That's the Idea!

You can be an idea-generating machine

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A blank whiteboard looms over a group of engineers gathered in a conference room. They're generating ideas for how to improve the aerodynamic performance of a revolutionary wing design. One engineer in particular feels the blank whiteboard staring back. The more the engineer concentrates on coming up with an idea, the more an empty, gray thought wall appears.

The wall grows wider.

PHOTO: PIRANKA/GETTY

A thought wall like this is not uncommon. In fact, even those who are known for brilliant ideas will admit to its unwanted visits. So how can you overcome it? How do you find pathways to fresh approaches, processes and ideas?

What are the secrets of those who seem to always be inspired, insightful and prolific?

The truth is, anyone can improve their idea generation and problem-solving skills. There are proven actions known to spark new, relevant thinking in yourself and others. The methods described here can help you get there.

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Formal Methods: Time-Tested Innovation Pathways

Methods categorized as formal contain distinct, well-described steps that have been published or are otherwise known to be effective.

1

TRIZ: This method was first developed in the 1940s and has since evolved into several forms. Named from a Russian acronym that translates loosely to "Theory of Inventive Problem Solving," TRIZ, at its core, is the idea that patterns underlie all innovation. A structured approach can thus be used along with supporting tools that guide a problem-solver to promising solutions.

There is a deep philosophy and methodology to fully employ TRIZ. But one can appreciate and benefit from its usefulness by simply understanding the first step, which is to generalize the problem.

Dig down to the root of your challenge.

For example, you may have a problem statement that says you need a material that can withstand 500 degrees Fahrenheit (260 degrees Celsius) for a new oven mitt. Digging deeper may reveal, however, that you actually need a material that significantly reduces heat transfer. This reframing of the problem statement can show the way to solutions you hadn't previously considered.

You may even look closer at your problem statement and determine that you actually need a way to remove very hot items from a very hot surface. That opens the door for many solutions beyond just an oven mitt. A wealth of information and training is available, should additional exploration of this method be of interest.

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2

LATERAL THINKING: Maltese physician, psychologist and inventor Edward de Bono formalized this tool set. He spent much of his career enhancing creative thinking.

His lateral thinking tools, in particular, aim to help people escape patterns of thought that block innovative ideas.

De Bono's approach offers several tools for overcoming these blocks. One is random entry, which can be done anywhere or anytime by an individual or group. Start with a well-defined problem or challenge. Then select a random word. You can use a book, website or other method to come up with a word. Nouns tend to be good choices.

Now, no matter how odd the word, generate a list of ideas that resolve your problem by incorporating something about your word. This can be challenging at first, but it gets easier as new associations come to mind.

Feel free to let those associations take you in different directions.

And don't analyze the ideas as you go. Just capture them for the time being. Try additional words. If you are more visual, perhaps try a random image or object as your inspiration. The intent is to nudge your brain out of its go-to patterns and find a new path to solutions.

Using a random word to spark a new thought about a problem or forcing yourself to create that lateral connection between seemingly unrelated things could result in a viable idea. At least that's what Dr. de Bono says.
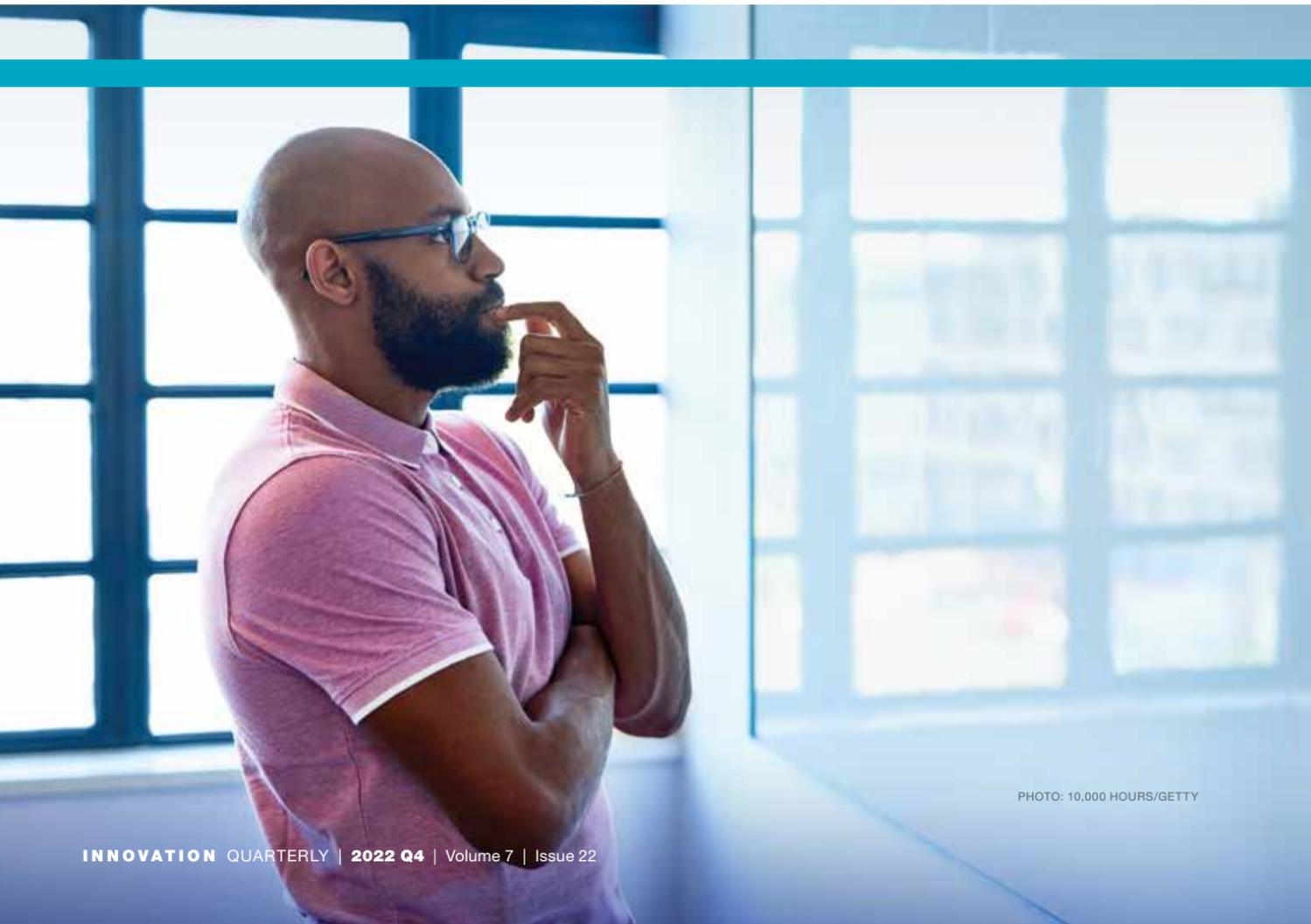
PHOTO: 10,000 HOURS/GETTY

3

USER PERSONAS: The field of user experience provides a tool that employs empathy as a path to new solutions. Start by generating a set of personas or fictional characters who embody the traits and behaviors of those who will use your idea, product or service.

These personas can be developed quickly, based on your knowledge or your team's knowledge, by talking with potential users or by surveying a broad population and using the results to identify clusters of similar needs or outlooks. Choose a method based on how much time you have available and your goals for the project.

Your persona characterizations should include information about what that particular user is seeking to accomplish, their current approach and what challenges they face. Include other categories of detail as needed.

Now comes the hard part. Take on each persona one at a time and imagine what the person wants. What would solve the problem? What is missing in the design? What tools would each persona use to solve the problem based on individual viewpoints and experiences? Take on all of these various user perspectives to find unique solutions and ideas.

If working in a group, you could have each person take on a different persona and generate new ideas together from those perspectives.

PHOTO: 10,000 HOURS/GETTY

2 **OBSERVATION:** There is much to be gained from simply observing people, products and processes around you. Notice when people are using anything in unintended or inventive ways. This points out gaps in current methods or products and shows you an opportunity.

If, however, you seek a solution to a particular problem, investigate other industries or even look to your hobbies for ideas. Notice what is efficient or useful. Identify elements that people gravitate to or that you see as unique. Get down to the fundamental principle that drives that idea and how it works in that system. Ask yourself if the same underlying principle could work for your situation.

3 **OUTSIDE VIEW:** Talk to those with backgrounds or expertise unlike yours.

Those outside your typical circle bring a different set of experiences and knowledge in their approach to the problem or may see it through a different lens.

They may ask why something is done a certain way, which could lead you to revisit your assumptions.

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Informal Methods:
Common Sense
Approaches to Innovation

These informal methods offer suggestions for less-prescriptive but highly effective techniques to catalyze inspiration.

1 **EXPOSURE:** Creativity research shows that new ideas are most often formed by using existing methods or tools in new ways. The more you are exposed to, the more fuel you have to draw on to develop something new.

You can improve your problem-solving potential by reading, listening and observing in a variety of settings. You may choose something closely related to the problem you wish to solve, such as a technical journal for your field. Also consider publications about other fields.

Try a podcast that covers many different technology areas, or visit museums and art galleries.

Systematically and consistently seeking new information will broaden your experience set and, as a result, help you solve future problems.

4 **BREAK TIME:** This is counterintuitive, but sometimes the harder you think, the less likely you are to have a breakthrough idea. Taking a step back, even away, may give your mind room to innovate. There is science behind this intentional timeout. In research about the creative process, it is described as the incubation stage.

Once you frame a problem or question and gather information, it can be helpful to give your unconscious self time to process and make relevant connections.

Do something else.

Then come back to the problem at hand. You are likely to have a fresh perspective and new approaches.

In Summary:
Find Your Focus

When considering the various methods offered here, it is best to try out several of them and practice making new connections before you are in a time crunch.

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Think of a product you use, such as a mobile phone. Remember that early versions were on a trajectory of shrinking size. That was suited to their functionality — making calls and sending text messages.

Then they began to offer additional features, essentially becoming a computer in your pocket, driving the need for a larger screen and battery. What could the next new form factor look like for future mobile communication?

Whatever methods you pursue, be sure to start with a clear, crisp question to focus your new idea. If you are looking for a better power source, for example, be sure to define "better." That could include weight, size,

producibility or other factors. If you are looking for an entirely new product, then be sure to define the intended audience.

And when you have that innovative idea, you will want to share it.

Congratulations! Now you are the brilliant idea machine. **IQ**

ABOUT THE AUTHOR
Marna Kagele is a Boeing Technical Fellow in systems engineering and strategic foresight and a real-life rocket scientist.

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