

# Creative Problem-Solving Bootcamp

Delivered by Dr Billy Grierson, Perth Innovation Ltd.

## Background:

The workshop is based on a framework for creative problem-solving that has been developed over a period of 20 years. The workshop uses a gardening analogy (called The Concept Garden – for details see below) to clarify the problem-solving process. Participants in the workshop are introduced to the Concept Garden Framework, some important concepts, and thinking tools and techniques that help to ensure that effective solutions are found and prepared for implementation.

For more information contact [billy@perthinnovation.com](mailto:billy@perthinnovation.com).

## Workshop

**Outcome:** Participants will learn the main elements of creative problem-solving and gain working experience of key tools. After the workshop, participants will be able to analyse a problem, identify possible solutions and build these into detailed concepts which can be brought forward as proposed projects. Using an interactive approach, the participants will be given an opportunity to work with the tools and techniques to develop their problem-solving capabilities.

**Duration:** 2 days. There is flexibility in how these two days can be delivered. It can be 2 consecutive days, 2 separate days with a gap of 1 to 2 weeks. It is also possible to run the workshop as 4 half days with gaps of 1 to 2 weeks between half-days, but this is less effective than the other alternatives.

**Timing:** 9am to 5pm each day, with 20 minutes coffee/tea breaks in morning and afternoon, and 1 hour lunch break at around 12:30.

**Documentation:** Participants will be given handouts as the workshop progresses and a full text “manual” will be given in pdf format at the end of the workshop.

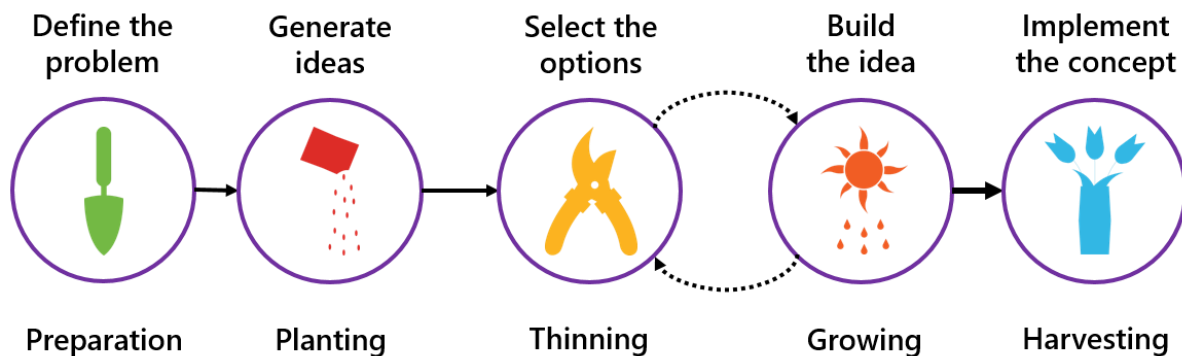
**Follow-up:** It is proposed that a short (1 to 2 hour) debrief session is held about 3 to 6 months after the final day of the workshop, to allow the participants to give feedback on how effective the training has been.

## Workshop overview:






Day 1	Day 2
<ul style="list-style-type: none"> <li>✚ Introduction to problem-solving and The Concept Garden</li> <li>✚ Basic Tools               <ul style="list-style-type: none"> <li>○ Focus</li> <li>○ PMI</li> </ul> </li> <li>✚ Prepare – Understand the Problem               <ul style="list-style-type: none"> <li>○ Objective Tree</li> <li>○ Problem Space</li> <li>○ Criteria</li> </ul> </li> <li>✚ Plant – Generate Possible Solutions               <ul style="list-style-type: none"> <li>○ Brainwriting</li> <li>○ SCAMPER</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>✚ Thin – Select Viable Solutions               <ul style="list-style-type: none"> <li>○ Scope</li> <li>○ Simple Matrix</li> <li>○ Pairwise Comparison</li> </ul> </li> <li>✚ Grow – Develop Ideas into Detailed Concepts               <ul style="list-style-type: none"> <li>○ 3 Hats</li> <li>○ Virtual Implementation</li> </ul> </li> <li>✚ Harvest – Prepare Concepts for Implementation               <ul style="list-style-type: none"> <li>○ Concept Memo</li> <li>○ 5 Hows</li> <li>○ DOIT</li> </ul> </li> </ul>

# The Concept Garden

When we have a problem we often just jump in, find an idea and then assume that the problem is solved. This is like deciding we want to grow something, taking one seed, planting it and hoping that we will get something to harvest. The Concept Garden uses this analogy to provide a set of tools and techniques to help with the different stages of problem solving.



There are tools to study the problem (prepare the ground), generate ideas (plant the seeds), select the preferred options (thin the seedlings), build the ideas (grow the plants) and record the final concept (harvest the fruit).

	<p><b>Preparation:</b> When gardening we need to prepare the ground. Similarly, with problem solving we need to prepare before we start trying to generate solution ideas. We need to understand the problem, why we want to solve it and what the solution has to deliver. The Concept Garden give us a set of tools that support us in doing this preparation work.</p>
	<p><b>Planting:</b> In the garden, if we want to grow something, we need to plant some seeds. Similarly, in problem solving, we need to find some initial ideas that we can grow into solutions. When we plant seeds in the garden, we will usually plant many more than we will need and it is the same in problem solving. We need to generate many more ideas than we will need. The Concept Garden gives us some ideation tools that will help us to come up with a lot of ideas.</p>
	<p><b>Thinning:</b> Because we have planted more seeds than we will need, once they start growing, we will need to “thin-out” the plants to give the remainder room to grow. With problem solving we need to remove the weakest ideas so that we can focus on the strongest – the ones most likely to lead to a viable solution. Like in gardening, this is done in stages. As the plants or ideas grow, we need to carry out more thinning. The Concept Garden provides tools that allow us to do this thinning in a systematic, progressive manner.</p>
	<p><b>Growing:</b> Once the plants have started to grow, we cannot just leave them to get on with it. There are many challenges that they will face, and we must support them in growing by weeding, watering and protecting form pests. Similarly, with problem solving, we need to nurture and look after our ideas as we try to grow them into concepts for a solution. The Concept Garden provides tools to help us to do this, gradually introducing stronger challenge and more detail, so that the idea becomes stronger and more likely to give a long-term solution to the problem.</p>
	<p><b>Harvesting:</b> Once the plants have grown and are able to provide us with what we need (fruit, vegetables, flowers etc.) we need to harvest them and present them in such a way that other people will want to have them. The same applies to problem solving. It doesn't matter how strong the solution concept is, if we cannot persuade other people that it should be implemented, then it will not solve our problem. The Concept Garden has tools that help us to record and present the solution concepts in a way that will make it easier for us to present them to other people.</p>

Tool	Description
<b>Preparation</b>	
<b>Objective Tree</b>	What is your objective? If there are 8 people, we will probably get 12 different answers to this question. The Objective Tree tool looks at how these different objectives relate to each other and allows us to decide which are in the scope of the current exercise.
<b>Problem Space</b>	What do you know about the situation? This is not always simple to answer. The Problem Space tool leads us through a series of questions designed to tease out what we know and what we need to find out.
<b>Selection Criteria</b>	How do we decide which ideas are worth working on and which should be discarded? This tool will help us to identify how we will judge the utility of ideas after they have been generated.
<b>Planting</b>	
<b>Brainwriting</b>	This is modification of the well-known Brainstorming technique. It is designed to ensure that all team members can participate. We will look at when it is useful and how to get the best results.
<b>SCAMPER</b>	How can we get more “off the wall” ideas? SCAMPER is a tool that leads to more off-the-wall ideas than Brainwriting but staying within the constraints of our business.
<b>Thinning</b>	
<b>Simple Matrix</b>	How do we decide which ideas put further effort into? Simple Matrix gives us a way to quickly classify a large number of ideas so that a smaller group can be selected for further study.
<b>Pairwise Comparison</b>	How do we prioritise the key ideas to decide which to work on first? If we only have a few options (10 or less) then Simple Matrix is more than we need. This tool gives a very effective way to prioritise smaller groups of options.
<b>Growing</b>	
<b>3 Hats</b>	How do we turn an idea into a potential solution to our problem? The 3 Hats technique allows us to work on an idea and modify it to remove any negatives without losing the benefits.
<b>Virtual Implementation</b>	What will happen if we implement this idea? By asking this question, and looking at different time scales, Virtual Implementation can help us to spot, and deal with, weaknesses in the final concept.
<b>Harvesting</b>	
<b>Concept Memo</b>	How do we convince other people that our final concept is worth implementing? Concept Memo is a simple technique for recording the final concept in such a way that the most important questions are answered.
<b>DOIT</b>	How can we make sure that our action plan is implemented? While there are no guarantees that actions will get completed, this simple tools helps to design an action plan in such a way that we maximise the chances that it will.

## The Facilitator/Trainer

### Dr. Billy Grierson



Billy spent more than 30 years in the chemical industry. Working globally for Ciba and BASF, and with external contacts such as P&G, Beiersdorf, Lawter, Akzo-Nobel, Sun Chemical and other ink makers, Sopheon and Leeds University, he has developed an understanding of how companies fail to solve problems and what tools and techniques can be used to improve their success rate. These tools have been applied successfully across a wide range of industries (Chemical, Engineering, Water Treatment, Construction, Electronics, Oil and Gas).

As well as working in the innovation area, Billy also has experience and training in project management. He is a Project Management Professional (PMP) accredited by the PMI. This blend of formal project management skills, and innovation experience has allowed Billy to support companies in, not only finding solutions to problems, but also in running projects to successfully implement those solutions.

Billy now has a consultancy called Perth Innovation. As the name suggests, it is based in Perth and is focused on all aspects of Innovation from identifying improvement opportunities to successful completion of projects to capitalise on those opportunities. He can also provide training in the tools and techniques he uses.