

# White Paper

# Creative Thinking for Business Process Improvement

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Brian Hunt is a freelance consultant who specializes in business process improvement and simplification. His experience includes working with public, private and voluntary organizations.

He believes that achieving simplicity in business processes is the best way to reduce waste and to enable an agile response to market opportunities or threats. He applies experience from a wide range of industries and from knowledge areas including 6 Sigma, business analysis and quality systems.

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**The differences between business process improvements and business process engineering are subject to argument. Basically, business process improvement is another term for business process re-engineering and therefore references to these are interchangeable.**

An internet search will soon show that the typical failure rates for BPR projects are around 70%. Much of this is due to taking the wrong approach. According to an Arthur Andersen partner, Gary Steinel “BPR became equivalent to cost reduction and there was too much focus on reducing fat rather than radically redesigning processes.”

At its heart, business process improvement is about solving problems and realizing opportunities. But we don't seem to be getting any better at this.

I believe that one of the main causes for this is a lack of creative thinking. It's why we can end up trying to make poorly designed business processes do more than they are capable of, rather than using creative thinking to find radically new ways of doing things.

This may mean looking critically at how we do things and starting again by asking the following questions:

***What do we want to do better?***

***What do we want to stop doing?***

***What do we want to start doing?***

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Radical change may mean destruction and rebuild. Picasso commented that “Every act of creation is first of all an act of destruction because the new idea will destroy what a lot of people believe is essential to the survival of their intellectual world”. And it’s not just a matter of an intellectual world. Change and improving processes can remove power in an organization from that person who knows how to make a bad process work. Thus, resistance to change is common and needs to be addressed creatively.

The introduction to creative thinking techniques in this white paper will help readers think more creatively in their process improvement projects.

## An introduction to creative thinking

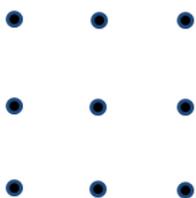
In general, each side of the brain dominates different thinking styles. The left-hand side is associated with logic, analysis, conscious thought and objectivity whilst the right-hand side is associated with intuition, emotion, creativity and unconscious thought. These two halves are joined together by the corpus callosum, a wide bundle of neural fibres.

In problem solving, the right side of the brain is where our ideas and insights emerge, often in the ‘aha’ moment when the metaphorical light bulb illuminates. We then consciously test and rationalize these ideas.

When we start investigating a problem or opportunity we take in a lot of information and data which we may not be consciously aware of. Even when we don’t understand it, it enters our memory where the right-hand side of the brain will continue to process information and make connections.

The right hand side of the brain responds to images and this is one reason why diagramming a business process can reveal previously unknown knowledge and connections that a verbal or written description may miss.

How can you join all the dots with just four lines?



*Most people believe the lines must be drawn within the box. But breaking this rule by taking the lines outside the box allows the problem to be solved.*

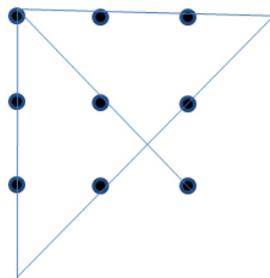


Figure 1: Out of the Box Thinking

## Self-imposed rules that restrict our thinking

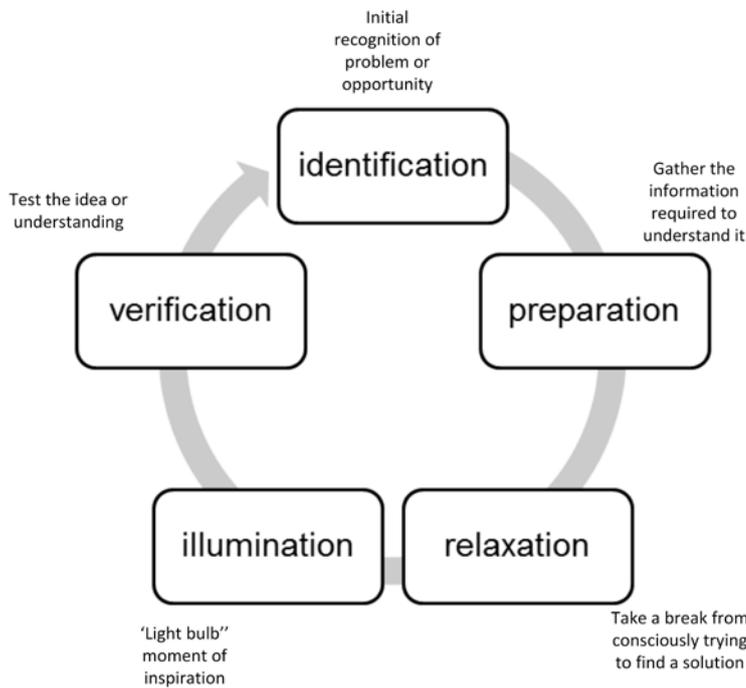
Self-imposed rules are what we learn to guide our behaviour. While some of these are valuable (e.g. don’t put your hand in boiling water), they can prevent us from finding solutions and new ideas.

This is illustrated by the well-known, but misunderstood, phrase ‘thinking outside the box’ described following Figure 1.

*"Some of my best ideas come to me when I'm shaving"*  
Albert Einstein

## The Creative Thinking Cycle

Creative thinking does not happen to order but iterates through the cycle shown below.



**Figure 2: The Creative Thinking Cycle**

### Identifying the problem or opportunity

A problem or opportunity may first be identified as a feeling or perception that a beneficial change can be made. In process improvement, problems may be suggested by an increase in warranty costs, loss of customers to competitors or projects going over time and budget.

### Preparation stage

The preparation stage is where the information required to understand a problem or opportunity is gathered and reviewed to gain an initial understanding. This may start with a desktop review of process performance metrics, documented processes and procedures and comparisons against competitors.

This stage may include a process review workshop where a common understanding of the issues is achieved.

### Relaxation

This acquisition of information and understanding should then be followed by a period of relaxation. During relaxation, the unconscious mind will continue to search for connections and patterns.

### Illumination

Illumination is when an idea suddenly emerges without conscious thought. For Einstein, this often happened when shaving while for inventor Dr. Yoshiro Nakamats of Japan (with over 3200 inventions to his name) this happens when he swims underwater

### Verification

The idea or new understanding then needs to be consciously developed and tested in the verification stage. This stage may result in a new,

verified idea that is ready to be implemented or to entering another cycle of creative thinking.

## Simple Creative Thinking Techniques

The purpose of these techniques is to help you see problems or opportunities from a different perspective so that solutions then become visible.

### 5 Whys

Strictly speaking, this is not a creative thinking technique but it is one that quickly gets to the heart of a problem or idea so that creative problem solving techniques can be applied.

5 Whys asks 'WHY?' several times to get to the heart of a problem. The answer to the first 'Why?' is followed by another 'Why?' until the potential cause has been identified.

This is an example from a small manufacturing and design company:

**Problem:** *The Company has to pay unplanned overtime and expenses for engineers to fix installations at customer sites.*

Why are the engineers working additional hours on site?

*Because we sold a modified product that needs software patches*

Why didn't you know this would happen?

*Because no one told sales*

Why didn't they ask design for approval before making the sale?

*Because we have never done that*

Why don't you start doing that?

*Good idea! We'll start doing that*

**Solution:** Product modifications approved by design before sale.

### Alternative Uses

For this warm-up exercise, suggest as many possible alternative uses for an everyday item as possible. For example, each participant should be able to quickly produce at least five different ideas for using a vending cup. The most outlandish and humorous ideas are best, as these 'stretch' the mind, and humour stimulates creativity. Allow up to five minutes for this exercise. Quantity of ideas is more important than quality.

### Brainstorming

Brainstorming is probably the best known creative thinking technique and one that can work very well with the right mix of people, especially after a warm up exercise such as Alternative Uses (see box)

Although brainstorming can be performed by a facilitator asking people to call out ideas which are then written onto a white board or flip chart,

I find that more ideas come from having people write their ideas on sticky notes.

Guidelines for a brainstorming session:

- No more than 6-8 participants.
- Ground rules are agreed by the group and documented on a flip chart. These typically include the following: No questions or ideas are stupid. Everyone in the group is of equal status. We don't talk over each other. EVERYONE contributes.
- Each participant is given a block of yellow 3 x 5 sticky notes and a black marker pen.
- Participants write each idea in capital letters, one per sticky note. Writing in capital letters makes the writing easier to read when reviewing the brainstorm output.
- Ideas are written up in silence without questions or comments. Discussion can be a distraction and inhibit the flow of ideas.
- As sticky notes are completed, the facilitator puts them on a wall in random order.
- As the rate of idea production reduces, usually after five to ten minutes, participants are asked to stand up and look at the ideas that the facilitator has put on the wall. This often triggers new ideas.
- Ideal production will typically stop after about 20 minutes. Participants then work together on the task of arranging the sticky notes into affinity groups, assigning titles to each and asking for any clarification of the ideas.

Brainstorming can be followed by the Disney Thinking technique described as follows.



Figure 3: Disney Thinking

## Disney Thinking

This technique, equivalent to Edward de Bono's Six Thinking Hats, was used by Walt Disney for his own production of commercially successful ideas.

He would dream up the wildest ideas he could, look at these objectively and imagine how they could be implemented before then trying to destroy them by criticism. He would then develop those ideas that survived.

The stages of the Disney method are:

1. Produce a large quantity of ideas without considering whether they are realistic.
2. Review these ideas against acceptability and practicality.

"If at first, the idea is not absurd, then there is no hope for it"  
**Albert Einstein**

3. Criticize the ideas to identify any potential weaknesses, inconsistencies and risks i.e. any reason why the idea should not be implemented or potential objections from stakeholders.

It can be used in process improvement to develop and test improvement ideas against potential objections that may be raised when these are presented to a project sponsor or process owner. These may include contractual constraints, legal requirements, available budget and timescales or current capability.

“A mind, once stretched by a new idea, never returns to its original dimensions”

**Ralph Waldo Emerson**

## Reversal

This is one of the simplest and most productive creative thinking techniques. Instead of asking how to improve something, reversal asks

‘how can we make it worse?’ For example, what can we do to reduce customer satisfaction? How can we make our IT support services unusable? Where can we add bureaucracy so that everything comes to a halt?

In a project team, we could ask ‘How can we reduce our customer and stakeholder satisfaction to zero?’

This negative perspective forces us to think differently and explore new areas of thinking. After brainstorming these ideas we may have a list that includes these ideas:

- Provide project summaries in over detailed, 30 slide presentations.
- Hold last minute meetings without agendas and purpose.
- Interview stakeholders without having a clear idea of what we want from them.
- Hoard information so that team members have different ideas of what the team is for and how well the project is progressing.

These negative ideas can then be reversed to become what should be done.

## Comparative Attributes

Comparative attributes is a technique used to generate novel ideas by combining unrelated items or activities. For example, the characteristics of a mobile phone and a banana can be combined to suggest new product ideas. A banana has a waterproof, soft yellow skin which could be copied to create a waterproof, shock resistant carrying case for a mobile phone.

Comparative Attributes		Ideas
Bananas	Mobile Phones	
Have yellow skin	Are mostly black or silver	How about a brighter coloured phone?
Are soft and sweet smelling/tasting	Hard plastic or metal cases	Fruit scented phones?
Are imported - but can be grown by skilled gardeners	Are imported	Grow your own phone by personalized design
Are biodegradable	Go to landfill sites	Bamboo case option?
Skin peels off	Cases are an extra purchase	Soft, tactile cases for mobile phones?
Waterproof	Are not waterproof	What about making a waterproof, mobile phone cover, bright yellow so it's easy to find? It could be made of soft foam so that it floats. Could use this for boat owners and other outdoor pursuits. What about making similar cover for other electronic goods e.g. digital cameras?

In process improvement, we can compare processes within one domain with those in a completely different one to find ideas that we can reuse.

For example, to improve the responsiveness of our process improvement group we could look for ideas from a community or amateur theatre company.

Comparative Attributes		Ideas
Community Theatre	Process Improvement Project Team	
Audience provide immediate customer feedback to the cast (by walking out, heckling, standing ovation etc.)	Customer feedback tends to be after handover, if at all.	Send customers an email link to an online survey tool on completion of service or product delivery. This should be as quick to complete as giving a round of applause.
In a production the cast, set building, costume design, tickets sales etc. are provided by a group of people bought together for the duration of rehearsal and performance. Different people will be in each production and ideas and approaches are kept fresh. People may have multiple roles in productions.	Project teams tend to be groups of specialists.	Circulate membership roles to keep ideas and approaches fresh.
The director gives constructive feedback to the cast as the production develops. Cast can make suggestions on staging or script interpretation.	Annual appraisals may raise issues forgotten by the employee and no longer relevant to his or her performance.	Regular, informal face to face feedback to whole team from the team leader.
The script is equivalent to a standard operating procedure but minor deviations from it may be justified by approval and expert assessment (e.g. amending dialog for dramatic impact or humour. Cast will annotate their script notes as these decisions are made.	Project equivalent is GANTT chart or other project management tool. Annotated script notes are equivalent to hand amendments to procedures or plans.	Simplify and speed the change request process.
Members audition for parts.	Teams include some members who are only there because they are available.	Get the best people into the team by audition.

## Forced Association

This creative thinking technique brings a series of random words into association with the problem or opportunity under review.

For example, to improve a marketing process, we can take five random words from a dictionary or random word generator and then force these into association marketing as shown below.

Forced association to random words can be achieved by taking a random word from dictionary or using a random word generator.

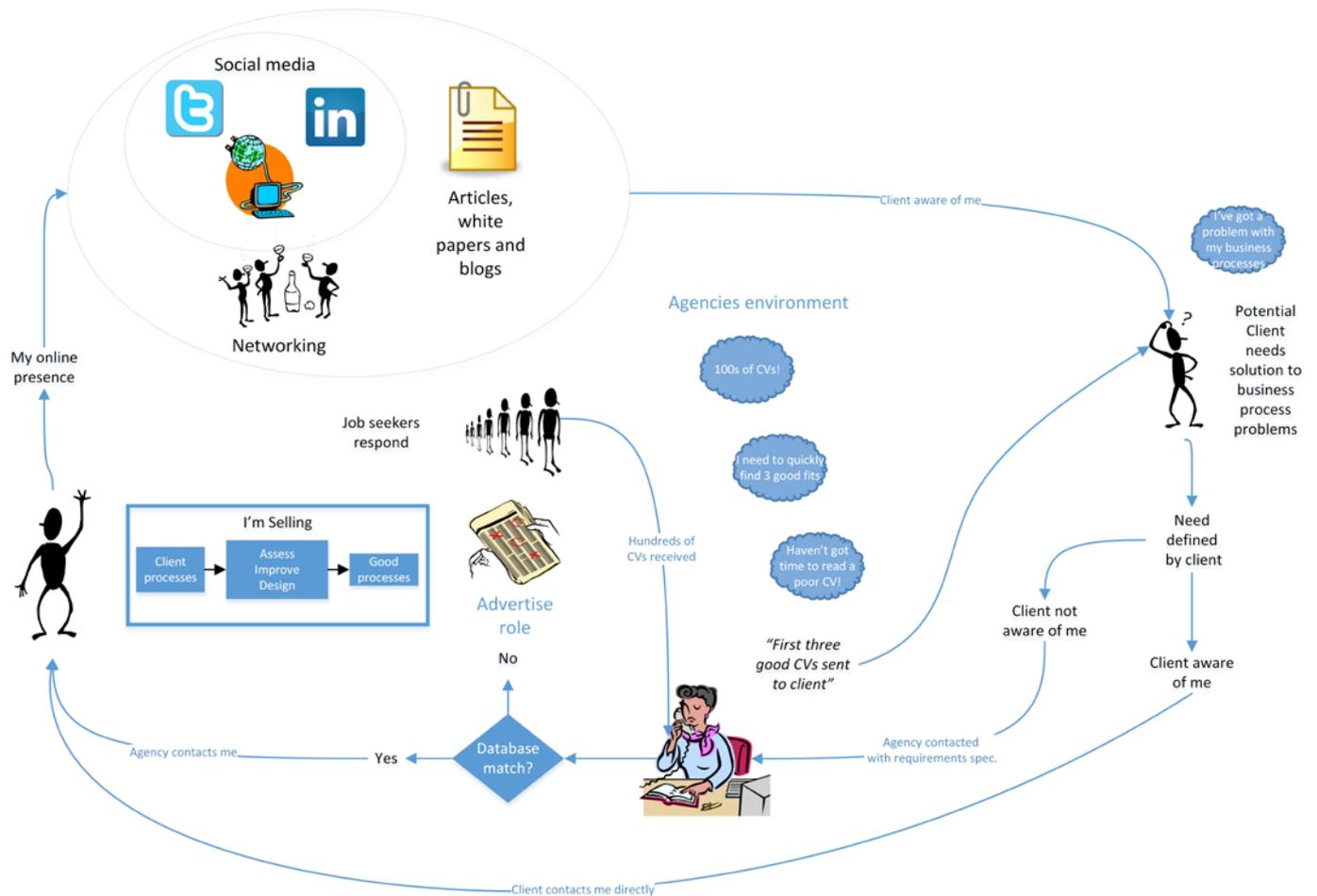
Review Area		Random Word	Idea
Marketing	and	Button	Promotional buttons, pens, drinks mats etc?
Marketing	and	Tent	A tent is a temporary shelter What about a short term marketing plan? Advertisements on free tents given away at music festivals?
Marketing	and	Truck	Promotional banners on the side of vehicles?
Marketing	and	Guitar	Product placement in a music video?
Marketing	and	Cough	Coughs are spread by viruses, can we use viral marketing?

## Rich Pictures and CATWOE

Understanding business processes requires understanding how people believe the process operates and how it interacts with the other processes within an organizational system. It requires collaborative investigation, identification of issues and sharing of knowledge.

Rich pictures are a technique from the Soft Systems Methodology of Professor Peter Checkland. They use graphics to express the elements of the situation under review and are very effective in exposing assumptions and connections and in helping to achieve a shared understanding of ‘how things really work’ and the impact of any proposed changes. This is an excellent technique to use when reviewing and designing processes for people centred systems e.g. social care delivery. A rich picture can be developed over time to summarize current and evolving knowledge about a situation.

<b>C</b>	Customer	The person or group who receives the output from the system
<b>A</b>	Actor	The people or IT systems that make changes within the system
<b>T</b>	Transformation	The changes made on inputs to the system. There will be many of these and some may remain hidden.
<b>W</b>	Worldview	This is the ‘big picture’ view of the changes and their impact and this is unique to each individual. Gaining a shared understanding is important to reducing resistance to change and encouraging involvement.
<b>O</b>	Owner	These are people who own the process or situation to be changed. In other words, the key stakeholders.
<b>E</b>	Environment	This includes the controls and constraints upon the process and situation.



**Figure 4: Rich Picture Example**

Rich pictures include the elements contained within the mnemonic CATWOE. Rich pictures only need to include the elements required to provide the required understanding.

Producing this rich picture gave me the following insights:

- The transformation that I am interested in is converting my unsold capacity into client sales.
- The recruiters key transformation is converting her time into commissions earned on placing good candidates. If my CV is quick and easy to read, I have more chance of being shortlisted.
- Improving my online presence will increase the probability of direct contacts from clients
- Responding to advertisements may put me in competition with hundreds of others.
- I need to improve my online presence to increase my sales.

Rich pictures can be quickly hand drawn but I often produce them on a computer as this allows me to easily revise them and reuse parts in new drawings.

This is where tooling can help, such as iServer for Business Process Analysis. Using a Visio front-end, which is hugely popular across global organizations for process mapping and improvement, it facilitates the reuse of 'components' (or shapes) across Visio diagrams to minimize

effort and duplication – speeding up the production of rich pictures, but also enabling the output to be shared across the business and various teams using a web-based Portal.

## SCAMPER

The mnemonic SCAMPER stands for Substitute, Combine, Adapt, Modify/Magnify/Minify, Put to Other Uses, Eliminate, Rearrange or Reverse. To use the SCAMPER technique, first decide what process improvement you want to achieve and then use this as a prompt to find improvement ideas.

<b>S</b>	Substitute	In house payroll processing for outsourced services. Linux for Windows to save software licensing costs. Home/remote working for office working. Cloud based apps. for in house Information Systems.
<b>C</b>	Combine	Combine review and signoff by making one person responsible for both activities. Reduce training costs by sharing courses with other local industries.
<b>A</b>	Adapt	Take a similar or generic business architecture, procedure, template or form and adapt this for required use.
<b>M</b>	Magnify/Minify	Magnify - Increase the authority level of staff members to reduce delays caused by waiting for management approval.  Minify - Reduce the number of process variants by standardizing common process elements.
<b>P</b>	Put to other uses	Multiskill staff Train staff in new skills
<b>E</b>	Eliminate/Elaborate	Eliminate - Remove unnecessary process steps. Elaborate - Provide additional information or services to customers.
<b>R</b>	Rearrange/Reverse	Rearrange - Rearrange workflow path to optimize process operation. Rearrange website layout to make information easier to find.  Reverse - Provide product information to customers before they start looking for it.

# Conclusion: When to Use These Techniques

Technique	When to Use It
5 Ways	To get quickly to the heart of a problem or idea.
Brainstorming	A simple and effective technique for a group of people to quickly produce a large number of ideas.
Disney Thinking	To generate and evaluate an idea before presenting it to a project sponsor
Reversal	To move our thinking into new areas
Comparative Attributes	To generate improvement ideas from comparing dissimilar objects or activities.
Rich Pictures and CATWOE	As a method for collaborative development of understanding and ideas relating to a number of interconnected processes and their environment
SCAMPER	As a checklist of idea generation techniques
Forced Association	To trigger new ideas
Brainstorming	To gain a wide range of ideas. Brainstorming also provides an opportunity for team building

## References

<sup>i</sup> [www.iipm.edu/iipm-editorial-536.html](http://www.iipm.edu/iipm-editorial-536.html)

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