

CREATIVE PROBLEM SOLVING: A PATH TO EFFICIENT INNOVATION

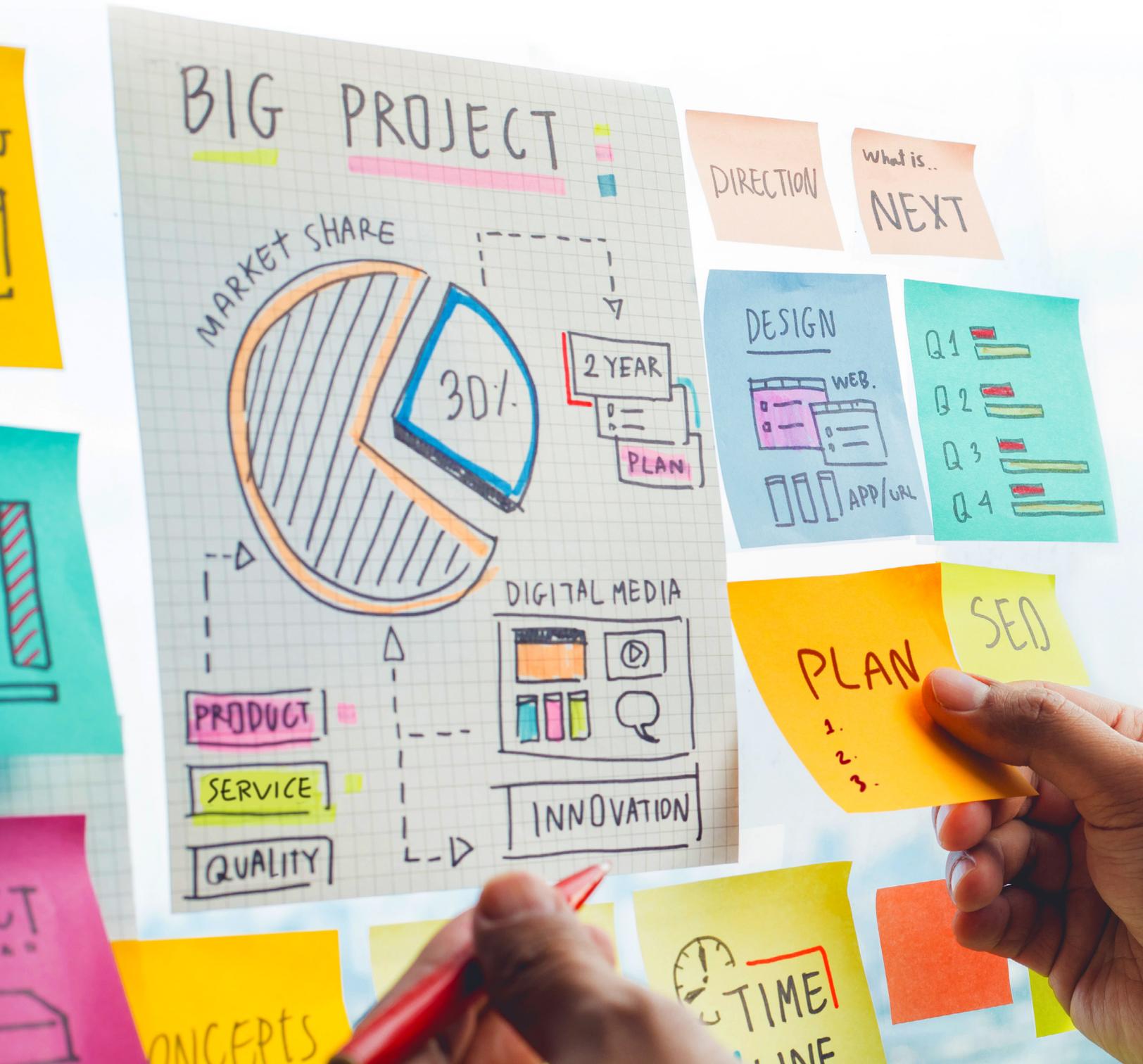


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ABOUT THE AUTHORS

Marsha M. Huber, Ph.D., CPA, is a former director of research at IMA. In her role, she engaged with practitioners and academics across the globe to deliver resources that upskill and improve the well-being of accountants and financial professionals. Marsha has 30 years of experience as an accounting educator, has taught design thinking and creative problem solving as a professor at Youngstown State University (YSU), and is certified in the FourSight and Kirton creative assessments. In addition, she has trained staff at the YSU Small Business Development Center in creative problem-solving techniques so they can help clients address their challenges head-on. Marsha served as a visiting faculty scholar at the Harvard Graduate School of Education to study neuroscience. She also received training at the d.school at Stanford University with her students as part of its University Innovation Fellows program. Marsha is a CPA and holds a B.A. in political science from Ohio University, an MBA in accountancy from Miami University (Ohio), and a Ph.D. in hospitality management from Ohio State University. Additionally, she holds a master's in applied positive psychology from the University of Pennsylvania, a master's in extension studies in journalism from Harvard University, and a master's in creative studies from SUNY Buffalo State University. She can be reached at hubercpa@hotmail.com.

Loreal Jiles, CMA, is vice president of research and thought leadership and global head of diversity, equity, and inclusion at IMA. In this role, Loreal advances the management accounting profession through robust research initiatives that deliver actionable insights to accountants and financial professionals in business. Loreal joined IMA as director of research, digital technology and finance transformation following nearly 15 years in the energy industry in roles spanning accounting, digital technology, financial reporting, change management, auditing, and planning and performance management, including leading a robotic process automation implementation in a finance organization. Loreal is a former member of the IMA Global Board of Directors and is the liaison to the IMA Committee on Academic Relations, chair of the Accreditation Council for Business Schools and Programs (ACBSP) Business Advisory Council, and a member of the Technology Experts Group of the International Ethics Standards Board for Accountants (IESBA). She holds a B.S. in accounting from Southern University in Baton Rouge, La., and an MBA from Tulane University. She can be reached at loreal.jiles@imanet.org.

This Statement on Management Accounting is published with the aim of providing a new skill for management accountants to use in making contributions to their organizations. Noteworthy contributions were provided by Ismet Mamnoon, founder and director of imagination, Beyonder, LLC, for advisement on applying creative thinking to accounting; Chenchen Huang, Frostburg State University, for advisement throughout the writing process; and Gerard Puccio, distinguished professor and chairperson of the Center for Applied Imagination at SUNY Buffalo State University, for his review of the history of creative problem solving.

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Research Advisors

Ismet Mamnoon
Chenchen Huang, Ph.D., CPA
Gerard Puccio, Ph.D.

Contributors

KH Kim, Ph.D.
Mark L. Raney Sr., DBA
Michael Ackerbauer, Ph.D.
Patricia Veisz
Katherine Boutry, Ph.D.



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EXECUTIVE SUMMARY

Management accountants are increasingly tasked with developing innovative solutions to time-sensitive business problems. Prompted by the dynamic environment within which many organizations find themselves, the rise in demand for an efficient path to business solutions translates into accounting and finance teams acquiring new skills to implement new approaches to problem solving. Innovative problem-solving methodologies such as design thinking and the Scrum framework have been used to pair business complexities with outside-the-box solutions. This IMA® (Institute of Management Accountants) Statement on Management Accounting (SMA) presents one particular methodology called creative problem solving (widely known as CPS) as a means to find solutions to challenges facing the finance function in a matter of a few hours.

CPS offers a four-step process that leads to unique and novel solutions and enables management accountants to optimize creative thinking. The methodology provides an efficient and effective framework for companies to tackle a single challenge by taking teams through four problem-solving steps: clarifying a challenge, ideating solutions, developing a proposed solution, and planning for implementation. The CPS process requires teams to look at a problem from many different perspectives and to brainstorm numerous options before selecting the best solution. In addition to demystifying the CPS process, this SMA also illustrates, through specific use cases, how management accountants can leverage CPS to address accounting and finance-related challenges.

CPS empowers accountants to generate ideas in an inclusive and efficient way that can strengthen their contribution to strategic decision making, enabling delivery of incremental value to their organizations. This report serves as a companion to the SMA *The Finance Function's Path to Innovation: A Design Thinking Perspective*, which focuses on design thinking, a creative

problem-solving methodology appropriate for designing and implementing new strategies, systems, processes, or products (such as financial dashboards, forecasting models, or new planning and budgeting processes). While the design and implementation of solutions with design thinking can take weeks or months depending on the complexity of the problem and the solution, CPS offers solution identification and planning in less than one day, which is sometimes the turnaround needed for finance teams whose business teams do not have weeks or months. Employing the CPS process can position management accountants to make even greater contributions to organizational performance and competitive advantage during the most critical times. •



Efficient Innovation

Game-changing strategies are derived from creative thinking. It starts with a spark of intuition that prompts the emergence of an “aha” moment that can lead to a *creative leap*; that is, extending beyond the familiar to create an entirely new approach.¹ Analytical tools such as Porter’s Five Forces are customarily taught in business programs, but creative thinking tools and *how* to leverage innovation to contribute to organizational growth and competitive advantage are rarely taught. Tools for reshaping business and the processes, services, and products that underpin businesses and industries are needed to meet current and future business demands.² With business leaders often calling upon management accountants to contribute to the development of innovative solutions for complex business problems, moving beyond obvious solutions to new ways of doing business requires new skills.

Although some believe creativity cannot be taught or developed, creativity experts say individuals can learn to be more creative, and this can also benefit teams. Creativity researchers at the Center for Applied Imagination (CAI) at SUNY Buffalo State University found that teams that learned creative problem solving (CPS) developed better and more unique solutions than those who had not learned CPS.³ Larger multinational organizations such as IBM and Deloitte are training thousands of employees in CPS techniques. In fact, the U.S. military teaches officers (and soldiers) CPS because officers need breakthrough strategies in time of war (see “CPS and the U.S. Military”). Just as world-class athletes need coaching to reach their full potential, coaching also helps facilitate the development of creative thinking skill sets. As strategic business partners with access to financial and nonfinancial data, management accountants can offer tailored and fit-for-purpose insights to their organizations if their development is augmented by the use of CPS techniques.

At one time, people thought ethical behavior was also innate and unteachable. Today, however,

CPS AND THE U.S. MILITARY

The military provides a unique example of how professionals can use CPS. Mark L. Raney Sr., director of education services and outreach at Joint Special Operations University and creativity instructor, compared accounting to the U.S. Army accomplishing a mission.

“It’s important to get the proper tools into the hands of accountants,” Raney said. “The army is linear in [its thinking] like accounting. Let’s say a group of officers face an attack in a particular area. The officers need to come up with many solutions.”

Thus, if accountants adopted a military approach, especially if they were auditors, they would put their checklists down momentarily and ask themselves, “What might an enemy do to foil our plan?”

Raney said auditors need to think like white-collar criminals with nothing to lose. When it comes to a military operation, “We know how to close width and destroy the adversary.”

Similarly, accountants should use CPS and brainstorming to uncover and close the gaps in internal controls by asking questions such as “How might a fraudster perpetrate a crime?” This approach would be useful to internal and external auditors as well as management accountants working within functions handling internal controls, reporting, accounts payable, and accounts receivable. CPS could facilitate strengthening the control environment and designing more effective preventive and detective controls.

professional accountancy organizations around the globe have a code of ethics to which their members must adhere. Furthermore, ethics training is mandatory as part of continuing education requirements for some professional accounting certifications. As training in ethics has now become institutionalized in business schools and the accounting profession, the case could be made for the need for training in the fundamentals of CPS.

CPS consultant Ismet Mamnoon, founder and director of imagination, Beyonder, LLC, who was previously employed as an accountant at PwC,

Smuckers, and the Red Wing Company over a period of nine years, asked, “What if you can be creative at will, deliberate at the process, where you can think in a more organized and effective way, unlocking the door to your human potential?” CPS provides a road map to creative problem-solving success so that a team will not lose sight of its target. The CPS approach can be learned in a few hours and mastered over time. “To be successful in creative problem solving, management must start with a clear mandate that the company is going to do things differently,” Mamnoon said. “There can be no lone rangers in a community of practice.”

By understanding the four steps of CPS—clarify, ideate, develop, and implement—accounting and finance teams can work together in new ways, allowing for increased collaboration and innovative thinking. This IMA® (Institute of Management Accountants) Statement on Management Accounting (SMA) empowers management accountants to leverage CPS through three

“What if you can be creative at will, deliberate at the process, where you can think in a more organized and effective way, unlocking the door to your human potential?”

—Ismet Mamnoon, CPS consultant

sections: Part 1 describes the history of creativity and CPS; part 2 teaches the framework of CPS; and part 3 presents specific use cases on how CPS can be used in management accounting. •



A Brief History of Creative Problem Solving

The techniques of CPS originated in Buffalo, N.Y., which has remained a hub of creativity scholarship ever since. Alex Osborn, one of the founders of the global advertising firm BBDO, coined the term “brainstorming” in 1939. In 1953, he wrote *Applied Imagination*, in which he described the principles of CPS as fact finding, idea finding, and solutions finding (see Figure 1). Osborn also founded the Creative Education Foundation (CEF) at the University of Buffalo in 1954 with a mission “to spark personal and professional transformation by empowering people with the skill set, tool set, and mindset of deliberate creativity.”⁴

In 1956, Sidney Parnes joined forces with Osborn to establish the Creative Problem Solving Institute (CPSI), the oldest and longest-running global creativity conference in the world. Parnes began teaching graduate courses on CPS at SUNY Buffalo State University in 1967. Ruth Noller, a math professor, joined Parnes in developing classes, which later morphed into a graduate degree program in 1974. She created a mathematical model (see Figure 2) to depict creativity (C) as a function of attitude (*fa*) applied to knowledge (K), imagination (I), and evaluation (E). Parnes and Noller began conducting scholarly research about creativity, using the rigors of academic research methodologies to advance the field.

One fundamental “fact” that emerged from research on creativity is that all humans are innately creative. Researchers, however, have identified a creativity crisis in some parts of the world, especially in the United States. Educational psychologist KH Kim found that the creativity scores on the Torrance Tests of Creative Thinking have been steadily decreasing since 1990 in the U.S.⁵ Kim attributed this outcome to the emphasis placed on standardized testing scores. Others attribute this to an overemphasis on critical thinking and an underemphasis on creative thinking in the U.S. educational system. A further indication of the crisis of lessened creativity is the decline in U.S. patents since 1996 (compared to a significant increase in patents in Asian countries).

FIGURE 1: OSBORN'S ORIGINAL DEPICTION OF CPS



FIGURE 2: NOLLER'S CREATIVITY FORMULA

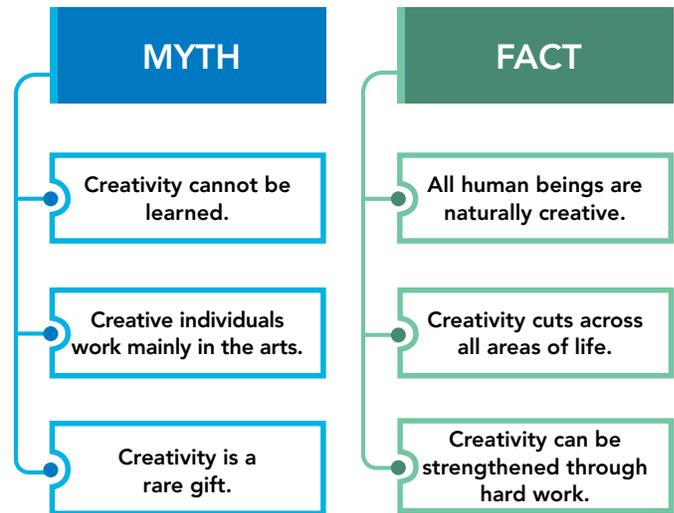
$$C = fa(K,I,E)$$

Numerous myths have hindered the development of creative thinking in schools and at work (see Figure 3). When many think of creativity, they think of the arts or creative expression. But in reality, Kim said, creativity coupled with expertise (the “K” in Noller’s formula) inspires new ideas. Management accountants bring finance and accounting expertise and business acumen to the table. This knowledge serves as a boost to the creative process.

The CAI at SUNY Buffalo State University has continued to advance the scholarship in creative studies. Research by contemporaries, such as Gerard Puccio, SUNY distinguished professor and director of the CAI, redefined the original creative problem-solving process into the four stages currently used in practice: clarify, ideate, develop, and implement (see Figure 4).

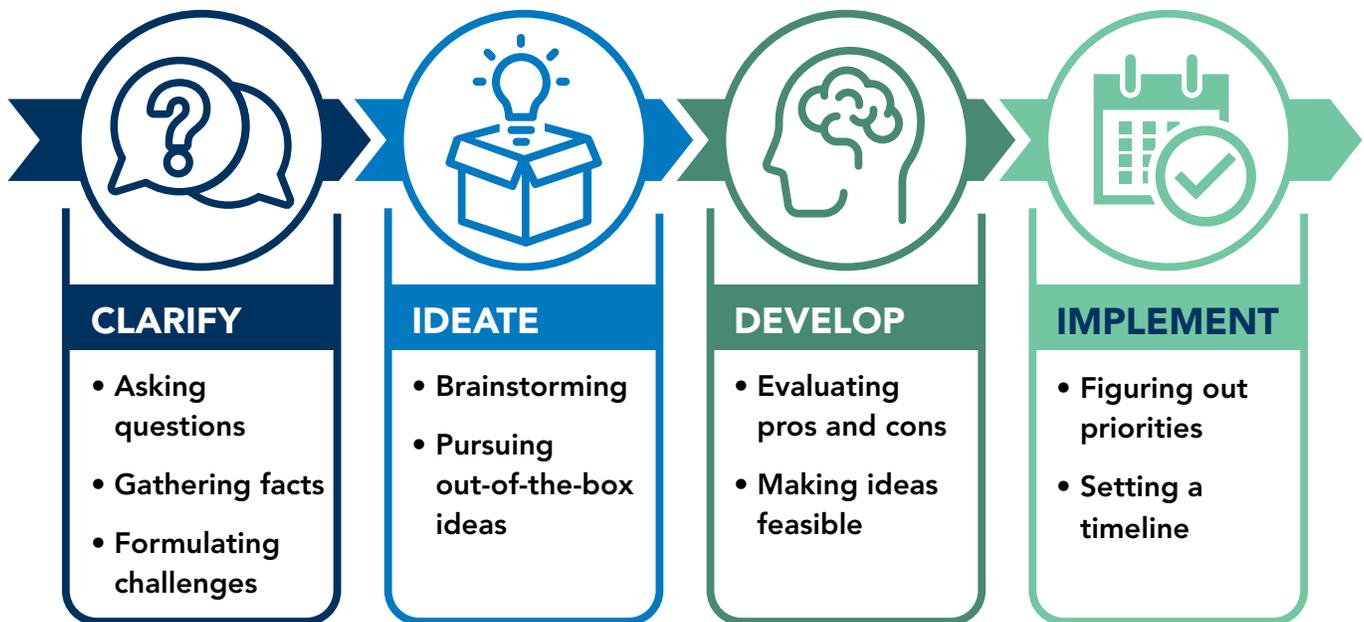
Puccio also observed that individuals often prefer participating in certain stages of the process, which can now be assessed with a tool called FourSight.⁶ Regarding creative preferences, some people ask many questions, needing *clarity*, before

FIGURE 3: MYTH VS. FACT



they can move forward in the process. Others like to *ideate* (for example, by brainstorming), while some prefer to *develop* ideas, thinking of the pros and cons of potential solutions. Others want to *implement* ideas and create action plans. Some

FIGURE 4: THE CPS PROCESS



individuals may prefer a single stage, while others may prefer more than one. Although each of the four preferences may lead to outcomes, using one stage independently does not constitute CPS. The CPS process includes all four steps along the continuum, organized in a fashion that results in effective breakthrough solutions.

When to Use CPS

When tackling problems that need quick solutions, CPS provides an approach that can take an organization from stagnation to breakthrough solutions in a matter of a few hours. CPS is most effective when tackling a challenge that requires innovative thinking for questions such as “How might we improve a process?” or “How might we reduce costs?” The following real-world examples show how CPS has helped organizations in the business and nonprofit sectors.

Example 1: General Motors

General Motors (GM) used CPS at a plant in upstate New York to reduce manufacturing costs (see Figure 5). During a CPS training session at the plant, the operations team wanted to tackle the problem of ring gears (which are critical components in manufacturing) sticking in the

dies (which are cast or mold-like tools that enable manipulation of a material into a specific shape and size) and breaking during the manufacturing process.⁷ During the brainstorming session, one of the team members suggested spraying something like a nonstick cooking spray on the dies before casting. Another team member suggested using a spray bottle (cost \$1) with a nonstick solution (\$0.50) to apply the solution on ring gears before production to prevent sticking. Plant operators now spray the dies before making ring gears. Thus, within a CPS session of 45 minutes, a solution was developed that saves the plant \$40,000 per week.⁸

Example 2: Small Business Development Center

The Small Business Development Center (SBDC) at Youngstown State University had both limited funding and staff, and therefore needed to narrow its strategic priorities to what could be accomplished in the next six months (see Figure 5). The director decided a collective effort would be better than any plan she might create independently, so she decided to hold a CPS session with her staff. The session focused on setting priorities and brainstorming the tasks needed for completion in the immediate future.

FIGURE 5: REAL-WORLD CPS BUSINESS APPLICATIONS

Organization	Example 1: Manufacturing Plant	Example 2: Nonprofit Government Agency	Example 3: College Program
Issue or need	Cost control	Strategic direction	Funding
Problem statement	What might be all the ways to prevent ring gears from sticking and breaking?	How to showcase our uniqueness and connect to our target markets for increased impact	How to make sure the proposal is persuasive
Solution	Use a nonsticking agent and spray on dies. Savings: \$40,000 per week	Decided upon specific services and training programs to offer in the next six months	Revised report based on input and received funding for the Creativity Studies Lab

As a group, the team decided to redesign the SBDC’s service offerings to both showcase its strengths and maximize benefits for the local economy. Staff brainstormed ideas for: *How might we find time to do this? How might we develop content? How might we select the services that would have the greatest impact?* After a three-hour session, the director was satisfied with the ideas generated, and the group developed a six-month implementation plan with deadlines and personnel assignments. The team also delegated responsibility to different staff members who would oversee the plan to ensure it was being implemented as intended.

Example 3: West Los Angeles College

The college president asked a faculty member to write a proposal to convert a 2,000-square-foot multipurpose space into a Creativity Studies Lab at West Los Angeles College (see Figure 5). The faculty member and director, Katherine Boutry, wanted to write a persuasive grant proposal. She assembled a CPS team to help her improve the proposal. The team brainstormed suggestions,

recommending ideas such as discussing stakeholder value, calculating return on investment, and adding the use of a flex space to the report. The group also helped her identify “assisters,” those who would serve as her allies, and “resisters,” those from whom she should try to garner support. After the two-hour session and asking various individuals to read her draft, the faculty member submitted her proposal for the new Creativity Studies Lab. As a result of this process, the college received an i3 grant (Invention and Inclusive Innovation) administered by the Massachusetts Institute of Technology to create a creative ecosystem around the college, encourage diversity in entrepreneurship, and further develop the makerspace on campus.

Consistent with these examples, management accountants can use CPS for similar challenges such as brainstorming strategic perspectives, setting priorities, or preparing business cases that might benefit from a nontraditional context to secure approval. The beauty of CPS is its simplicity if a creative solution is needed in less than a day. •



Creative Problem-Solving Process

Not all problems require CPS. Some problems have obvious solutions, such as booking an accrual to recognize revenue for a sales transaction that has already occurred but for which cash will be received in the future. CPS, however, should be used by a person who needs a creative solution and has the authority to bring about change.

Prerequisites to the CPS Session

CPS is used to efficiently address a challenge with the intent of generating a solution beyond those that may customarily present themselves. Taking a few hours per session, a trained facilitator can lead a group through the four-step process to create a customized and collaborative solution. For creativity and innovation to become part of an organization’s

culture, collaboration among multiple stakeholders with different creative preferences can move organizations along the CPS continuum.

To hold effective CPS sessions, preparation is necessary. Mamnoon said, “For creative methodologies to be effective, certain preliminary steps should be followed to support an optimal experience.” The principles of CPS are based on the flow of ideas from nurturing a creative environment that allows for humor, mutual respect, reflection, excitement, idea incubation, and effort, and providing a stage that allows for the use of sticky notes and permanent markers or a virtual whiteboard.⁹ The following sections present an overview of six prerequisites to beginning the CPS session to increase the likelihood of success (see Figure 6).

FIGURE 6: PREREQUISITES TO CPS



Assemble the CPS team



Secure adequate meeting space



Prepare for divergent and convergent thinking



Acquire proper supplies



Interview the client



Warm up

Assemble the CPS Team

Ideally, a team includes the client, a facilitator, the resource group, and a process buddy. The facilitator, an expert in CPS, guides the process. The client is the person who owns the challenge. The resource group—usually three to seven people—are those who can add energy, enthusiasm, and relevant knowledge to the process by generating and evaluating ideas. Finally, a process buddy is an assistant who helps the facilitator manage the logistics and tasks during the session, freeing the facilitator to focus on leading the group through the four steps in the CPS process.

Secure Adequate Meeting Space

The meeting space for the CPS session can be physical or digital. Physical creative thinking environments provide whiteboards and flip charts in a room with enough space for participants to stand and move around (see Figure 7).

In the digital world, companies provide online whiteboards, where participants can type on sticky notes and arrange them in a digital platform (see Figure 8). Some platforms offer preloaded whiteboards, and, after minutes of minimal instructions, many professional teams can gain enough proficiency to use these user-friendly tools. Teams can brainstorm by writing on digital sticky notes, voting on them anonymously, clustering them, and tallying the best ideas to move forward in the process.

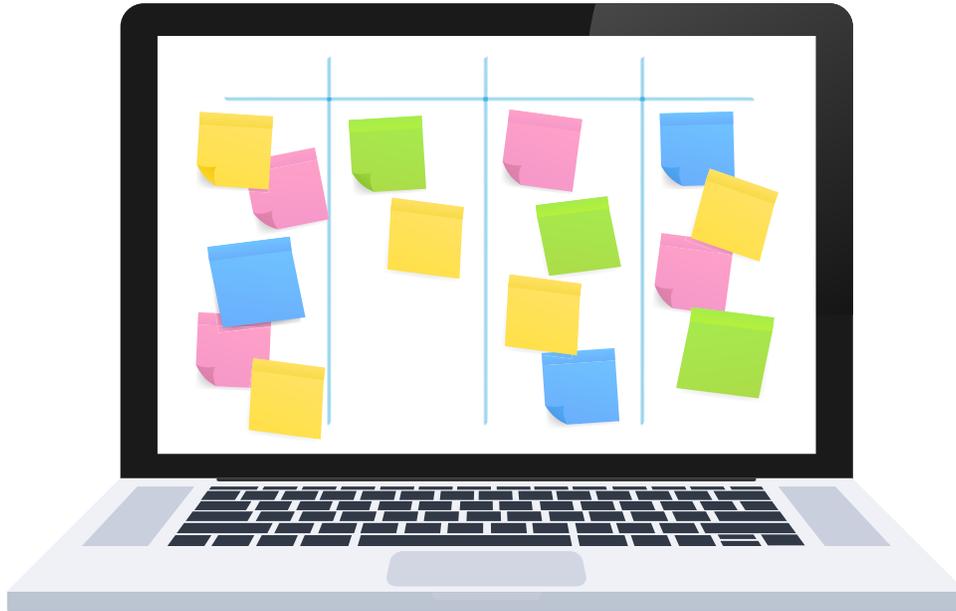
Prepare for Divergent and Convergent Thinking

Each step in CPS includes the movement between divergent thinking (generative thinking) and convergent thinking (evaluative thinking) as first identified by Osborn. Without this movement, the process cannot move forward. For example, during a brainstorming session, participants present many ideas to address a challenge—divergence—

FIGURE 7: ILLUSTRATION OF MEETING SPACE FOR AN ACTUAL CPS SESSION



FIGURE 8: DIGITAL WHITEBOARD



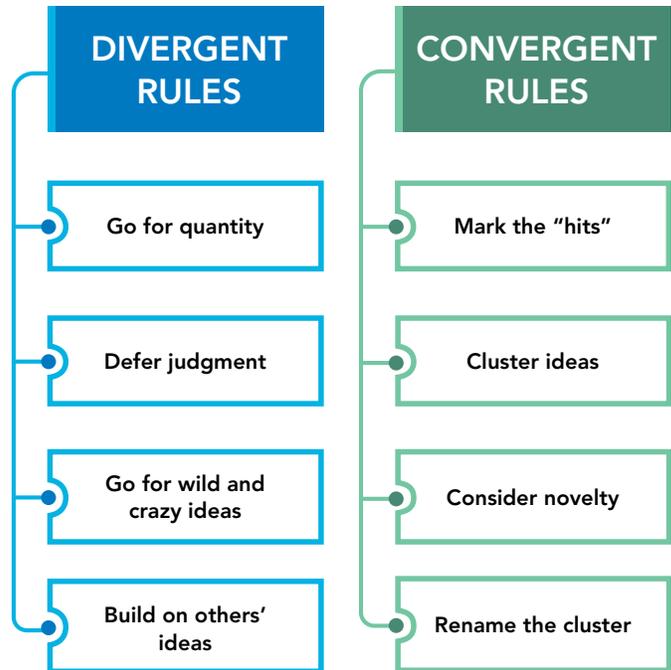
and then cluster those ideas and decide which one should be developed—convergence. The guidelines for divergent and convergent thinking are presented in Figure 9, which should be posted in the room prior to the session for the team to see and review during the process.

Acquire Proper Supplies

The proper supplies for a meeting in a physical space include sticky notes (like Post-it notes), small paper sticky dots of different colors, and permanent markers (see Figure 10). A few tips of the trade include:

- Consider using 3" x 5" sticky notes as typical 3" x 3" sticky notes might be too small.
- Encourage participants to use permanent markers rather than ink pens to write on sticky notes so that all participants can read what is written.
- Dots are needed too for the voting part of the convergence phase for each step of the CPS process.

FIGURE 9: RULES OF BRAINSTORMING



- For added creativity and engagement, some facilitators bring toys, such as interlocking plastic bricks or stress balls, for participants to fiddle with and snacks for breaks.

Interview the Client

Prior to the CPS session, the facilitator meets with the client to explain the CPS process, agenda, and support needed, and to confirm that CPS is the appropriate methodology to address the client’s challenge. This session takes about an hour to complete and is usually conducted a few days before the CPS session. In the preparation session, the facilitator will interview the client to clarify the challenge, posing a series of probing questions (see “Preparation Session Questions”). The facilitator will record responses as the client speaks to aid in freeing up the client’s mind to gain new perspectives about the challenge.

After recording the answers, the facilitator will ask the client to highlight the answers that best speak to the challenge, present new insights, or are important to consider for a CPS session. Then, the facilitator will ask the client to put a check mark by the statements they have influence over. Next, the client is asked to put a check mark after statements that require imagination. Lastly, they’re asked to put a check mark by statements that need immediate attention.

After reviewing what appear to be the most important statements, the facilitator will ask the client to complete the following visionary statements:

I wish...
It would be great if...
Wouldn’t it be nice if...?

The facilitator will ask the client which visionary statement they would like to present to the resource group. The facilitator will then make a poster that lists the visionary statement and key data points to take to the CPS session.

FIGURE 10: SUPPLIES CHECKLIST

- Flip charts
- Permanent markers
- Sticky notes
- Colored sticky dots
- Snacks
- De-stressor toys

PREPARATION SESSION QUESTIONS

- Describe what you’re dealing with.
- Who’s involved in this situation?
- What’s your role in the decision-making process?
- Who will make the decision?
- What do you wish would happen?
- What would be an ideal outcome for you?
- What do you want that you don’t have?
- Are you looking for something similar or something radically different?
- What’s getting in the way of your achieving your ideal outcome?
- Why is it that you want to work on this particular issue now?
- How important is this to you?
- Why is it important to you?
- What are the consequences if you don’t solve the problem?
- How might dealing with this problem impact other areas of your life?
- What have you already done to deal with this problem?
- How would you typically solve a problem like this?
- Why haven’t these approaches to solving the problem worked for you?
- Are you willing to put in the time and energy to use the CPS process?

Warm Up

Like physical exercise, a warm-up is best to ready the brain for creative thinking. Warm-ups should be used at the beginning of any session or after a long break, such as lunch. Another goal of a warm-up is to loosen people up, adding the “silly” factor. Facilitators can use a simple exercise such as “What might be all the uses for a brick? Be as creative as possible” or “How might we improve an airplane seat?”

Facilitators should encourage the group by saying, “You’re doing well. I like these ideas. Keep them coming!” Be wary about praising certain types of ideas or specific individuals because it might send a message to the group that the facilitator is looking for certain types of ideas or is encouraging ideas from certain individuals.

The goal of this warm-up exercise is for the group to come up with 30 to 50 ideas in a few minutes. If the group slows down, the facilitator can use a technique called “forced connections,” which asks an additional question to the original one to prompt more ideas. For example, the facilitator could ask the group, “If you were an animal, how would you use a brick?” or “If you were a child, what would you like to add to an airplane seat?” Using forced connections helps participants generate more ideas and teaches them to view challenges from different perspectives. This warm-up exercise is intended to get participants to tap into their creativity.

The CPS Session

As a session begins, the facilitator presents the agenda. The facilitator will also share the guidelines for divergent and convergent thinking established by Osborn. These rules should be restated each time the group uses divergent and convergent thinking.

Each step in the CPS process—clarify, ideate, develop, and implement—is critical to leveraging the methodology effectively. Following the key activities in each will contribute to the efficient development of tailored solutions.

STEP 1: CLARIFY

At the session’s onset, background information—the organization’s industry, culture, and disruptions—is shared with the resource group. The key data points on the poster created at the client interview will be read by the client to the team, with the team asking questions. The client’s “I wish” statement from the interview a few days prior will also be shared with the resource group.

In the CPS process, step 1 typically takes the most time. Note that this step technically begins prior to the CPS session with the interview of the client a few days earlier and continues with the resource group after the opening poster is read to the group by the client.

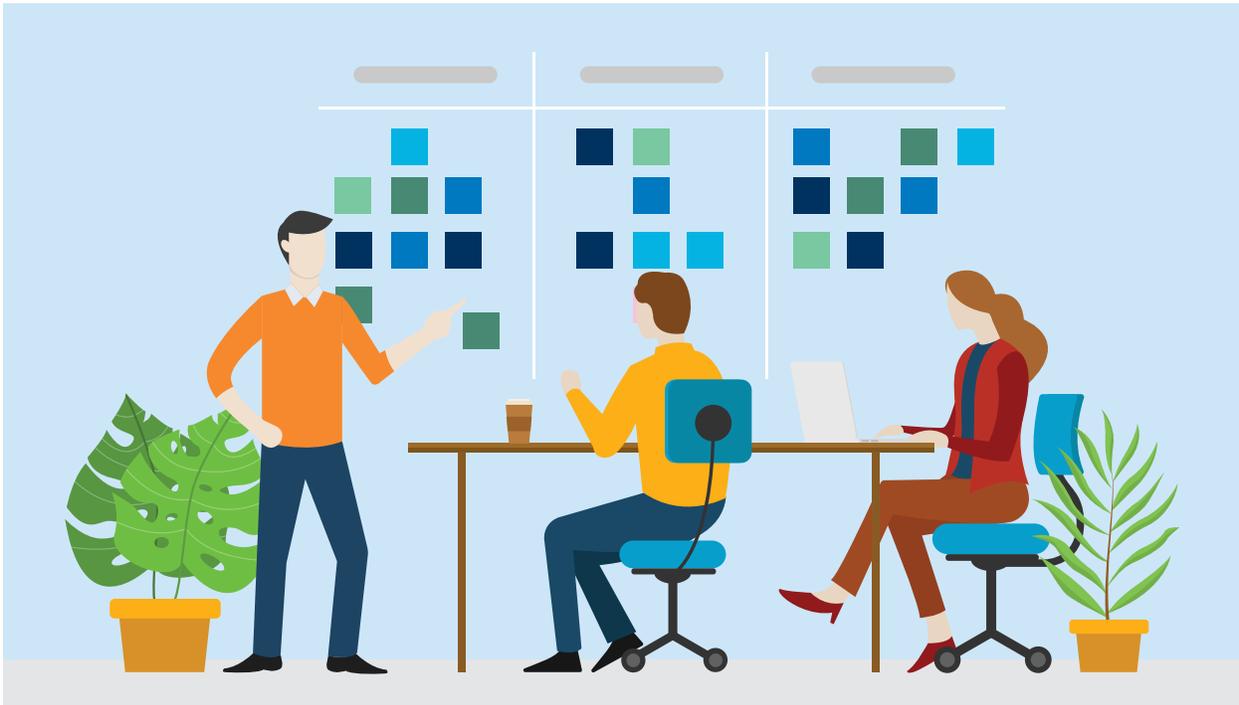
Reframing the Challenge into a Question

After introductory remarks and a warm-up exercise (discussed earlier), the team will help the client clarify the challenge by reframing it into a problem statement (also known as a challenge statement). Figure 11 shows statement starters to aid team members in the reframing effort. Using phrasing such as “How to...?” or “How might we...?” is key to advancing to step 2. The acronyms such as “H2” for “How to...?” or “HMW” for “How might we...?” are used when writing on sticky notes to speed up the process. Participants should be encouraged to write their ideas on sticky notes and place them on a whiteboard or flip chart. Examples

FIGURE 11: PROBLEM STATEMENT STARTERS

- How to...? (H2)
- How might we...? (HMW)
- In what ways might...? (IWWM)
- What might be all the ways...? (WMBAT)

FIGURE 12: CLUSTERED PROBLEM STATEMENTS



of problem statements used by accounting and finance teams include:

- How might we set strategic priorities for the finance function that most effectively deliver value to the operational teams supported?
- How might we grant real-time access to our financial data that meets the needs of our business partners?
- In what ways might we measure the most relevant sustainable business information to our business?
- What might be all the ways we can streamline our procurement operations for efficiency and cost-effectiveness?

After coming up with 20 to 25 problem statements, the group can mark the statements that interest them the most, clustering similar statements together and ultimately naming clusters with new problem statements by theme, as seen in Figure 12. Now the team is ready for step 2 of the process: ideation.

STEP 2: IDEATE

In step 2, the team generates ideas and converges on a solution. One of the most common ideation techniques is brainstorming. Without proper training, however, the ideas generated at most brainstorming sessions are not unique but rather represent a collection of ideas already in participants' heads. In many instances, people cannot seem to get to *new* ideas until *existing* ideas are out of the way. Research shows that it takes a few rounds of brainstorming for the best ideas to emerge.¹⁰

Those trained in CPS are experts in using brainstorming techniques to help groups effectively address the problem statement. The CPS process dictates that the group members brainstorm ideas and work on the solution together immediately after clarifying the challenge. As mentioned earlier, effective brainstorming includes both divergent (idea-generating) and convergent (evaluative) thinking.

Ideation Techniques for CPS

The problem statement should be posted in such a way that the team can clearly see it. The two most common ideation techniques in CPS are “stick ‘em up brainstorming” and “brainwriting.” Facilitators should consider using both to give extroverts and introverts a chance to ideate in a way that speaks to their preferences.



FIGURE 13: STICK ‘EM UP GUIDELINES

Write it

Say it

Stick ‘em up

Ideation Technique 1: Stick ‘Em Up Brainstorming

As the name suggests, stick ‘em up brainstorming involves the team generating ideas, writing them on sticky notes, and posting the notes on a whiteboard. When team members say what they write, others can hear the idea so they do not duplicate it, and that idea can spark new thinking.

As shown in Figure 13, the order of sharing an idea is “write it, say it, and stick ‘em up.” When working in a group, following a different order can be distracting, and some team members may not speak at all. Thus, at times, the facilitator may need to remind team members to follow the guidelines. If the group slows down when it comes to ideation, the facilitator can use techniques such as forced connections (as mentioned earlier) or can show pictures—nature, people, or food—and ask the group what new ideas they get from looking at the pictures. Another useful technique is role-playing, during which team members can take on roles of fraudster, CFO, auditor, government official, or even a superhero to spur ideation.

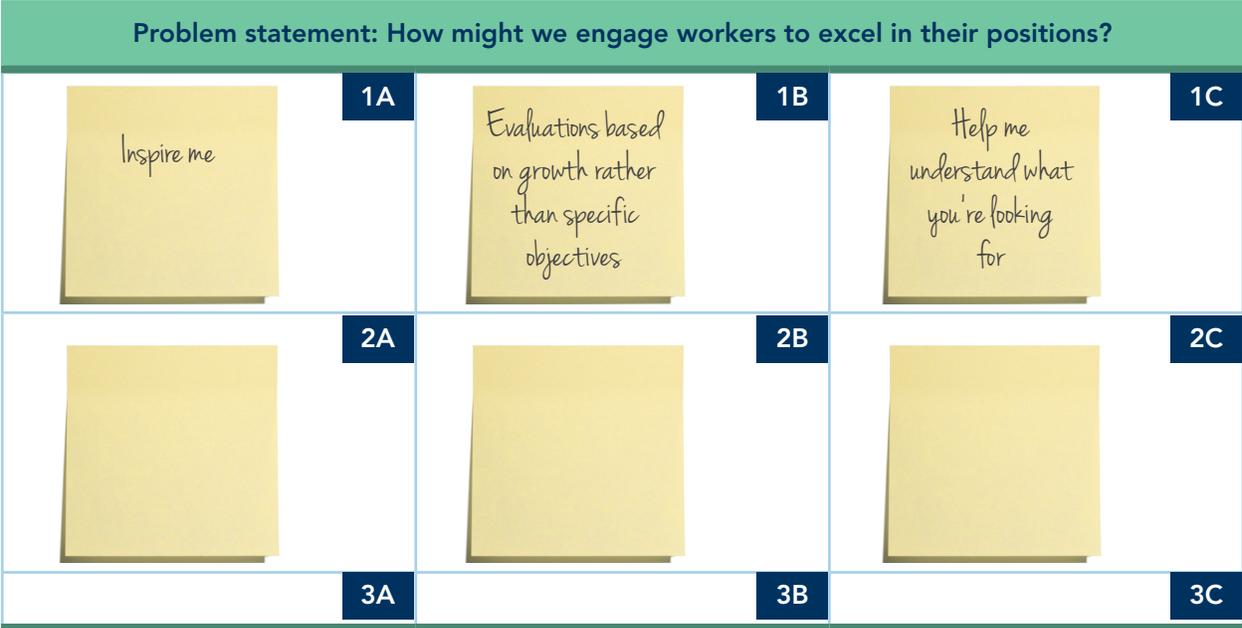
Ideation Technique 2: Brainwriting

Brainwriting is a unique technique that generates ideas, but it is done in silence. This technique should be done after stick ‘em up brainstorming, not before. Each member is given a brainwriting sheet containing nine squares with a sticky note placed in each square with an idea on it (see Figure 14). Each person writes three ideas on the brainwriting sheet. When completed, the team members pass their brainwriting sheets to someone else. This way, people can think of new ideas in silence by reading others’ ideas and building on them.

Figure 15 captures the four key steps in the brainwriting process. According to Roger Firestien, a senior faculty member at the CAI, these steps should be read out loud to team members before brainwriting begins.

After the resource group uses both ideation techniques for around 20 minutes, the facilitator should see if the client is satisfied with the quantity and quality of ideas. If so, then it is time

FIGURE 14: BRAINWRITING



for the group to converge on the best ideas. The facilitator will give each team member three to five dots to place on the most promising or intriguing ideas. The group should consider the need for novelty when converging on the best ideas, clustering similar ideas together and labeling them, using a verb in the label.

For example, the problem statement for an accounting class was “How might we engage students to learn without thinking about grades?” After generating 75 ideas, the resource group (made up of students) labeled clusters with statements such as “Relate accounting to superpowers,” “Create new types of class projects (for example, video),” and “Add play/competition with prizes to classes.”

After renaming the clusters, the resource group and client will decide what ideas they want to pursue. At this time, the facilitator

should check with the client to see if they think the team is on the right track. If the client agrees, the facilitator will ask the client to complete the following statement and write it on the flip chart for the team to see:

What I see myself doing is...

FIGURE 15: OPERATIONALIZING BRAINWRITING

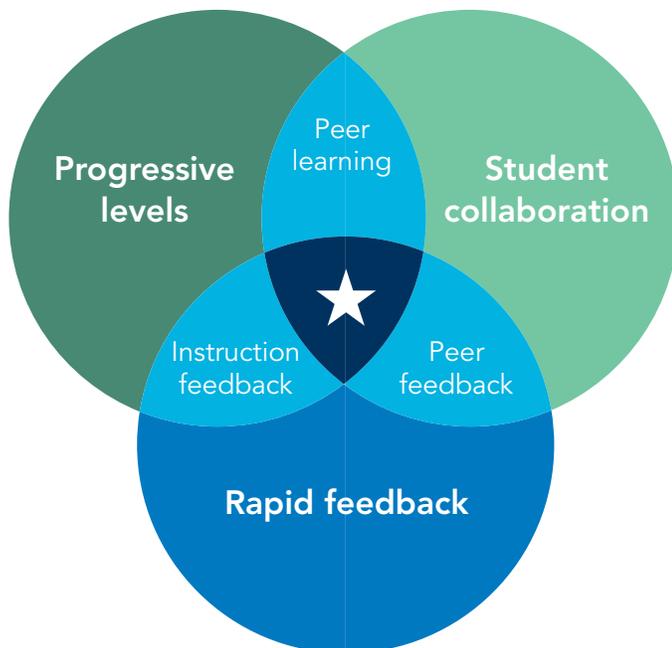
1. Participants write the problem statement/creative question at the top of each grid.
2. They use the guidelines for generating ideas: defer judgment, strive for quantity, seek wild and unusual ideas, and combine and build on other ideas.
3. Participants write three ideas on the first open row of the brainwriting grid—one idea per sticky note placed in each box.
4. After writing three ideas, participants place the form in the middle of the table and pick up a different grid that another participant has started. If there are none, they start with another blank grid. With extra grids in the middle, no one has to wait for other members of the group. A grid will always be waiting for them.

In the prior example of creating an “engaged” classroom, the client (a faculty member) developed a model of peer learning, constructed with the help of the resource group (see Figure 16). She could see herself exploring this peer learning model of teaching in future classes, using ideas from the resource group.

Another example of the ideation process might include revising a model for selecting the best capital projects to pursue for the year. Michael Ackerbauer, a creativity strategist at IBM, said he asks four questions when the company designs products: *Whom are you impacting? What might be the constraints? What might be all the behaviors you want to influence? What might success look like?*

Ackerbauer said CPS can help those who are more risk averse, including accountants, build depth “within the box.” The resource group can brainstorm ideas to create a new capital projects resource model that will meet the current needs of the organization.

FIGURE 16: NEW PEER LEARNING MODEL



STEP 3: DEVELOP

Step 3 takes what the client sees themselves doing and turns promising ideas into workable solutions. This includes evaluating the pros and cons of the proposed solution with intentions of strengthening it by using techniques such as “assisters and resisters” or POINT (Pluses, Opportunities, Issues, and New Thinking).

CPS can help those who are more risk averse, including accountants, build depth “within the box.”

Develop Technique 1: Assisters and Resisters

The “assisters and resisters” technique asks questions to help the client strengthen their ideas. Assisters represent the people who might assist the client with the proposed solution, and resisters are those who might resist it. The team will create a list of stakeholders and categorize them as supporting or opposing the solution. The group will then brainstorm ideas for the following questions: *How might we utilize or gain their support? How might we overcome resistance?*

Bob Eckert, CPS consultant and CEO of New and Improved, said, “When a group is embedded in the creative process, and they want to move things forward, they are unstoppable. Resistance is welcomed as input to strengthen their efforts; assisting them wins you allies for your own future challenges.”¹¹

Develop Technique 2: POINT

Another development technique is called POINT. Similar to assisters and resisters, POINT works to strengthen the proposed solution. The facilitator instructs the group to complete a POINT sheet (see Figure 17):

- List at least three *pluses* related to the promising idea.

- Next, list three *opportunities* (for example, spin-offs, gains) for the idea.
- If the idea works, what are new opportunities? Use the statement “It might...”
- Finally, list the issues you have about the idea. Be sure each issue uses the wording “How to...?”
- These questions will allow the team to address the statement with *new thinking* to overcome any issues. For each issue, write 10 ideas to overcome each concern.

FIGURE 17: OPERATIONALIZING POINT

What do you see yourself doing now?
Improve your solution:
What are the Pluses?
1.
2.
3.
What are the Opportunities?
1. It might...
2. It might...
3. It might...
What are the Issues?
1. How to...?
2. How to...?
3. How to...?
What New Thinking is needed? Generate 10 ideas to overcome each issue. Do this until each issue is addressed.
After your POINT evaluation, write your idea phrase below: <i>To strengthen my solution, I will...</i>

After completing that exercise, the facilitator should ask the team to converge, and the client will write a single statement on how to strengthen their solution:

To strengthen my solution, I will...

STEP 4: IMPLEMENT

In the final stage of the CPS process, the facilitator asks the client if they feel they have an effective, actionable solution to their challenge. If so, the group will create an implementation plan, designed to fuel commitment, by having the client commit to actions, dates, names of people, and accountability. Before filling out the action grid (see Figure 18), the facilitator will ask the team to generate at least 15 actions needed to bring the solution to reality and write them on sticky notes.

The action grid has columns for the specific action steps that need to take place. *Who is going to do it? When will it be completed? Who will check to make sure it is done?*

The group also will use the action grid to place the tasks into the proper time frame: what needs to be done in the next 24 hours, in the short term (i.e., 30 days), the midterm (i.e., 31 to 90 days), and the long term (i.e., beyond 90 days).

The facilitator will ask the client if they are satisfied with the action grid and the session. At this time, the client and the resource group may feel tired after all the hard work, but they're usually extremely satisfied with the plan they collectively developed to address the client's challenge. •



FIGURE 18: ACTION GRID

To Do <i>(List tasks in this column.)</i>	Who?	By When?	Report to
Next 24 hours			
Short term			
Midterm			
Long term			



Creative Problem Solving in Action

There is increased demand for management accountants to offer consistent and timely delivery of insights that inform strategic decisions. This prompts the continuous evolution of the management accountant's role. The iterative, efficient, and tailored nature of CPS overlaps considerably with attributes that support the finance function, creating value by employing empowered and capable multidisciplinary teams. Too often, teams work in silos, but CPS focuses on using a collaborative environment, allowing multiple people to weigh in and yielding increased transparency. The following are two cases that illustrate how management accountants can leverage CPS to address business challenges in an efficient, creative, and innovative way.

Case 1: Supply Chain

The supply chain function at a manufacturing company is facing several challenges. The COVID-19 pandemic exacerbated and highlighted the need for increased adaptability and flexibility among supply chain functions beyond traditional supply chain capabilities. Empirical research confirms that efficiently adapting and reacting to significant and sudden supply and demand changes are not yet characteristic of all supply chain functions. It is paramount to optimize supply chain function delivery for greater organizational performance.

The supply chain leader in the manufacturing company looked to his controller for support in quickly identifying high-quality solutions for securing suppliers. The controller called upon Maria, a management accountant who supports the supply chain function directly, to partner with supply chain team members to generate outside-the-box solutions. Maria considered the challenges the team faced in determining resource needs and meeting production schedules needed to fulfill increasing sales orders. She wondered if there

The COVID-19 pandemic exacerbated and highlighted the need for increased adaptability and flexibility among supply chain functions beyond traditional supply chain capabilities.

were times when the company should pay extra fees or premiums to find a supplier. She decided to use CPS to move forward.

In step 1 (clarify), Maria met with the supply chain leader to clarify the challenge. She took notes as the two of them gathered pertinent information to present to the resource team. Next, Maria assembled her resource team, composed of supply chain and finance colleagues, to further clarify the problem, building upon the work done in the preparation session. The team's consensus was that the company was having difficulty locating parts and securing enough suppliers to support the needs of a changing customer base. After clarifying the challenge, the team came up with the following problem statement: "How might we tackle the supply chain parts shortage to optimize production?"

In step 2 (ideate), Maria worked with the team to ideate potential ideas and to converge on the most promising ones. She used a method called SCAMPER to lead the ideation session. SCAMPER, a method originally created by Osborn and revised by Bob Eberle, a CPS consultant,

provides prompts to direct the group toward better ideation (see Figure 19).¹² As a result, ideas emerged for substitutes, changing how the product is manufactured, locating more sources for parts, combining orders, eliminating procurement steps, and making recommendations for improved procurement. The team also ideated ways to forecast when extra fees need to be paid to optimize production and the criteria to determine when paying those fees is appropriate. They refined the list of ideas further and selected three that the team believed would yield the greatest short-term impact. These three strategies were packaged as a single solution.

In step 3 (develop), the team used POINt to discuss the positives of its proposed solution and potential issues. After examining the pros and cons of the proposed solution, the group came up with additional ideas to overcome problems that could be caused by implementing the new strategies.

After the two-hour session, Maria and the team agreed upon a workable solution. In step 4

(implement), they listed the tasks necessary to bring the solution to life and filled out the action grid showing what steps needed to be completed, when, and by whom. To ensure success, they named an accountability partner for each task. Finally, every two weeks, the team met online to touch base to make sure the solution was being implemented as planned.

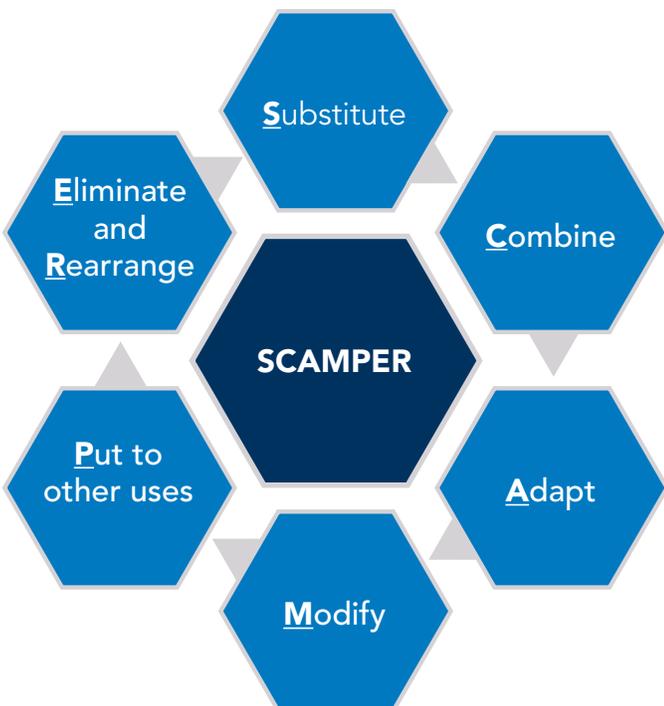
Case 2: Strategic Human Resources Management

A retailer's recent growth from a new product line and resulting expanded customer base required the hiring of new staff to lead customer engagement, product inquiry, and transactional sales. Senior leadership requested a model to determine how many additional people needed to be hired, the skill sets new hires needed, and the locations where they would be based. Ashraf, vice president of retail, contacted Julia, financial planning and analysis director, whose team provided financial support to the human resources function, for a model to forecast staffing counts, prepare scenario-based budgets, and suggest geographic placement for new staff.

Julia suggested using CPS to tackle the problem. In step 1 (clarify), Julia interviewed several department heads to clarify the inputs needed for the model. She then assembled a resource team (including Ashraf, human resources staff, and various functional leaders of units) to clarify the problem statement. After coming up with problem statements, the team converged upon the following problem statement to guide step 2: "What might be all the ways for us to restructure the organization to meet future hiring needs?"

In step 2 (ideate), Julia led an ideation session with the resource team to explore the ways the organization could be restructured to meet future strategic hiring needs. They ideated on the new recruiting process—what it might look like now and in the future. How might new personnel fit in the proposed structure? During this transformative session, the resource team developed a mock-up of a financial model. Both Ashraf and Julie decided they wanted the team to further develop that model.

FIGURE 19: SCAMPER



In step 3 (develop), the team used POINt to discuss the positives and potential issues of the new financial model. Team members used the assisters and resisters technique, during which they listed the names of those who were most likely to support the model and those who might be prone to criticize it. Then they brainstormed ideas on what help they might ask of the assisters and methods that might gain support from the resisters.

In step 4 (implement), the team listed the tasks necessary to refine, formalize, and implement the

model. Team members filled out the action grid as to what steps were needed to be completed (when and by whom), including what they learned from the assisters and resisters exercise. The team members also named an accountability partner for each task to make sure progress and long-term success would be achieved. As a result of the CPS process, the company accepted and implemented the new financial model that successfully allowed it to forecast staffing needs and payroll costs, which aided in meeting its hiring needs. •



CREATIVELY DESIGNING TOMORROW

CPS allows a team to explore potential solutions for challenging problems. It can shift a group from focusing on obstacles to creating solutions. Key principles include balancing divergent and convergent thinking, reframing problems into questions, deferring judgment of ideas, building on each other's ideas, and getting things done. While brainstorming, deferring judgment allows for potentially implausible ideas to turn into innovative ideas worth further exploration.

The CPS process can serve as a valuable strategic tool in the management accountant's toolbox. No matter the role, developing proficiency in CPS equips professionals with an

CPS offers an efficient path to novel solutions to problems of nearly any type.

effective skill to foster creativity, leading to greater innovation for the finance function and business teams. CPS offers an efficient path to novel solutions to problems of nearly any type. Upskill today to tap into and develop your creativity. •



For more information, please visit imanet.org/thought_leadership.

RESOURCES

Websites with training resources:

[Beyonder](#)

[Center for Applied Imagination, SUNY Buffalo State University](#)

[Center for Creative Leadership](#)

[Ignite Your Everyday Creativity, Coursera](#)

[Creative Problem Solving Institute Conference](#)

[Create in a Flash, Roger Firestien](#)

[The Edward de Bono Foundation](#)

[FourSight](#)

[MindTools](#)

[Michael Kirton, KAI Foundation](#)

[New and Improved](#)

[Torrance Center for Creativity and Talent Development, Mary Frances Early College of Education, University of Georgia](#)

Articles:

Charles E. Davis, Anthony Herrera, and Ross McClain, "[Developing Creative Accountants](#)," *Strategic Finance*, April 2021

Marsha Huber, "[How to develop the mindset of an innovative thinker](#)," *FM* magazine, December 2017

Books:

Roger Firestien, *Create in a Flash: A Leader's Recipe for Breakthrough Innovation*, Green Tractor Publishing, Williamsville, N.Y., 2020

Blair Miller, Jonathan Vehar, Roger Firestien, Sarah Thurber, and Dorte Nielsen, *Creativity Unbound: An Introduction to Creative Process*, fifth edition, FourSight, LLC, Evanston, Ill., 2011

Blair Miller, Jonathan Vehar, Roger Firestien, Sarah Thurber, and Dorte Nielsen, *Facilitation: A Door to Creative Leadership*, fourth edition, FourSight, LLC, Evanston, Ill., 2011

ENDNOTES

- ¹ Adam Brandenburger, "[Strategy Needs Creativity](#)," *Harvard Business Review*, 2019.
- ² *Ibid.*
- ³ Gerard J. Puccio, Cyndi Burnett, Selcuk Acar, Jo Yudess, Molly Holinger, and John F. Cabra, "Creative Problem Solving in Small Groups: The Effects of Creativity Training on Idea Generation, Solution Creativity, and Leadership Effectiveness," *The Journal of Creative Behavior*, 2018, pp. 453-471.
- ⁴ [Creative Education Foundation](#).
- ⁵ KH Kim, "The creativity crisis: The decrease in creative thinking scores on the Torrance tests of creative thinking," *Creativity Research Journal*, 2011, pp. 285-295.
- ⁶ [FourSight Technical Manual](#), 2012.
- ⁷ "[Ring Gears](#)," Ring Plus Aqua; "[How Dies Are Used in the Manufacturing Industry](#)," Monroe Engineering, April 25, 2019.
- ⁸ "[Client Success Stories](#)," Roger Firestien.
- ⁹ Ismet Mamnoon, "Frequently asked questions about creative problem solving."
- ¹⁰ Paul Paulus, Jubilee Dickson, Runa Korde, Ravit Cohen-Meitar, and Abraham Carmeli, "Getting the Most out of Brainstorming Groups," in Arthur Markman, ed., *Open Innovation*, Oxford University Press, N.Y., 2016.
- ¹¹ "[Assisters and Resisters](#)," New and Improved, 2014.
- ¹² Mind Tools Content Team, "[SCAMPER](#)," MindTools.
- ¹³ Julia Roberts, "[Assisters & Resisters](#)," Decoding Creativity, August 16, 2017.