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### The Creation and Development of New Tools for Creative Problem Solving

Brenden Bastain  
*Buffalo State College*

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# **The Creation and Development of New Tools for Creative**

## **Problem Solving**

by

Brendan Bastian

A Project for Studies in Creativity

Submitted in Partial Fulfillment of the Requirements of the

Degree of Master of Science

December 2005

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Dates of Approval

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International Center for Studies in Creativity

## **Abstract**

This project presents two new tools that have been created by the author for the CPS process. The first tool, Knowing the Bullseye (KB Analysis), is used to analyze an objective by examining characteristics associated with the objective. The other tool designed is the Arena Plan for Ensuring Success (APES Evaluation). This tool is utilized to evaluate a plan of action before implementation takes place. The tools' design, development, procedure for usage, examples, and evaluation are presented. Both of these tools are meant to assist in the decision making and CPS process and have been delivered in a user-friendly manner.

## **Acknowledgements**

I would like to acknowledge the many people who supported and inspired me while I pursued this goal. My family and friends have kept me motivated, focused, and laughing during the duration of this project and for this I am very thankful. I would also like to thank the entire group of people at the Center; including professors, advisors, staff, and fellow students. My time has been most enjoyable and I feel that I have grown not only as a student, but also as a human being. Third, I would like to thank fate, inspiration, and any other forces that exist to stimulate ideas. This project has shown me that inspiration lies everywhere, you just have to be open for it. Finally, I would like to thank the reader for taking the time to read my work. Without you, the words on the pages are left alone and die. For you, the reader, I am eternally grateful.

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## **I. Introduction**

In the journey that is life we are faced with decisions on a daily basis. Some of these may be mundane decisions while others require deep thought and reflection. Decisions in the latter category are best examined through use of an explicit process. These processes can include Creative Problem Solving (CPS), Synectics, Kepner-Tregoe, Lateral Thinking, and countless other methods. In these different methodologies are a variety of tools. Tools are techniques that advance you into and throughout the phases of the process. Creation of new tools to assist in Creative Problem Solving is the focus of this paper.

### ***Explanation of project***

The use of tools in problem solving is not a novel concept. Throughout history, a variety of tools have been utilized when seeking solutions to a given problem. These tools will usually demonstrate a metaphysical or reality based justification. However, whether it is tea leaves or an evaluation matrix, individuals will justify the decisions they make by what was discovered through using the tool. In this paper, I will introduce two new tools that can be used by future decision makers. The first tool is titled *Knowing the Bullseye (KB Analysis)*. This tool is used to focus and analyze the objective, generate possibilities, and review constraints. The second tool is the *Arena Plan for Ensuring Success (APES Evaluation)*. This tool is an evaluation technique that reviews a decision maker's plan of action and where to move forward from there. These tools examine both possibilities and constraints. Through this operation, divergent and convergent actions are taken by both and assist the true nature of the CPS process. In addition, the two new tools, KB analysis and APES Evaluation, provide a problem solver with a 360 degree analysis of an objective and a plan of action.

### ***Rationale for Choice***

I have always had an interest in developing tools that simplify complex ideas. The tools that I create in this project will simplify two areas of the CPS process. My hope is that the ease of use of these tools will make CPS more accessible to the masses. This project will be the first step in a long career of research and development. As a result of completion of this project I will gain a deeper understanding of the CPS process and improve my creativity and new product development skills. This project will be a constant learning experience and will lead to me being more scholarly in the field of creativity.

### ***Overview of Project***

This project seeks to create and develop two tools that will assist individuals in using the Creative Problem Solving (CPS) process. The first tool is titled *Knowing the Bullseye* and has its focus on gathering data. This tool will provide the user with a guide to make certain that key data are recorded. The second tool is the *Arena Plan for Ensuring Success* and deals with the analysis and creation of a plan for action. These tools will be simple to use and will help in making CPS easier to use. The project will also document the method in which the tools were created to provide insight into the creative process.

The project will be accomplished in four sections. First, a review of the limited literature that is available on the process of tool creation. Second, the new tools designed will be examined by reviewing the development, modus operandi, and an example of the tool. The third section will be a presentation of the evaluation of the tools. The evaluation will be conducted by a peer review and also an analysis of each tool based upon the characteristics of a creative product presented by Susan Besemer. The final section will review my findings and present conclusions, recommendations, and implications.

## II. Pertinent Literature Review

The Creative Solving Process and the tools used therein are well-documented. However, the steps that take place for development are limited. This proves to be a blessing and a curse. The blessing is that the work of this project will serve as a resource for future tool developers. The curse, however, is that my review of literature revealed very few resources that can be applied to this project. The review of pertinent literature shows the need for tools or design methods to be used when a decision is necessary. The various authors have all shown that an organization of key information is a key to finding the correct solution. The following will review the pertinent literature and its influence in completion of the project.

Besemer, S. (1981) *Unpublished Master's Thesis*. Review and Synthesis of the literature:

Analysis of creative products.

Besemer, S. and O'Quin, K. (1999). Confirming the three-factor creative product analysis matrix model in an American sample. *Creativity Research Journal*. 12(4), 287-296.

Besemer's work was most influential in the evaluation of the tools created. In her master's thesis and subsequent work, Besemer defines the various aspects of a creative product. She reviews the initial three areas, but then also breaks those into more focused subscales. The combination of these subscales will be used in the evaluations of the created tools.

Gitter, D., Gordon, W. J. J., and Prince, G. (1964). *Operational mechanisms of synectics*.

Cambridge, MA: Synectics.

Gitter, Gordon, and Prince provided a very interesting mechanism toward decision making. The process of Synectics can stimulate many ideas and evaluate

unusual relationships between different items. The process of making the strange familiar was influential in tool creation. The new tools created are based in the belief that the first step in any problem solving situation is to arrive at an understanding of the problem. This is the same belief held by the creators of Synectics.

Holt, K., Geschka, H., and Peterlongo, G. (1984). *Need assessment: A key to user-oriented product innovation*. New York: Wiley.

Holt, Geschka, and Peterlongo have reiterated the importance of problem analysis. Through assessment a user may be led towards better problem definition, better coordination, and better marketing. Furthermore, full examination of a problem can reduce failure. This work is important because it further justifies the importance of using tools for analyzing a problem.

Isaksen, S., Dorval, K., and Treffinger, D. (2000). *Creative approaches to problem solving: A framework for change* (2nd. Ed.) . Williamsville, NY: Creative Problem Solving Group- Buffalo.

The work of Isaksen, Dorval, and Treffinger proved to be the most influential in development of these tools. The work that is commonly referred to CAPS book, defined the CPS process and a variety of tools are explained. The tools that have been developed are most closely related to two distinct areas. The first area is Understanding the Challenge. Understanding the Challenge requires the user to set an image for future direction, figure out the current situation, and identify and frame your problems. KB Analysis delivers these necessary

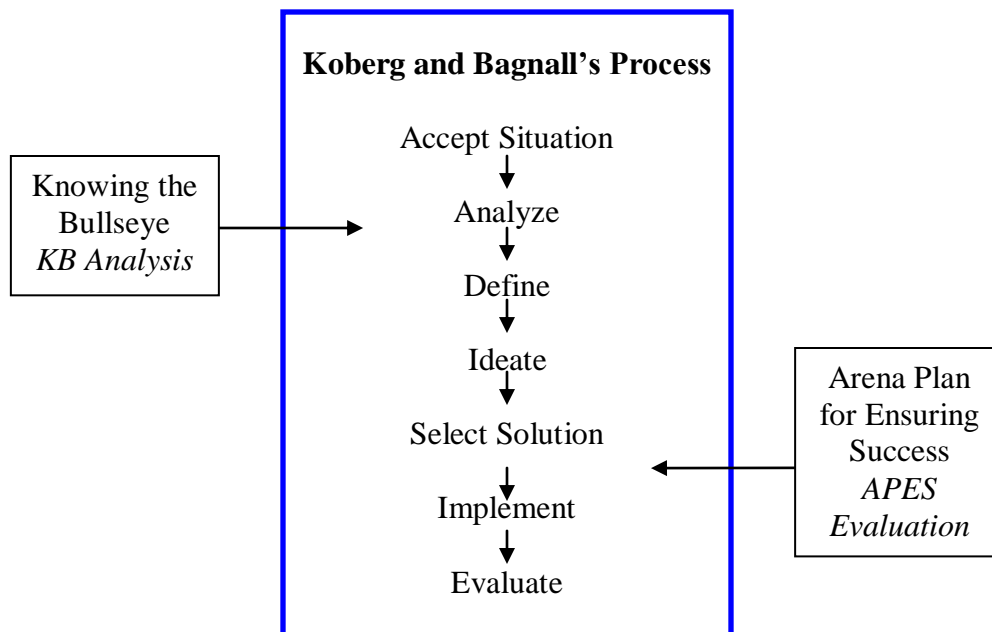
conclusions. The other area is Preparing for Action and is closely related to APES Evaluation. This area requires the user to develop, strengthen, or make decisions about promising solutions, and examine things that are influencing your success, and develop powerful plans. This work was also useful in discussing what sources of data exist in analyzing a problem. Some of these sources include information, feelings, observations, impressions, and questions. Using this information the tools were refined to put in place mechanisms that reach these sources of data.

Klein, D. (Ed.). (1998). *The strategic management of intellectual capital*. Boston, MA: Butterworth-Heinemann.

The importance of proper management of intellectual capital is stressed in the work presented by Klein. The book states that the organization of intellectual capital will lead to the use of this capital more effectively. If an organization becomes knowledge focused the organization will improve the odds of success. The tools that are created can be used repeatedly and focus the information that is available to an organization. Thus, the tools that have been created may lead through their usage to an organization's overall success.

Koberg, D. and Bagnall, J. (1981). *The all new universal traveler: A soft-systems guide to creativity, problem-solving, and the process of reaching goals*. Los Altos, CA: William Kaufman.

This resource provided another perspective into the problem solving process. The greatest influence comes from the philosophy presented by Koberg and Bagnall. They have several outstanding conclusions. First, the belief that organized knowing leads to developing meaningful feeling. Also, the use of process and tools allows a user to take conscious control of their decision making endeavor. Furthermore, by learning more methods you become a more effective problem solver. The organization of information allows relationship between pieces of information to be shown. Another conclusion presented is that the bulk of learning takes place in analysis. These conclusions can serve as justification for the two tools creation and application. The other influence of Koberg and Bagnall is the decision making presented. The tools that are created overlap many of the steps that are presented by Koberg and Bagnall as shown in Figure 2.1.



**Figure 2.1: Relationship between created tools and Koberg and Bagnall's problem solving process**

Michalski, W. (1998). *40 tools for cross-functional teams: Building synergy for breakthrough creativity*. Portland: Productivity Press.

Michalski discusses the conclusion that problem specification provides shared understanding. Also, success is the result of the right people using the right tools at the right time. The justification for using tools is the main influence of this work and provided inspiration for tool creation.

Miller, B., Vehar J., and Firestien R. (2001) *Creativity Unbound* (3<sup>rd</sup> Ed.). Williamsville, NY: Innovation Resources, Inc.

The work of these three authors provides an ideal introductory presentation of the Creative Problem Solving (CPS) process. Included in the discussion are the needs of the various stages of the CPS process, tools used for divergence and convergence, and what occurs during a facilitation. This work served to provide framework and order to the tools created, as well as, provide an opportunity to examine tools that have been previously created.

VanGundy, A. (1988). *Stalking the wild solutions: A problem finding approach to creative problem solving*. Buffalo, NY: Bearly Limited.

VanGundy's work serves as an assistor to problem analysis. VanGundy states that proper setup of a problem will lead to proper formulation of a solution. This work influenced the tool creation in several ways. VanGundy's work assisted in developing a tool that can evaluate what is and what should be. VanGundy recognizes that problem analysis is many times glossed over in favor

of ideation. This influence led to creation of tools for problem analysis that were visually appealing and easy to use. VanGundy also discusses the nature of data finding and problem finding, which is a divergent to convergent process. This natural process necessitated in my mind the creation of tools that use a similar process.

### **III. Product Development**

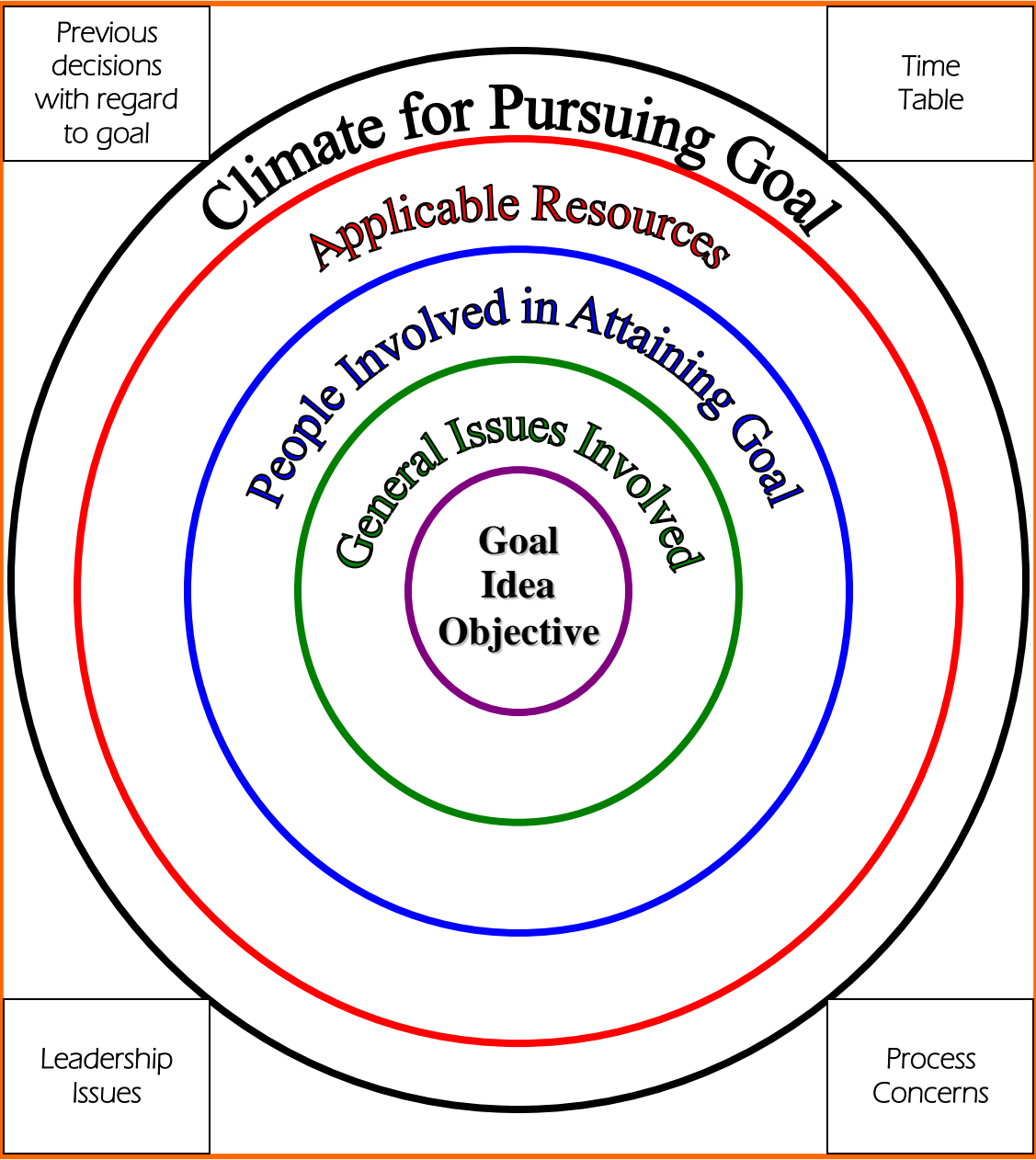
This section will review the creation, explanation, and application of the two tools. First, Knowing the Bullseye, a tool for analyzing your objective, will be presented and then, Arena Plan for Ensuring Success, a tool for evaluating a plan of action, will be discussed. The tools will be presented by presenting an overview of the tool, influence and development of the tools, procedure of usage, step by step guide, example of its usage, and summation of the tool.

#### ***Knowing the Bullseye (KB Analysis)***

##### ***Overview of Tool***

Knowing the Bullseye is a tool that focuses and analyzes an objective, generates possibilities, and reviews constraints. The tool is best used when trying to gain a full perspective of an objective. By using KB Analysis, the issues, the people, the resources, the climate, and several constraints are identified and can be used to aid both the solution for your objective and the way that solution should be pursued. By framing the objective through this tool, a user can examine the past, present, and possible future situations. The past is reviewed by examining previous decisions with regard to the goal. The current and future situations are examined inherently through use of the tool. The tool is user friendly once an initial review of procedure is completed, and is applicable to a wide variety of challenges.





**Figure 3.1: Knowing the Bullseye Model**

***Influence and Development***

The initial inspiration came while throwing darts with several friends. The game was focused on hitting the Bullseye, and a connection to finding solutions was made.

The first design of the tool had a similar structure, but had significant differences. Each of the initial rings was unfocused and did not follow logically. The constraints that are in the current

tool were nonexistent in early designs. They were later added to create a tool that is both divergent in exploring possibilities and convergent by examining constraints.

The process of development was mostly trial and error. A constant refining was done while developing KB Analysis. This was done through application of challenges to the tool and discovering the limitations of the tool. The process took several months, but the product that has resulted reduces the limitations that have been discovered.

### *Procedure for Usage*

The following is an instruction manual for KB Analysis. Each of the steps is followed by some of the questions that can be asked in each step. The step by step process follows the rings from inside out in the tool design. By using this deliberate process, relationships between information can be shown. These relationships will reveal the way in which the stated objective should be pursued.

When completing the tool it is necessary to have a variety of information available. The information that can be included in the tool is anything that may be found helpful. It is important to defer judgment when completing this tool. By deferring judgment, the user allows the most number of possibilities to be discovered. It is after the tool is completed that convergence takes place. During convergence it is important to not limit yourself to things the user may feel comfortable with, but rather be deliberate by using the information that best reaches your objective.

The tool is presented in the following manner. An overall review of the tool is presented. The next part is the step by step instruction for how to use the tool. The final two parts are completed tools. The tool can be presented by either filling out the tool directly or by using a worksheet which mimics the tool. Either method is acceptable and provides the same results.

### *Step by Step Guide*

#### **Step 1: Identify your goal, idea, or objective**

- ⊙ Be specific and focused
- ⊙ What are you looking to pursue?
- ⊙ What is your ideal future state?
- ⊙ What challenge are you facing

#### **Step 2: General Issues Involved**

- ⊙ What issues are involved with obtaining goal?
- ⊙ What are generalized solutions to reaching the goal?
- ⊙ Serves as initial idea generation point, initial solutions can serve as a guide
- ⊙ Example Goal: How do I attract new business?

General Issues: Lower prices, Advertise more, Improved marketing,  
Change store location, Create new publications, etc.

#### **Step 3: People Involved in Attaining Goal**

- ⊙ Who will be involved and are they motivated?
- ⊙ This includes people who will be active and/or effected by obtaining the objective
- ⊙ Knowing the people involved will simplify creation of a plan of action

#### **Step 4: Applicable Resources**

- ⊙ What can be used to reach the objective?
- ⊙ What data/information is needed?
- ⊙ What tools can be used?
- ⊙ What funding is available?
- ⊙ How much time will the project require?

- ⊙ Where can this take place?

#### **Step 5: Climate for Pursuing Goal**

- ⊙ Is the climate right for success?
- ⊙ Will there be resistance?
- ⊙ Does achieving success improve the climate?
- ⊙ Is the climate ready for change if it happens?

#### **Step 6: Previous Decisions with Regard to the Goal**

- ⊙ What have you done in the past to reach the objective?
- ⊙ What was successful in the past?
- ⊙ What was a failure?
- ⊙ How much influence does the past have?

#### **Step 7: Time Table**

- ⊙ How much time is available to obtain objective?

#### **Step 8: Leadership Issues**

- ⊙ Who will be in command while seeking objective?
- ⊙ Will leaders be followed?
- ⊙ Are those in command capable of achieving objective?

#### **Step 9: Process Concerns**

- ⊙ Is there a buy-in amongst those involved into achieving objective?
- ⊙ Is everyone committed to reaching the objective?
- ⊙ Will the process be deliberate toward achieving goal?
- ⊙ Does it follow company beliefs?

**Step 10: Select the Options that Best Lead to a Solution**

- ⊙ Circle/Highlight the ideas that have the best chance at providing a proper solution
- ⊙ This will help form the plan of action by putting the parts in order

*Example of Knowing the Bullseye Analysis “How might I increase profits?”*

**Figure 3.2: Knowing the Bullseye Tool Completed Example**

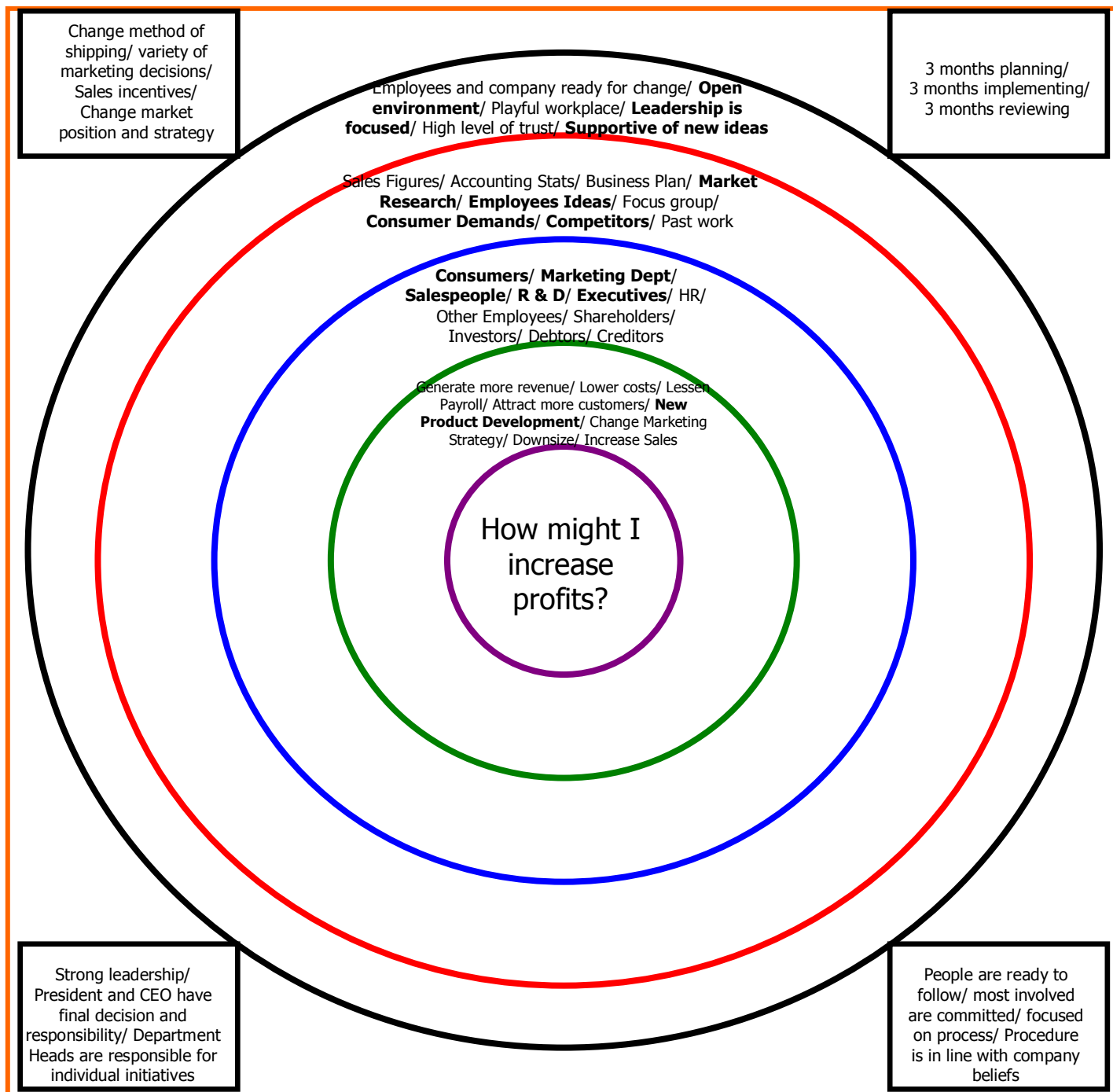


Figure 3.3: Knowing the Bullseye Completed Worksheet



### ***Summation of Tool***

Knowing the Bullseye is a tool that evaluates both possibilities and constraints and is applicable to a wide range of objectives. Through its usage an objective is better understood and steps are made toward achieving the goal. The example that was presented shows how the tool is completed. The basic instruction for the entire tool is fill in the blanks. Figure 3.2 and Figure 3.3 present the same information, but do so in a different way. This is to provide options to the user for individual preferences in using the tool. Figure 3.2 shows how the tool can be completed in its original form. Figure 3.3 is a flowchart where each bubble is filled from top to bottom and follows the same procedure. As it can be seen, the tool successfully accomplishes its purpose and provides a greater analysis of the goal.

### ***Arena Plan for Ensuring Success (APES Evaluation)***

#### ***Overview of Tool***

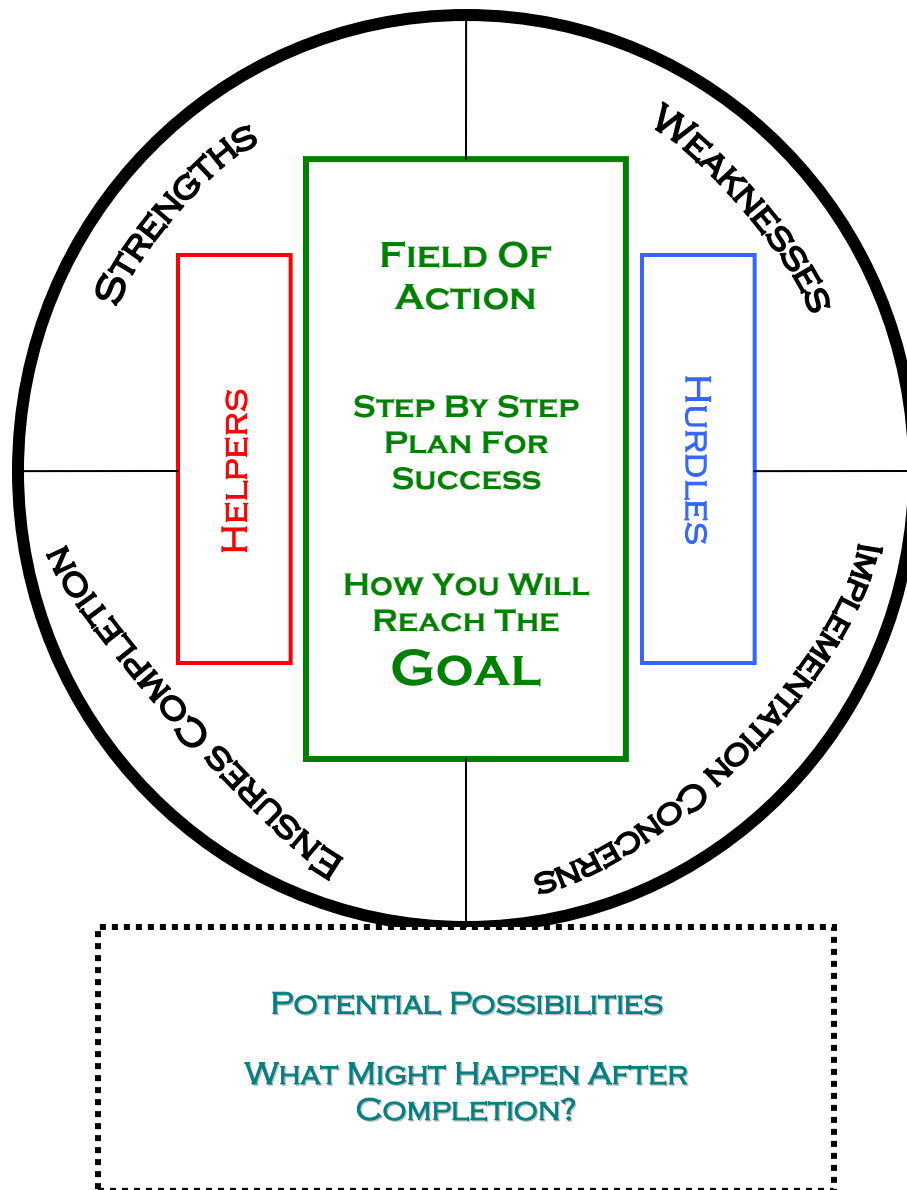
The Arena Plan for Ensuring Success is an evaluation tool that aids the user in solidifying, strengthening, and evaluating a plan of action. APES Evaluation provides a 360° perspective for a plan of action. Through its usage implementation may be eased and the helpers and hurdles are explicitly recognized. APES Evaluation is a tool used to develop promising solutions and ensure that success is found.

#### ***Influence and Development***

The Arena Plan for Ensuring Success was influenced by the metaphor of crossing a goalline and the modern football arena. In the modern arena there is a playing field, team benches, seating for the crowd, and a parking lot. APES Evaluation follows a similar design. The field of action is where the plan of action for reaching the objective is placed. Helpers and

Hurdles form the team benches and various outside forces form the crowd. Finally, the potential possibilities mimic the parking lot by examining future direction. This metaphor is best explained through a visual representation.

**Figure 3.4: Arena Plan for Ensuring Success**



This tool was designed through a deliberate process. The needs of evaluation were researched and the tool slowly took shape. The tool was refined through use of a focus group



and using it in real world situations. Some adjustments were made and the categories that remain are well-designed and provide a 360° perspective for the plan of action. The refinement process was simpler than the process of refinement for KB Analysis.

### *Procedure for Usage*

The procedure is very simple and user-friendly. Each area is filled out by either the user or a group that has been gathered to solve a problem. The simplicity of the tool allows users with limited training to find success.

### *Step by Step Guide*

#### **Step 1: Layout your Field of Action**

- ⊙ Write out all the steps needed to reach your goal
- ⊙ This should include any and all activities necessary completion
- ⊙ As well as, time to review your progress toward success
- ⊙ How does it work?

#### **Step 2: List Helpers and Hurdles (Divergent Thinking)**

- ⊙ Includes everything
- ⊙ People, information, locations, resources, investors of both capital and/or time
- ⊙ Any thing aiding or hindering progress
- ⊙ How does it work?

#### **Step 3: Strengths (Divergent Thinking)**

- ⊙ What works in the plan?
- ⊙ What makes the plan of action successful?
- ⊙ What will ensure success?
- ⊙ How does it work?

**Step 4: Weaknesses (Divergent Thinking)**

- ⊙ How can you improve the plan?
- ⊙ Where might problems arise?
- ⊙ What needs to be changed?
- ⊙ What might not work?
- ⊙ How does it work?

**Step 5: Implementation Concerns (Divergent Thinking)**

- ⊙ How will implementation take place?
- ⊙ What problems/concerns might arise in implementation?
- ⊙ How does it work?

**Step 6: Ensuring Completion (Convergent Thinking)**

- ⊙ Who will take responsibility for completing steps?
- ⊙ Who will completion be reported to?
- ⊙ How does it work?

**Step 7: Potential Possibilities (Divergent Thinking)**

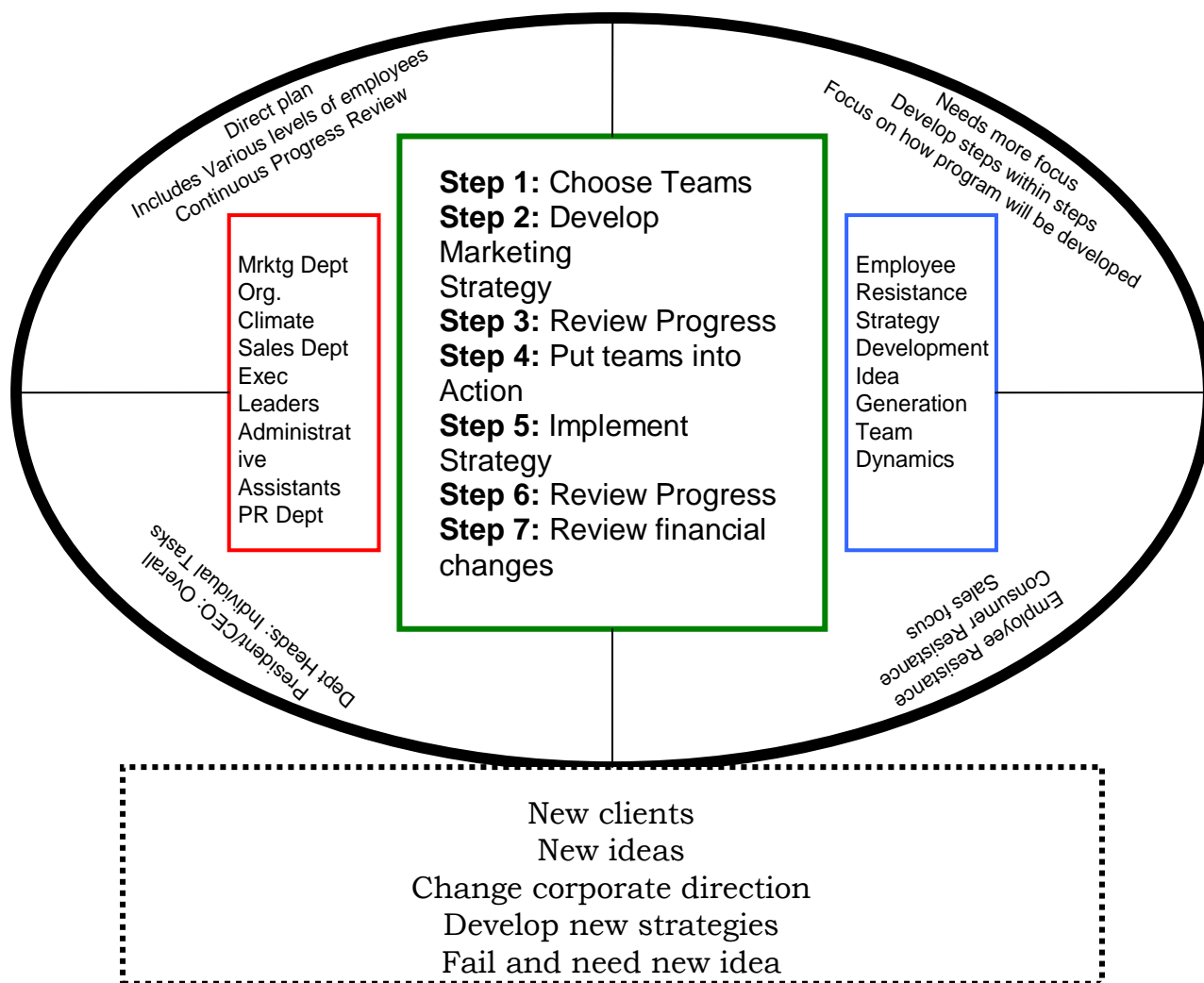
- ⊙ What could completion lead to?
- ⊙ What might be the next step?
- ⊙ What else can be completed?
- ⊙ How does it work?

**Step 8: Did you Reach the Goalline?**

- ⊙ Does your plan achieve your goal
- ⊙ Are you accomplishing what you set out to do?
- ⊙ Debrief and guide toward implementation

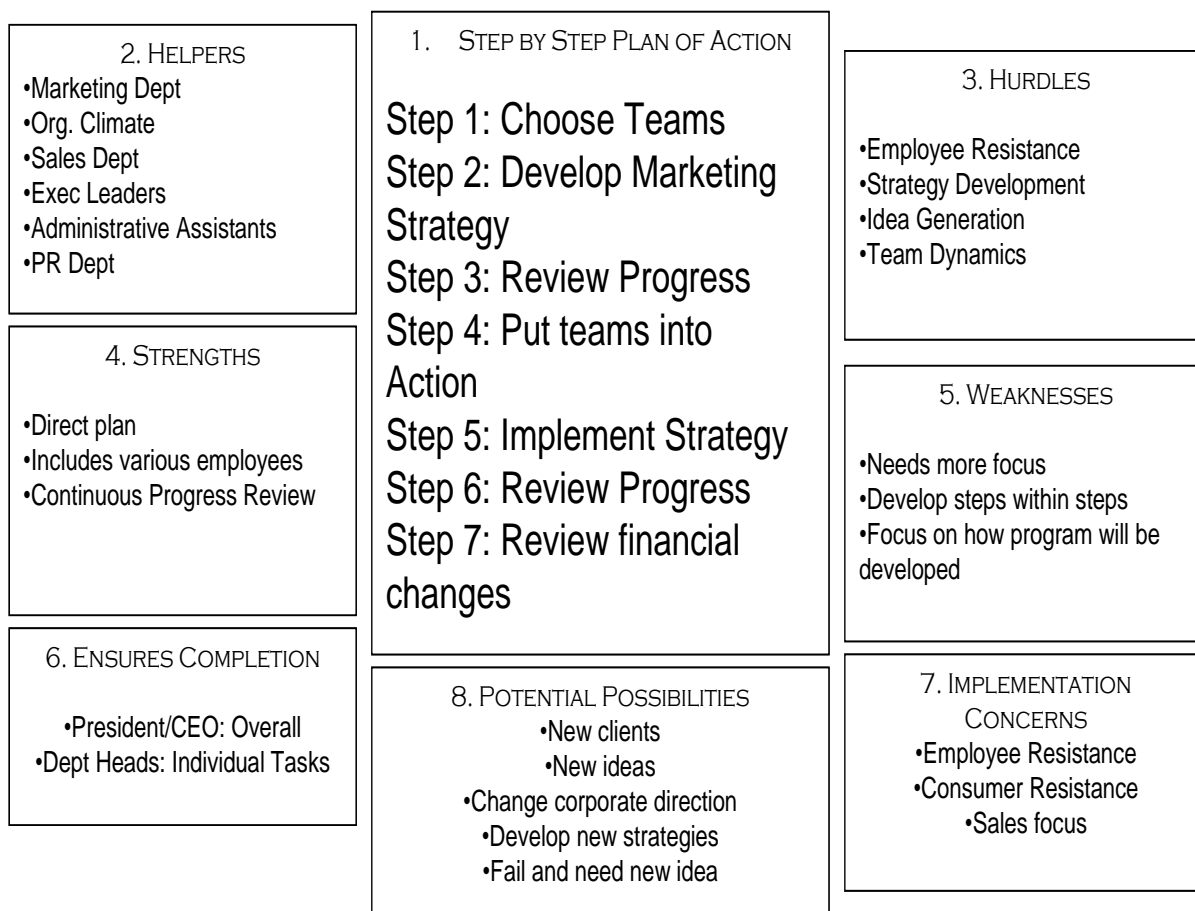
*Example of Arena Plan for Ensuring Success*

**Figure 3.5: Arena Plan for Ensuring Success Tool Completed Example**



The above figure is an example of the APES Evaluation tool for the plan of changing the marketing strategy. The tool follows the procedure on the preceding pages and is one method of using the tool. The other method is shown in Figure 3.6. The options have been created so that they may meet the needs of various problem solvers.

**Figure 3.6: Arena Plan for Ensuring Success Worksheet Completed Example**



### *Summation of Tool*

The Arena Plan for Ensuring Success is a useful and practical tool to evaluate a plan of action. Its elaborate design and simplistic operation make it a strong tool that can assist any decision maker. Through its usage a decision maker can overcome potential challenges and ensure that success is reached.

## **IV. Product Evaluation**

The critique and evaluation of the tools was completed in two distinct ways. The first was through evaluation of tools by a focus group. The group was comprised of five CPS trained individuals and three untrained subjects. Each of the group members was trained on the tools in

either an individual or group setting. In all cases the same information and training was presented. The group members all completed the tools with personal objectives and filled out an evaluation form upon their completion of the tools. The second evaluation comes from an analysis of each tool as a creative product based upon Besemer's characteristics that were presented in her unpublished master's thesis.

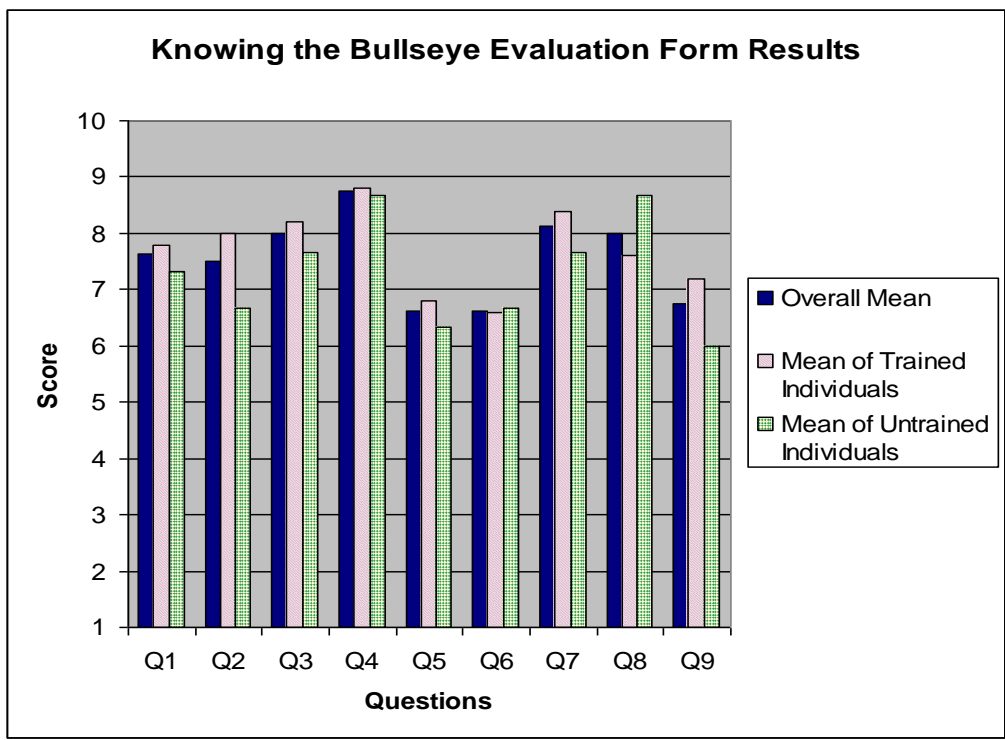
### ***Focus Group Results***

The initial level of scoring that was needed to assume success was a six out of ten. In all categories, by all groups, the scores met or exceeded this level that determines success. Scoring ranged from 1 (Strongly Disagree) to a 10 (Strongly Agree). There were nine questions that were used for evaluation and ranged from questions regarding usage to questions regarding appeal of the tool. All forms were completed confidentially and anonymity of subjects was guaranteed throughout the entire study. The following pages review the questions asked and the results of the various questions.

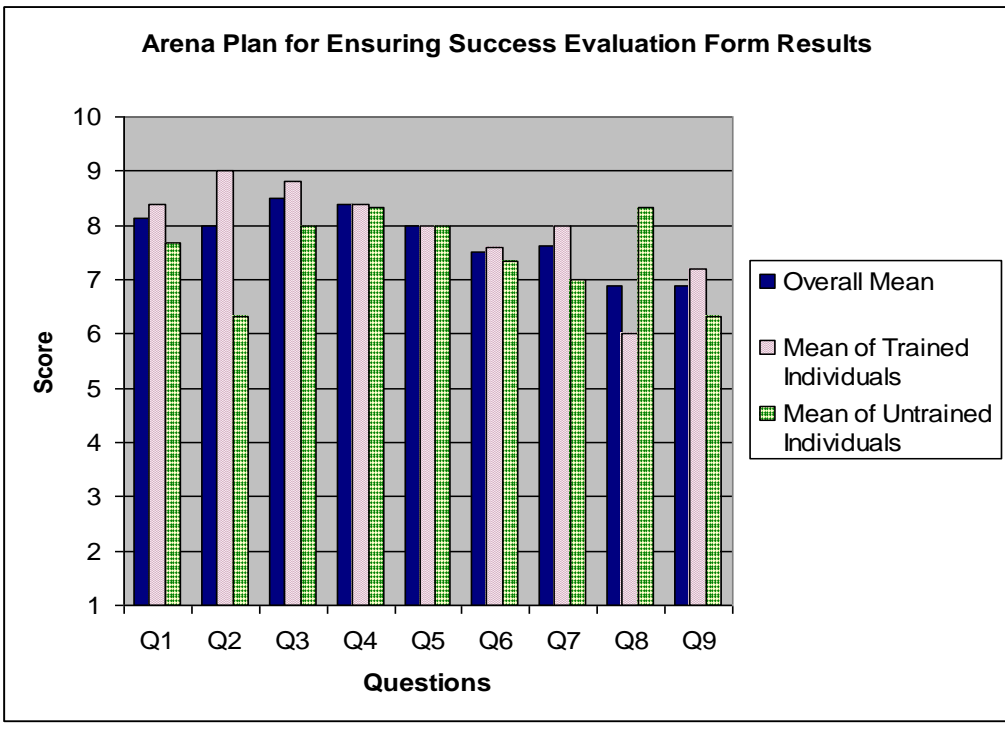
#### **Figure 4.1: Questions on Evaluation Form**

- Q1. The tool achieves the stated objective
- Q2. The tool assists the Creative Problem Solving process
- Q3. The tool aided the decision making process
- Q4. The tool is visually appealing
- Q5. The tool was simple to use
- Q6. I would use the tool in other decision making situations
- Q7. The explanation and training adequately prepared me for tool usage
- Q8. The tool was a novel approach to problem solving
- Q9. I would recommend this tool to others facing decisions

Graph 4.1



Graph 4.2



The results of the evaluation show that both tools were successful as rated by the focus group. APES Evaluation received a slightly higher evaluation than KB Analysis with an overall score of 7.8. KB Analysis did receive a respectable score of 7.6. In the evaluation of each tool, scores above 6 fell within one standard deviation of the mean. Therefore, the majority of scores were above the predetermined success level of six out of ten.

<b>Figure 4.2: Statistical Results of Evaluation Forms</b>										
Tool: Knowing the Bullseye										
Subject	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Mean of Subject
1T	8	8	8	9	7	6	8	7	7	7.6
2T	7	9	8	8	5	6	8	8	6	7.2
3T	9	8	9	9	9	8	8	7	9	8.4
4T	10	8	10	10	9	10	10	9	10	9.6
5T	5	7	6	8	4	3	8	7	4	5.8
1U	6	7	8	8	5	6	6	9	6	6.8
2U	8	7	8	9	7	7	8	8	5	7.4
3U	8	6	7	9	7	7	9	9	7	7.7
Mean	7.6	7.5	8.0	8.8	6.6	6.6	8.1	8.0	6.8	7.6
Mean T	7.8	8.0	8.2	8.8	6.8	6.6	8.4	7.6	7.2	7.7
Mean U	7.3	6.7	7.7	8.7	6.3	6.7	7.7	8.7	6.0	7.3
Std. Dev.	1.6	0.9	1.2	0.7	1.8	2.0	1.1	0.9	2.0	1.4
Tool: Arena Plan for Ensuring Success										
Subject	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Mean of Subject
1T	10	10	10	9	9	10	10	7	10	9.4
2T	8	9	9	8	8	7	8	6	7	7.8
3T	8	9	9	9	8	7	8	6	7	7.9
4T	9	9	8	8	9	9	8	6	8	8.2
5T	7	8	8	8	6	5	6	5	4	6.3
1U	7	6	8	9	7	7	7	9	6	7.3
2U	7	6	7	7	8	6	6	7	5	6.6
3U	9	7	9	9	9	9	8	9	8	8.6
Mean	8.1	8.0	8.5	8.4	8.0	7.5	7.6	6.9	6.9	7.8
Mean T	8.4	9.0	8.8	8.4	8.0	7.6	8.0	6.0	7.2	7.9
Mean U	7.7	6.3	8.0	8.3	8.0	7.3	7.0	8.3	6.3	7.5
Std. Dev.	1.1	1.5	0.9	0.7	1.1	1.7	1.3	1.5	1.9	1.3
T- Trained Individual U- Untrained Individual										

### *Besemer's Characteristics of a Creative Product*

A creative product is defined as a combination of novelty, resolution, and elaboration and synthesis. Novelty is defined in Besemer's thesis as "the newness of a product; the extent to which is original or statistically infrequent." This project, as stated before, will use Besemer's work and break the novelty scale into the subscales that describe if the product is original and surprise. Original is considered to be a statistical infrequency. Surprise is the ability of a product to force the world to look at a problem in a new way that was unexpected.

Resolution is defined by as "a product's value or usefulness, or the extent to which it solves a problem." Resolution is divided into the subscales of a product's effectiveness. These categories include the aspects of a product being logical, understandable, useful, and valuable. Logical attributes are those that refer to the product having order and making sense. A product needs to be understandable to make it adequate and appropriate. Another quality is the usefulness of a product which is the ability of the product to be applied. Lastly, a valuable product is simply a product that has value.

The third attribute that a creative product displays is the elaboration and synthesis of a product as derived from other inputs. Susan Besemer uses term "to show whether a product is well-crafted or elegant, or referring to how the solution is implemented or worked out." This is also divided into categories to describe the product as elegant, well-crafted, and organic. The elegance of a product is a products basic beauty. A product that is well-crafted is another quality of a creative product. The final aspect of elaboration and synthesis is the organic quality, or completeness, of a product.

The subscales presented by Besemer allow a product to be thoroughly examined. Through this examination a justification can take place.



### *Evaluation Review*

The evaluation of the tools based upon Besemer's work will be achieved when each quality is viewed as it relates to both tools. Through this evaluation, the two tools will be justified as creative products. The evaluation will be completed by the author.

### *Novelty*

#### *Original*

KB Analysis is an original product. The design and purpose of the tool have not been paired together in this way ever before. KB Analysis is a tool that has a unique operation and delivers more information for decision makers than many other tools.

APES Evaluation brings the influence of modern arenas to the arena of problem solving. This is a most original design and the product has a distinct approach for evaluating a plan of action. The originality of the tool is seen through the unique relationships that can be examined through the tools usage.

#### *Surprise*

The KB Analysis tool is an organized process designed to analyze a given objective. This process forces the user to look at an objective in a new way. The tool examines the objective in a way that has not been presented before in that manner.

The Arena Plan for Ensuring Success also forces the user to examine a plan of action in a new way. The complete evaluation of a plan of action by APES Evaluation is distinctive. The 360° perspective provided by APES Evaluation is unequalled by any other tools that are presently available.

### ***Resolution***

#### *Logical*

The tools that have been created each follow a very similar structure. The tools are completed by filling out various areas of the tool in an orderly procedure. KB Analysis follows a logical progression by examining possibilities and limiting them with constraints. This follows the natural logical process that is inherent in human beings. APES Evaluation also follows a logical and orderly procedure in its modus operandi.

#### *Understandable*

The tools are both explicit in the purpose and the results that are promised, and meet the needs of decision maker's goals in a user-friendly manner. The tools fit the situations that they were designed for and meet the requirements of a given situation. KB Analysis is a very appropriate tool for analyzing an objective and APES Evaluation provides an excellent review of a plan of action. Both of these tools serve as reasonable solutions for the situations that they are presented with.

#### *Useful*

The tools have been designed to work within the confines of the CPS process, and thus can be utilized with limitless applications. The tools are not limited to certain objectives and plans of action, but instead can be applied to an infinite number of possibilities. These tools are incredibly useful and ease the process of decision making.

#### *Valuable*

The tools that have been created have their greatest value to the user of the tools. Both tools are designed to ease the problem solving process and if this is done the tools are incredibly valuable. The level of value varies between user and the tools effectiveness in meeting the user's

requirements. Finally, there exists an inherent level of value in the product and through its usage the level of value is determined.

### *Elaboration & Synthesis*

#### *Elegant*

Each of the tools is designed in a manner that is elegant, but simple. Upon first inspection of the tools they may seem intimidating because of the various parts, but through usage the simplistic operation highlights the beauty of the tools. The tools are crafted in a manner that has innate beauty and appeal, and are most assuredly elegant.

#### *Expressive*

KB Analysis and APES Evaluation allow the user to have a clearer picture of either an objective or plan of action. Because of this the user can easier convey the challenge that is before them or the solution they have designed. The completed tool has meaning and is a valuable resource in bringing the conclusions to those not involved with the direct decision making process.

#### *Well-Crafted*

The tools that have been designed provide a 360° perspective for an objective or plan of action. The completeness and logical operation show that the tools are well-crafted. Both tools can be applied to a wide range of applications and deliver satisfactory results.

#### *Organic*

Both of the tools during design stages had different parts initially, but through refinement a complete product has been delivered. The completeness of the tools provides the organic nature of the created products.

### *Summation of Evaluation*

The evaluation of the two tools has revealed that they are successful, novel, and useful tools. The evaluation of the tools by the focus group showed that they were successful. Although some refinement may be required due to this feedback, the tools were successful in delivering the results that were promised. Further evaluation from a larger sample may be needed to create a greater statistical support for the tools. The analysis of the tools against Besemer's characteristics was also successful. Each of the tools showed that they had all of the characteristics and thus can be seen as creative products. The tools have been created and judged by both the author and focus group as valuable, and thus the project can be considered a success.

### **V. Conclusion**

The creation of new tools is not a simple task. Both of these tools would not have been created if unique relationships were not made between dartboards, arenas, and problem solving. Inspiration can be found in all that is around us and can lead to valuable discoveries being made. The tools that have been created serve the users decision making process and can be applied to various situations. The development of the tools was assisted by examining the needs of decision makers and refining the tools to meet those needs. The development was a deliberate process and the end result has been two successful tools.

The tools are now available, through this project, for the general public. The users of the tool should undergo training to ensure proper usage. The training proved effective during focus group evaluation and should be continued until a user feels comfortable. Through proper training and proper usage, success is within the grasp of the user.

The next step is to further develop these tools and others to create a unified problem solving process. This is beyond the scope of this project, but will be completed in the future. An additional step is to use these new tools that have been created in real world situations. Through repeated usage, the tools will become solidified and be exposed to a wide range of people. His will help bring CPS to a wide variety of people and introduce users to a new way to solve the challenges that have been presented.

The project as a whole was a success and future work in this area will be pursued. The tools that have been created are meant to ease the journey that is life by presenting a road map to an individual. By following the road map provided by the tools a decision maker's journey is eased, direction is found, and the destination is reached.

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## Appendix A: Concept Paper

# New Tools for Gathering Data and Planning for Action

Brendan Bastian

Submitted: September 14, 2005

Project Type:

Use a Skill/Talent to Improve the Quality of Life for Others

### What Is This Project About?

This project seeks to create and develop two tools that will assist individuals in using the Creative Problem Solving (CPS) process. The first tool is called “Knowing the Bullseye” and has its focus on gathering data. This tool will provide the user with a guide for ensuring that key data are recorded. The second tool is the “Stadium Plan for Success” and deals with the analysis and creation of a plan for action. These tools will be simple to use and will help in making CPS easier to use.

### Rationale for Choice:

I have always had an interest in developing tools that simplify complex ideas. The tools that I create in this project will simplify two areas of the CPS process. My hope is that the ease of use of these tools will make CPS more accessible to the masses.

This project will hopefully be the first steps in a long career of research and development. As a result of completion of this project I will gain a deeper understanding of the CPS process and improve my creativity and new product development skills. This project will be a constant learning experience and will lead to me being more scholarly in the field of creativity.

### What Will be the Tangible Product(s) or Outcomes?

There will be two products that result from the work of this project. The first is the tool for gathering data, “Knowing the Bullseye”. The second is the “Stadium Plan for Success” which focuses on planning for action. These tools will be able to be used anyone and thus make CPS more accessible.

### What Criteria Will You Use To Measure The Effectiveness Of Your Achievement?

There are two measures I will use to measure quality of the tools. The primary measure will be a focus group reaction to presentation and usage of the created tools. The criteria measured will be ease of use, effectiveness of tool, and understandability. These will be evaluated by members of the focus group and an average score of 6 out of 10 for each level, on an evaluation tool I will create, will be considered successful. The secondary measure will be

my subjective evaluation including completeness, quality, and ease of usage. If these requirements are satisfied the project will be successful.

### **Who Will Be Involved or Influenced; What Will Your Role Be?**

I will be the creator and developer of the tools and will serve as facilitator for evaluation. The evaluation will be done by several graduate students, as well as several outside sources, after a brief training exercise in the tools. The experience of using these tools will hopefully influence the evaluators to use the tools in the future.

### **When Will This Project Take Place?**

The project will take place over the next two months. Initial documentation and evaluation will be done by October 15 and be finalized by November 1.

### **Where Will This Project Occur?**

This project will be completed in Buffalo, NY. The project will be developed at both my private residence and the International Center for the Studies in Creativity.

### **Why Is It Important to Do This?**

This project's primary purpose is to make the CPS process more accessible to more people. The tools that are created serve as excellent road maps to success. Many times problem solving can take off in many directions and the original problem is never solved. These tools will help problem solvers keep their focus and solve the problem at hand. By showing the effectiveness of these tools, the usage may become more prevalent, and in turn, familiarize more people with the CPS process.

### **Personal Learning Goals:**

- I will become more scholarly about the CPS process.
- I will create tools that assist in the CPS process.
- I will increase my level of scholarship in writing.
- I will develop a convincing argument supporting my tools.
- I will gain a deeper understanding of New Product Development.
- I will develop my research skills.
- I will use my tools in a leadership situation to prove their effectiveness.

### **How Do You Plan to Achieve Your Goals and Outcomes?**

This project will be completed in several steps. The first step is research. I will examine some of the tools that are currently available to ensure an original tool is created. During this time period I will also research the two areas of the CPS process that I am examining. The



second step will be development of the two tools. The third step will be the evaluation of the tools. The last step will be finalizing and evaluating the tools, and completion of the report.

### **Evaluation:**

Evaluation will take place in two distinct ways. The first is through an intensive self-evaluation. During this evaluation I will examine the quality of both the reports and tools. Also, I will use the tools personally so that instructions for their usage are precise. Finally, I will evaluate the qualities of usage, effectiveness of tool, and understandability. The second set of evaluations will be completed by those in focus groups who experience usage of the tool. This will be accomplished through completion of a survey after the experience is completed. An average of 6 out of 10 on the given categories of the evaluation tool will be considered a success.

### **Prepare Project Timeline:**

- Week 1: Research CPS process – 15 hours
- Week 2: Develop tools – 20 hours
- Week 3: Create instructions for tools – 8 hours
- Week 4: Write up research backing and initial evaluation – 10 hours
- Week 5: Refine – 10 hours
- Week 6: Finalize tools and instructions – 15 hours
- Week 7: Final evaluation and final write up– 20 hours
- Week 8: Present final project – 10 hours

Total time for project: 108 hours

### **Identify Pertinent Literature or Resources:**

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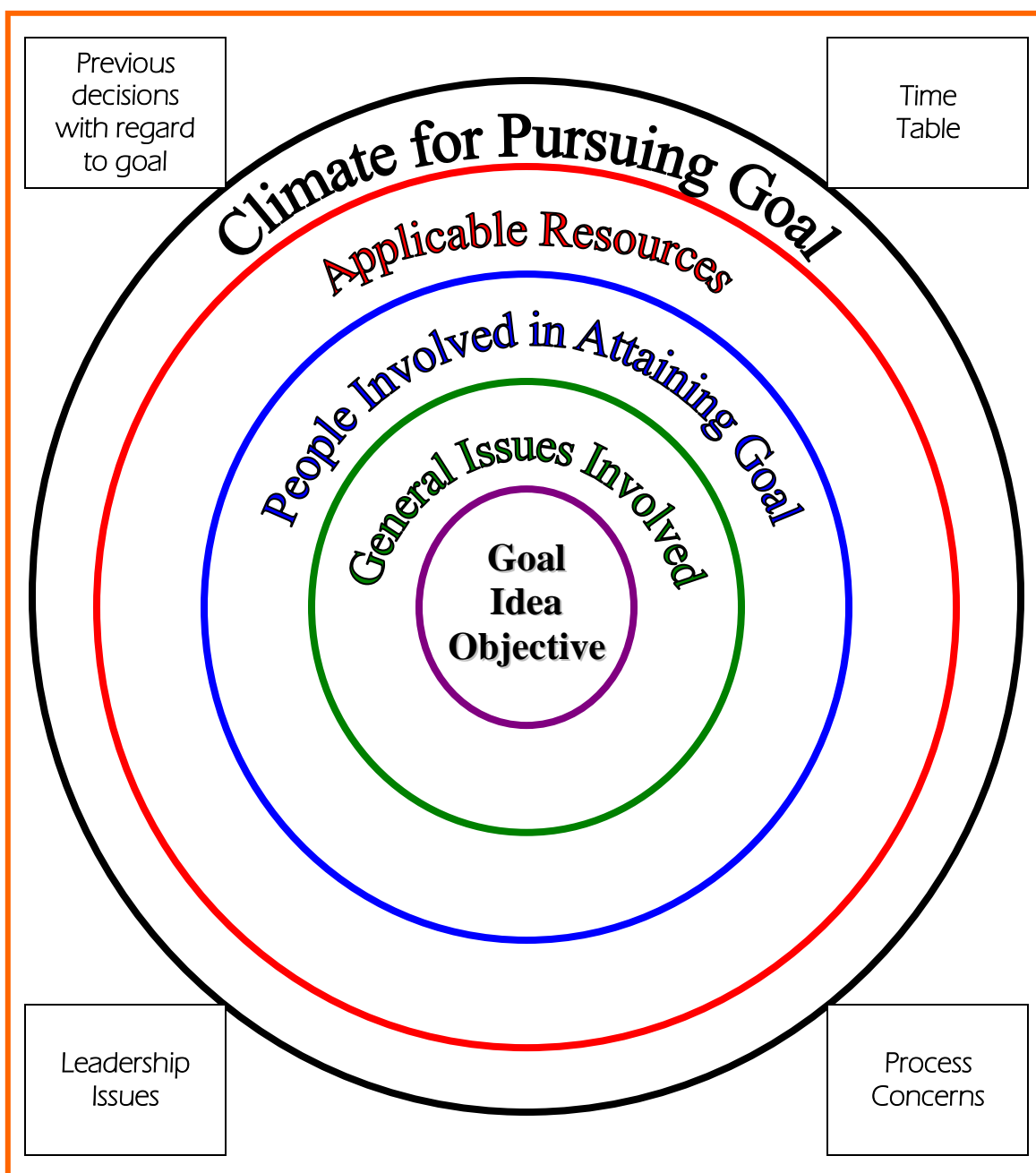
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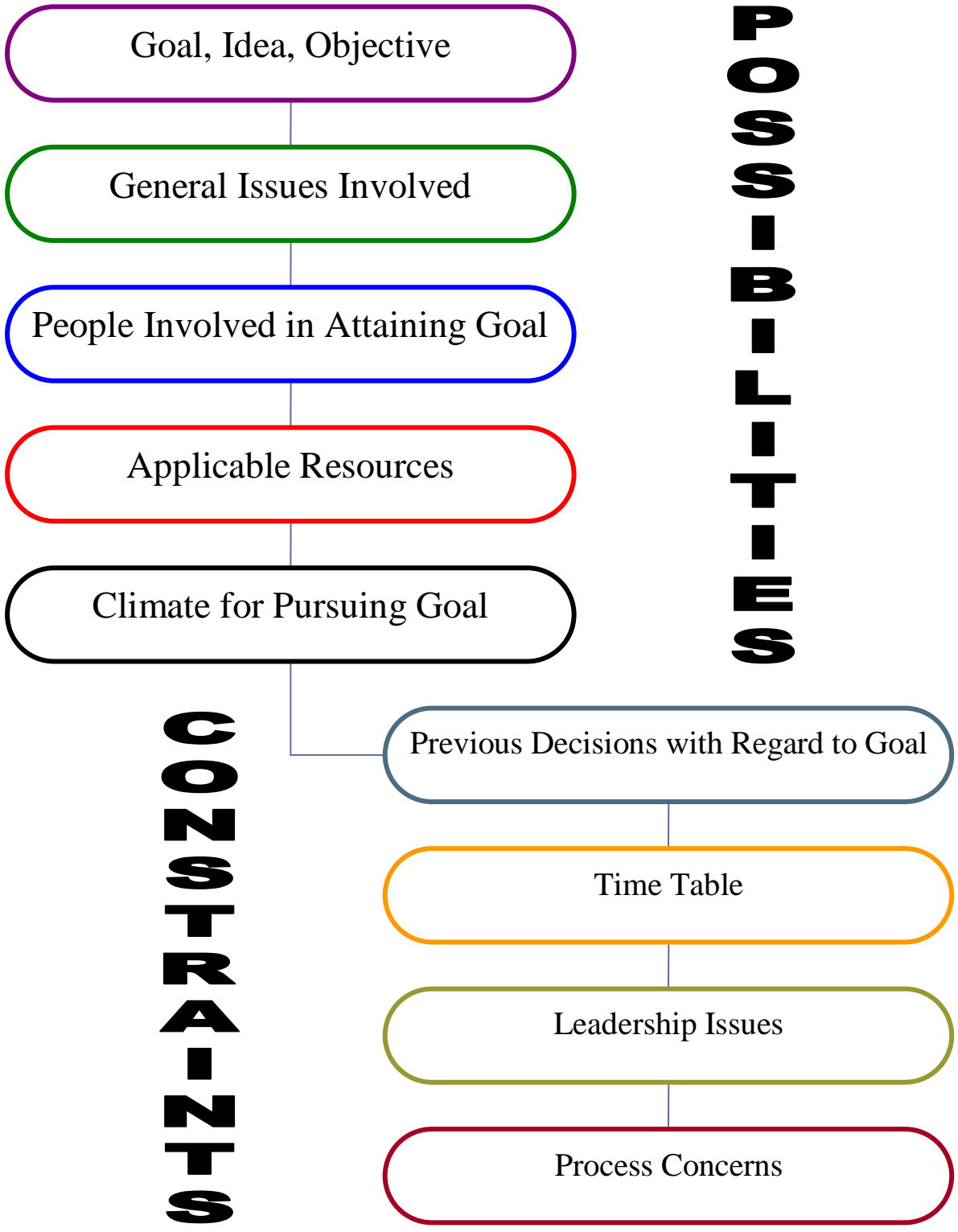
## Appendix B: Tool Models and Worksheets

**Knowing the Bullseye****KB Analysis****Brendan Bastian**

**Purpose: To focus and analyze the objective, generate possibilities, and review constraints.**



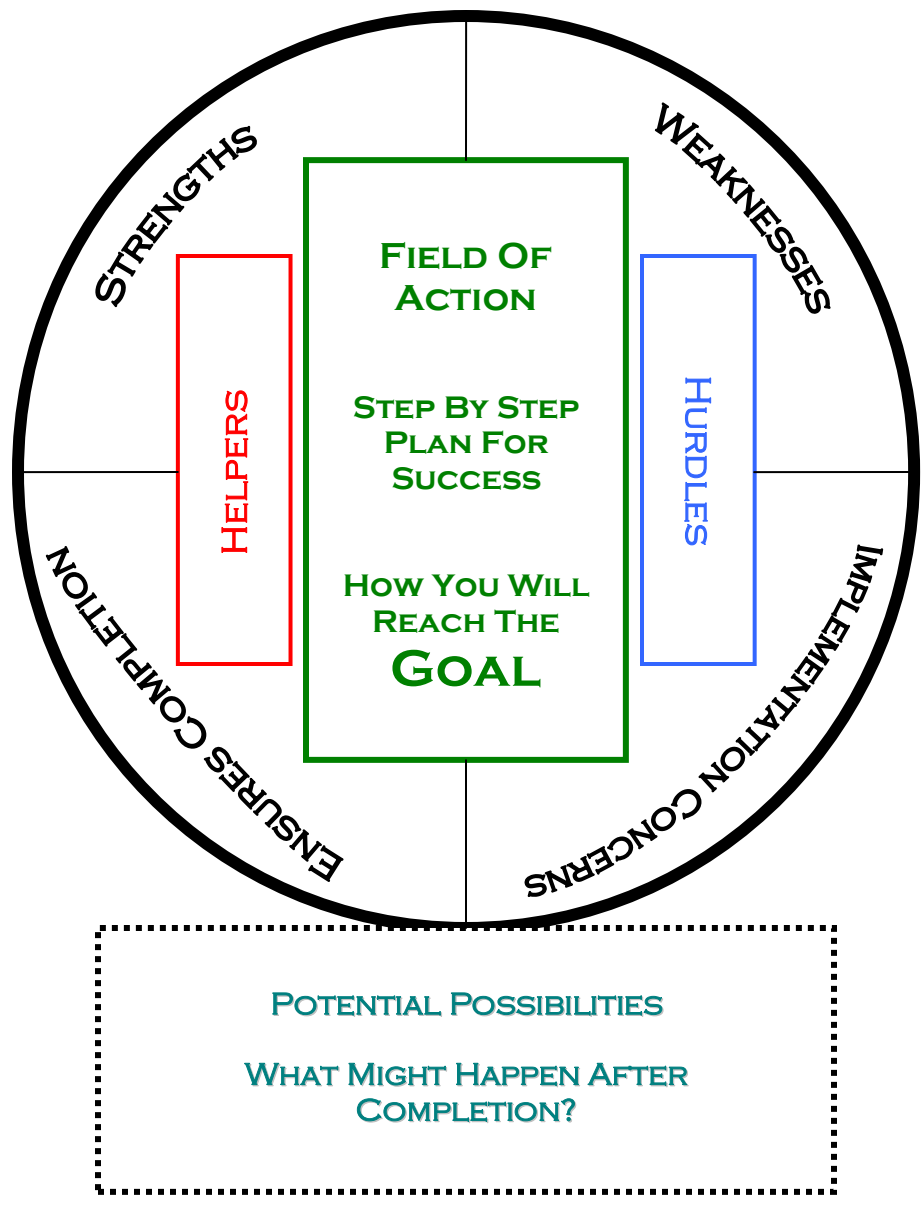
### Knowing the Bullseye Flowchart



# ARENA PLAN FOR ENSURING SUCCESS

## BRENDAN BASTIAN

GOAL: WHAT DO YOU HOPE TO ACCOMPLISH WITH THE PLAN?



DEBRIEF: DID YOU ACCOMPLISH THE TRUE GOAL?

## ARENA PLAN FOR ENSURING SUCCESS WORKSHEET

2. HELPERS	1. STEP BY STEP PLAN OF ACTION	3. HURDLES
4. STRENGTHS		5. WEAKNESSES
6. ENSURES COMPLETION	8. POTENTIAL POSSIBILITIES	7. IMPLEMENTATION CONCERNS

## Appendix C: Sample Focus Group Evaluation Form

Subject Number:

Tool:

1. The tool achieves the stated objective

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

2. The tool assists the Creative Problem Solving process

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

3. The tool aided the decision making process

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

4. The tool is visually appealing

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

5. The tool was simple to use

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

6. I would use the tool in other decision making situations

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

7. The explanation and training adequately prepared me for tool usage

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

8. The tool was a novel approach to problem solving

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

9. I would recommend this tool to others facing decisions

	1	2	3	4	5	6	7	8	9	10
Strongly Disagree			Disagree		Neutral			Agree		Strongly Agree

# Appendix D: Power Point Presentations of Tools

## Knowing the Bullseye

KB Analysis  
Presentation by Brendan Bastian

## What is Knowing the Bullseye?

## Purpose of KB Analysis

- Focus and analyze the objective, generate possibilities, and review constraints
- Allow the user to reduce mess and gain greater understanding of a problem
- Greater analysis and understanding will lead to better solutions

## Background of KB Analysis

- Created in 2004 by Brendan Bastian
- Designed through an "aha" moment
- The result of being faced with many decisions and relaxing by playing darts
- Initial design was made as a format for questioning client during initial interview
- Recognized that every decision is made by examining possibilities against constraints
- Tool proved more effective to analyze a goal and take initial steps of decision making process
- Vocabulary and design made to be user friendly

## Overview of Procedure

## How to Operate

- Step 1: Identify your Goal, Idea, or Objective
  - Define in clear terms your goal
  - Be precise and direct
  - Make sure the proper goal is being targeted

## How to Operate

- Step 2: Identify General Issues Involved
  - What issues are involved with obtaining the goal?
  - What are generalized solutions to reaching the goal?
  - Serves as initial idea generation point, initial solutions can serve as a guide

## How to Operate

- Step 3: People Involved in Attaining Goal
  - Who will be involved and are they motivated
  - This includes people who will be active and/or effected by obtaining the objective
  - Knowing the people involved will simplify creation of a plan of action




### How to Operate

► Step 4: Applicable Resources

- What can be used to reach the objective?
- What data/information is needed?
- What tools can be used?
- What funding is required?
- How much time will the project require?
- Where can this take place?



### How to Operate




► Step 5: Climate for Pursuing Goal

- Is the climate right for success?
- Will there be resistance?
- Does achieving success improve the climate?
- Is the climate ready for change if it happens?

### How to Operate

► Step 6: Previous Decisions with Regard to Goal


- What have you done in the past to reach similar objectives?
- What was successful in the past?
- What was a failure?
- How much influence does the past have on the current situation?



### How to Operate


► Step 7: Time Table

- How much time is available to obtain objective?
- This includes planning time, implementing, and reviewing progress



### How to Operate

► Step 8: Leadership Issues



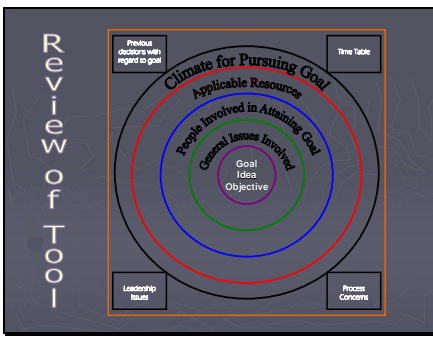
- Who will be in command while seeking the objective?
- Will they be followed?
- Are those in command capable of achieving objective?

### How to Operate



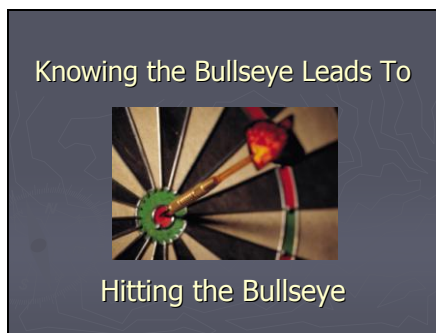
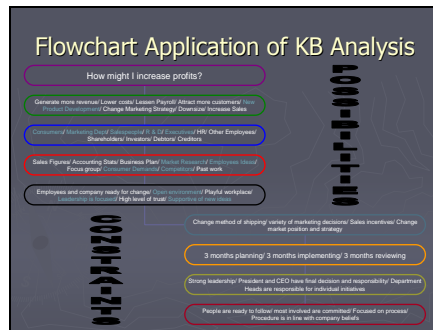
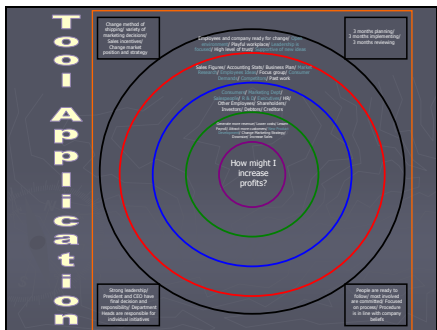
► Step 9: Process Concerns

- Is there buy-in amongst those involved into achieving objective?
- Is everyone committed to reaching the objective?
- Will the process be deliberate toward achieving goal?
- Does it follow company beliefs?



### Application of KB Analysis

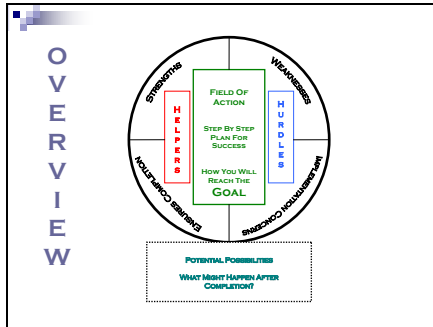
- Can be done in two ways
  - Fill in the KB Analysis tool
  - Use a worksheet that breaks tool into individual areas
- Completion done by either the primary decision maker or entire resource group



# Arena Plan for Ensuring Success


## APES Evaluation

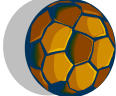
Presentation by Brendan Bastian




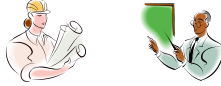
- ### Arena Plan for Ensuring Success can...
- Solidify your Plan of Action
  - Recognize Helpers and Hurdles
  - Gain a 360° Perspective
  - Designate Responsibility for Action
  - Make Implementation *Easier*
  - Look into Future Possibilities

- ### Background of APES Evaluation
- Created in 2005 by Brendan Bastian
  - Developed through a deliberate creative process in which needs of strengthening solutions are met
  - Through real world experience an individual tool was desired for evaluation before implementation
  - Several tools do exist, but need to be used together to reach same conclusion that this one tool does
  - Allows user to strengthen plan of action and reduce potential challenges that may prevent user from achieving their goal

- ### How does it work?
- 
- Step 1: Layout your Field of Action**
- Write out all the steps needed to reach your goal
  - This should include any and all activities necessary completion
  - As well as, time to review your progress toward success

- ### How does it work?
- 
- Step 2 List Helpers and Hurdles**
- Includes everything
  - People, information, locations, resources, investors of both capital and/or time, etc.
  - Any thing aiding or hindering progress


- ### How does it work?
- Step 3: Strengths**
- What works in the plan?
  - What makes the plan of action successful?
  - What will ensure success?
- 

- ### How does it work?
- 
- Step 4: Weaknesses**
- How can you improve the plan?
  - Where might problems arise?
  - What needs to be changed?
  - What might not work?

### How does it work?

**Step 5: Implementation Concerns**


- How will implementation take place?
- What problems/ concerns might arise in implementation?



### How does it work?

**Step 6: Ensuring Completion**


- Who will take responsibility for completing steps?
- Who will completion be reported to?



### How does it work?

**Step 7: Potential Possibilities**


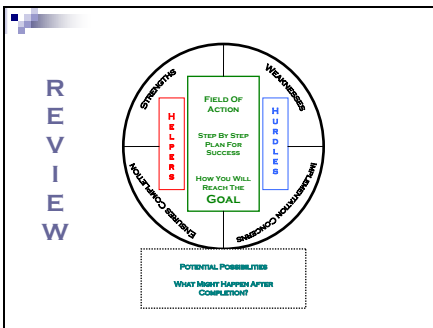
- What could completion lead to?
- What might be the next step?
- What else can be completed?



### How does it work?

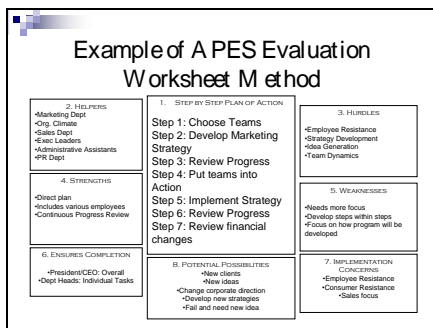
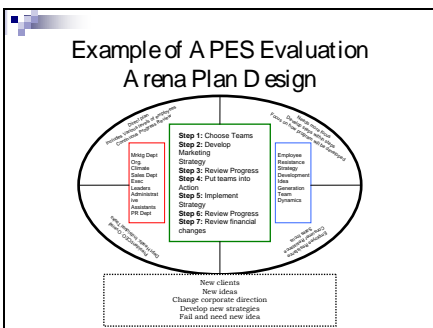
**Step 8: Did you Reach the Goalline?**

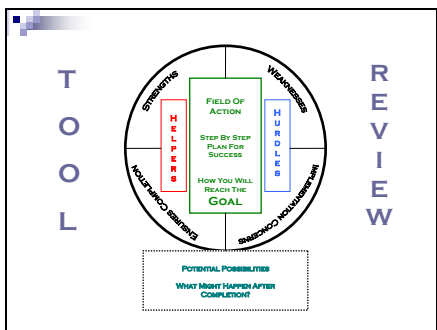
- Does your plan achieve your goal?
- Are you accomplishing what you set out to do?

### Application of APES Evaluation

- Can be done in two ways
  - Fill in the arena plan design
  - Use a worksheet that breaks tool into individual areas
- Completion done by either the primary decision maker or entire resource group





Using this tool can make your plan of action stronger and more effective



You Can Cross The Goal Line