for this sort of work.

You can then compare the actual to the ideal, and start thinking of ways to improve it. Here you might want to brainstorm a bunch of ideas for improvements, quickly group them with an affinity diagram, and then discuss them in more detail with the consensus builder tool.

Pick a solution or solutions which seem most promising, and try them. Pilot tests are often the best way to do this. Collect data, starting before the pilot test starts, and continuing until the results can be viewed with some confidence. If the solution you tried does not work, perhaps it needs to be redesigned, or abandoned, or tried in concert with another solution.

The reiteration of design, experiment, evaluation, redesign goes on until the process being improved is no longer the chief constraint of the organisation. Then another key process comes under the microscope, and bit by bit, the organisation improves itself.

PathMaker has tools for all these steps of process improvement, and comes with a template for process improvement work. There are a multitude of methodologies floating around for process improvement, but they have a common heritage. You can modify the standard template in PathMaker to suit the method that works best for you.

The stages of Process Improvement that need to be filled with steps can be:

- ◆ Prepare the team.
- ◆ Define the process and its aims.
- ◆ Identify problems in the existing process.
- ◆ Identify root causes of a selected problem.
- ◆ Identify a solution.
- ◆ Test the solution.
- ◆ Standardise if successful; otherwise cycle through again.

Please, visit our presentation to view a project pathway for Process Improvement.



## Benchmarking

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Benchmarking has claimed a big share of the management theory stage over the past five years. And for good reason...it works. The concept is very simple: Find someone who is doing the same sort of thing you want to do, except better. Then copy them. One of the classic examples of benchmarking (before anybody called it that) is this scenario: "That dessert was marvellous. Would you mind giving me the recipe?"

Much of the magazine world is based on benchmarking. The New England Journal of Medicine presents medical research results, so that doctors can change their practices. Popular Mechanics shows you how to make a home-built thingamajig.

Cooks benchmark Paul Prudhomme and Julia Childs. Little girls benchmarked Princess Diana. Benchmarking works wonderfully. Governments do it all the time, looking at how things are done elsewhere. Schools, too, are avid benchmarkers. The Institute for Healthcare Improvement has done a deal of good by getting groups of hospitals to pool their knowledge of how to treat a given illness most effectively. Experiments are done, data is collected, and the improved protocols are published for the benefit of the wider medical community. It can be a little more difficult in private industry, where competitive issues arise, but there are still many examples of successful benchmarking. Often, the "good example" company charges for its services, but this can be far cheaper than re-inventing the wheel.

The tools used in benchmarking are essentially the same as those used in most management tasks. For creativity, there's brainstorming and affinity diagramming. For decision-making, you need structured discussion, multivoting, and weighted rating tools. For data collection and analysis, you need modern spreadsheet software with appropriate charts - especially control charts. If you are working as a team, it helps to have team support tools, such as central document storage, a project pathway, and computer-based agendas and minutes. SkyMark's PathMaker software is a great tool for guiding a benchmarking project. A pathway template for systematic benchmarking is provided. Like all PathMaker templates, you can use it as is, change it, or make your own. PathMaker also provides all the key tools you will need to plan and execute your benchmarking project. Which saves you time and money, and gets you a better result.

The stages of Benchmarking that need to be filled with steps can be:

- ◆ Prepare as a team.
- ◆ Learn about customer needs and possible processes for benchmarking.
- ◆ Determine what process parameters you will measure.
- ◆ Research competitors, markets, other industries, and customers to find a partner.
- ◆ Establish a partner.
- ◆ Observe and collect pertinent data. Only ask for what you would be willing to give.
- ◆ Debrief and analyze the data. Search for breakthrough points where you can leapfrog the competition.
- ◆ Design changes in the process and adapt what you learned to suit your needs.
- ◆ Implement the new process.
- ◆ Standardise if it proves successful.

Please, visit our presentation to view a project pathway for Benchmarking.

## Balanced Scoreboard

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The Balanced Scorecard is hot. And for good reason...it works. The concept is very simple: Organisations need to know - thoroughly - how they are doing, and what their prospects are for the future. They need to pick indicators that will give them a good idea of the organisations fitness and performance. They need to watch the indicators. If the indicators go south, the organisation needs to react.

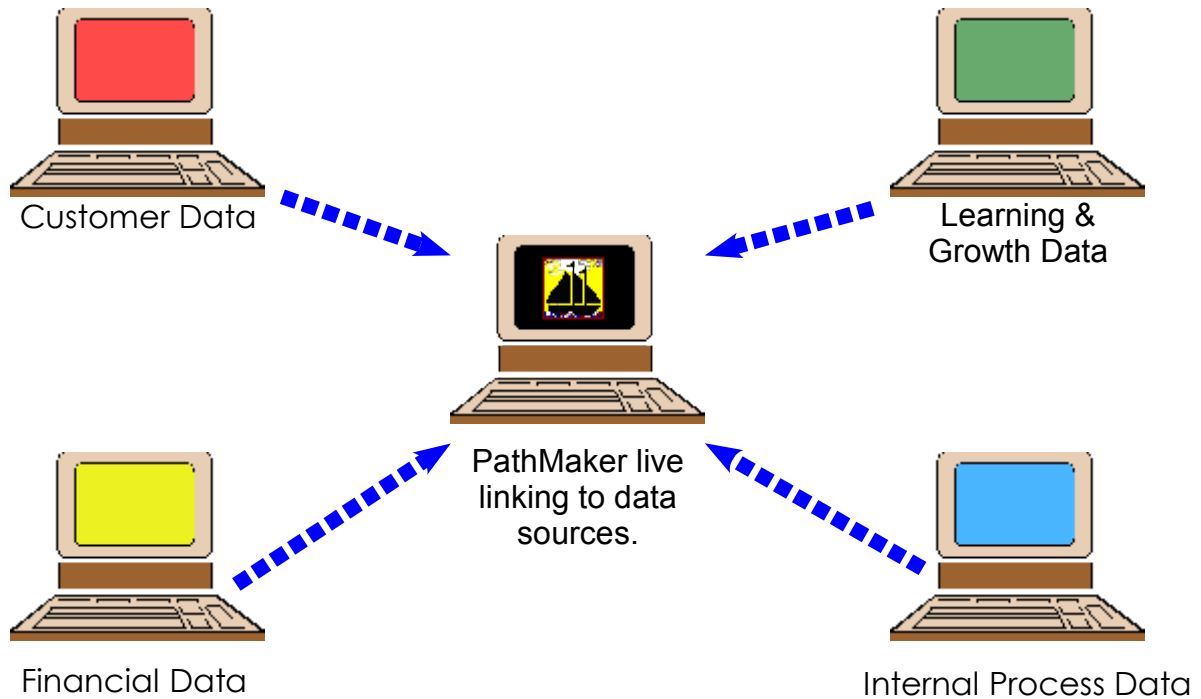
Interestingly, the balanced scorecard uses the same tools that managers have been harnessing for years: charts, databases, team tools, project management tools, planning tools. There really are not new building blocks here; but rather a new emphasis on getting an overview, on monitoring, and on balance - making sure you are tracking indicators in key areas.

PathMaker makes it easy to deploy an effective, and cost-effective, balanced scorecard system. A Balanced Scorecard template is available from SkyMark. It facilitates the development of a set of indicators in each of the key areas. The Data Analyst tool, with its many-to-one relationship between charts and data, and its data import utilities, is ideal for tracking indicators. Control charts are easy to set up and maintain. Finally, some processes will be earmarked for improvements. PathMaker is, again, the most complete tool for executing a systematic process improvement project.

The stages of Balanced Scoreboard that need to be filled with steps can be:

- ◆ Create and review organisational vision.
- ◆ Establish financial objectives and measures.
- ◆ Establish customer objectives and measures.
- ◆ Establish learning and growth objectives and measures.
- ◆ Establish internal process improvement objectives and measures.
- ◆ Monitor and refresh.

The stages show the need of collecting data from various sources. PathMaker employs a live link that allows you to link to the source field of which you wish to carry over the data. Live link means that when the value changes in the source application PathMaker reads this change automatically and adjusts the value in the Data Analyst:



Please, visit our presentation to view a project pathway for Balanced Scorecard.

## Six Sigma

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Six Sigma Quality is... what? It's a very specific measure, and it's a new way of managing. PathMaker II helps you translate it from a new idea, to an actual working system, in your organisation, without a huge investment.

Six Sigma gets its name from fairly arcane statistical measure - how wide a process is vs. its specification limits. The point is that making parts that are out of spec is expensive for everyone, so we want to reduce variation until the variation in the process is much less than the variation that could be allowed by the specification. Then... defects are very rare, and the costs of production are reduced all along the line from the originator of the process to the end user.

Six Sigma Quality also emphasises the importance of having trained experts - Six Sigma Black Belts - who are itinerant problem-solvers and process-improvers. There has always been a tension between having the expert - it used to be the industrial engineer - come in and solve a problem, and the quality circle or team idea - in which every member has expertise that is needed. There's no reason that we can see not to have both. It's silly to ignore expertise that exists in the people who work in the process. It's also silly to think that expert problem-solving skills cannot or will not be valuable. The pendulum swings back and forth; with Six Sigma, it has swung back towards the expert.

The tools used in Six Sigma Quality are familiar. For data collection and analysis, you need modern spreadsheet software with appropriate charts - especially control charts, Pareto's and histograms. For thinking of creative solutions to problems, there's brainstorming and affinity diagramming. For decision-making, you need structured discussion, multivoting, and weighted rating tools. If you are working as a team, it helps to have team support tools, such as central document storage, a project pathway, and computer-based agendas and minutes. SkyMark's PathMaker software is a great tool for guiding a Six Sigma project, because it has all these tools. A pathway template for systematic process improvement is provided. Like all PathMaker templates, you can use it as is, change it, or make your own. PathMaker also includes extensive training materials - slideshows, on-line context-sensitive help, and help cards - which are great refreshers for Black Belts, and good introductions for Green Belts. With PathMaker, you can get into Six Sigma Quality quickly, and start getting high returns with your very first projects.

## PATHMAKER USERS

Abbott Labs	ADC Broadband	Albuquerque Public Schools
Albuquerque Technical Vocational Institute	AllState	Arizona Department of Administration
Banta Corporation	Baptist Medical Center	Battelle
Bay State Health System	Boeing Helicopters	Boise Cascade
Brookings Hospital	Caterpillar	City of Sunnyvale
Coflexip Stena Offshore Ltd.	Columbia North Houston Medical Center	Department of the Navy
Department of Veterans Affairs	Disney	Doyon School
Dyncorp	East Carolina University	EFA Chesapeake
Essex County Hospital Center	Family Health Systems	Fidelity Investments
Finnish Air Force	First Brands Corp.	Florida Health Care Plans
Florida International University	Franklin Medical Center	Franklin University
Fresh Express	Georgia State University	Greater Pacific Health Plan
Grist Mill Co.	Group Health Center	Haggar Clothing
Health Alliance of Greater Cincinnati	Herman Miller Inc.	Hewlett Packard
INCO Ltd.	Ingersoll Rand Co.	Integra Health
InterAmerican University of Puerto Rico	Ipswich Public Schools	Iron Ore Co. of Canada
Janssen Pharmaceutica	JCAHO	Johnson and Johnson
Kaiser Permanente	Konica	LDM Powertrain
Madison Lutheran Home	Mahopac Central School District	Maryland DOT
Memorial Hospital	Memorial Spring Shadow Glen Hospital	Mercy Hospital
Mercy Medical Center	Michigan Department of Corrections	Milford Public Schools
Miller Dwan Medical Center	Miller Dwan Medical Center	Monongalia General Hospital
MSX International	Mystic Color Labs	N.Y.S. Power Authority
NASA	New York University School of Medicine	North Carolina Partnership for Excellence
NYS Institute for Basic Research in Developmental Disabilities	NYS Institute for Basic Research in Developmental Disabilities	Ohio Department of Education
Philips Broadband Networks	OhioHealth	PPG Industries, Inc.
Quorum Health Resources	Portales Municipal Schools	RitzCarlton
Rosenbluth International	Revlon Corporation	San Diego Naval Medical Center
Sanofi Diagnostics Pasteur	Sacramento County Office of Education	Sheraton
Shriner's Childrens' Hospital	Self Memorial Hospital	South Fulton Medical Center
South Miami Hospital	South Brookhaven Health Center	St. Vincent's Medical Center
State of New York DMV	St. Vincent Hospital	Sun Life of Canada
Sundstrand Aerospace	Summa Health Care System	Toyo Engineering Corp.
Toyota	Swedish Match	Tri-City Medical Center
Tripler Army Medical Center	Trace Regional Hospital	
	U S Marine Corps	

## Contact

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NOWECO

Northwest Controlling Corporation Ltd.

Fischerfeldstr. 15

60311 Frankfurt am Main

Internet: [www.noweco.com](http://www.noweco.com)

E-Mail: [sales@noweco.com](mailto:sales@noweco.com)

Tel.: +49 / (0)69 / 21 99 52 71

Fax: +49 / (0)69 / 21 99 52 72