

Moonshot

A NASA Astronaut's Guide to Achieving the Impossible

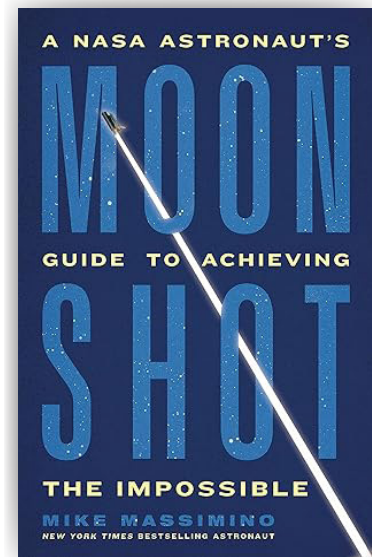
Mike Massimino

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KEY TAKEAWAYS

- Lessons learned from a leader's lengthy career as an astronaut can serve as a guide to improving your personal and professional life. These lessons include admitting your mistakes, speaking up, and trusting yourself and others.
- Don't give up on pursuing your dream without thinking your decision through carefully and giving your pursuit your best effort. A one-in-a million chance of achieving a goal is still more than a zero chance.
- Be the best leader you can be by recognizing and encouraging the best in others. Be a lifeline to others by offering your care and support.
- Collaboration leads to greatness. Contribute your best efforts toward helping your teammates share ideas and support one another so you can achieve great accomplishments together.
- There are opportunities to be amazed all around you, so seek them out. When change is on the horizon, know when and how to pivot toward a new opportunity.

OVERVIEW

We gain wisdom from our experiences. However, if you can spread that wisdom by telling your story, you might help someone else gain it more easily. In **Moonshot**, former NASA astronaut Mike Massimino shares life lessons he's learned from his experiences in the space industry and beyond. His entertaining, informative, and insightful anecdotes highlight universal principles that can serve as a guide to others who want to improve their personal and professional lives.

ONE IN A MILLION IS NOT ZERO

Massimino set his sights on becoming an astronaut when he was six years old. After years of demanding work toward achieving his goal and two rejections from NASA, he considered giving up. When he realized that a one-in-a-million chance to achieve his dream was more than a zero chance, he fully committed to it. On his third try, he was accepted into the astronaut training program.

Before you give up on your one-in-a-million-chance dream, ask yourself if:

- You've given it your best effort.
- You'll regret letting go of your dream years later.
- Pursuing your dream is worth it even if you don't achieve it.
- You'd be wasting your talents and abilities by not pursuing your dream.
- Giving up sets a better example for others than trying against all odds.
- You're giving up because you're afraid to fail.
- There's a better dream for you to pursue.

NO ONE LEAVES THE POOL UNTIL EVERYONE PASSES THE TEST

Astronaut training is grueling. Massimino was especially worried about the swim tests. He was sure he'd be humiliated by his team members when they saw his poor swimming skills. He soon learned they were there to help one another and that no one would leave the pool until everyone succeeded.

This experience set the foundation for a career in the space industry steeped in exceptional teamwork. At NASA, standing with your team through success and failure is the true measure of a person's character. Leaving this culture behind was the most difficult part of Massimino's retirement.

Massimino believes that human greatness is achieved through collaboration. Follow these guidelines to be part of a collaborative team that creates greatness:

- Don't compare yourself to others, just do your best.
- Look for a partner whose strengths compensate for your shortcomings.
- Share your own strengths generously.
- Always credit the team for success rather than individuals.

SPEAK UP

As a novice copilot flying a tandem mission with an experienced pilot, Massimino realized his colleague wasn't following the instructions he had called out from the back seat. Assuming the pilot knew better than he did, he stopped trying to get his attention. They came perilously close to crashing the plane because the pilot simply hadn't heard Massimino's instructions. As soon as they landed, the pilot gave him a stern lecture on speaking up.

Always speak up when something seems wrong. Never assume someone else knows better than you just because they have more experience. Help yourself and others speak up by following these practices:

- As soon as you sense something's wrong, say so.
- Acknowledge your mistakes immediately.
- Remember that the rookie perspective can be crucial for catching mistakes.
- Welcome, invite, ask for, and incentivize idea and information sharing.
- Foster a culture of treating mistakes as learning opportunities.
- Always thank others for bringing information to your attention.

TRUST YOUR TRAINING, TRUST YOUR GEAR, AND TRUST YOUR TEAM

As he approached the landing pad for his first launch into space, Massimino was suddenly consumed with the fear that he wasn't ready for or capable of space travel. Once inside the shuttle, his fear disappeared. He felt confident in the equipment and his team and knew his fear was simply getting in his way.

Massimino credits his quick psychological recovery to his personal mantra of *trust your training*, *trust your gear*, and *trust your team*. In your work, you've been trained and prepared for the role you've been assigned. Your tools have been created to work for you. Your teammates support you and have helped ensure you're ready for the job.

You earn the *three trusts* through the actions you take and the relationships you build. A key part of these trusts is that you do your due diligence by verifying and confirming that the right processes are being followed.

When you're nervous about facing a challenge, put the three trusts into action by:

- Reminding yourself that you're fully capable and prepared for the challenge.
- Channeling your nervous energy into preparation.
- Reminding yourself that you have all the equipment you need and a team to support you.
- Addressing anything that goes wrong immediately and effectively.
- Executing your plan and enjoying the process.

YOU CAN ALWAYS MAKE IT WORSE

Eager to make a good impression in front of seasoned astronauts during his training for his first spacewalk, Massimino quickly tried to hide the fact that his tether had gotten caught between his legs. His efforts to surreptitiously free himself only made the problem worse, which was immediately obvious to everyone observing him. Had he simply stopped when he was first having trouble and captured his teammates' attention, they could've helped him, and he could've continued with his training.

Massimino soon learned the following three universally applicable NASA principles:

1. *Hoot's Law*. No matter how bad a situation might be, your inaction or wrong action will make it worse.
2. *The Two-Person Rule*. Always put at least two people on a corrective process; one to do the procedure and the other to read and confirm the steps.
3. *Go slow to go fast*. Take your time at a process to avoid having to make time-consuming corrections to any mistakes you make.

THE FIRST RULE OF LEADERSHIP

Every individual has something positive to offer, no two individuals are alike, and the best teams are diverse teams. These factors sometimes result in personality conflicts. In one such circumstance, Massimino had to channel an esteemed mentor to overcome his own bias and ensure his team's success.

Your responsibility as a leader is to bring forth the best in each of your team members and generate team cohesion. If there's a valued member of your team whom you don't like and would prefer to let go, consider that you're the problem. Resolve the problem through the practice of banking good thoughts: Create a mental list of the individual's positive qualities and draw from that list whenever there's a conflict.

No matter your leadership style, the first rule of leadership is to *admire and care for everyone on your team*. Apply this principle in both your professional and personal life by:

- Finding a way to express your care and appreciation for everyone around you.
- Overcoming a poor first impression of someone else by finding common ground with them.
- Keeping every individual's positive traits top of mind.

HOUSTON, WE HAVE A PROBLEM

The *CAPCOM* is the astronaut at mission control who communicates directly with the spacecraft crew. This individual is the crew's technical, logistical, and emotional lifeline. CAPCOM duties include:

- Guiding astronauts through procedures.
- Informing them of timeline changes.
- Serving as the liaison between the crew and the ground flight control team.
- Providing updates on astronauts' families' activities and well-being.

CAPCOMs help astronauts feel grounded on Earth while they're in outer space. Massimino considers it the "best job an astronaut can have on the ground" and has been the appreciative beneficiary of CAPCOM services when he's traveled in space.

Anyone can be a CAPCOM right here on Earth. Whether you're in a situation where you need support or you become aware that someone else does, remember that there's someone in your life who can be your CAPCOM, and you're capable of being a CAPCOM to others you know.

Reach out to those you're responsible for and tell them you're standing by if they ever need your help. When someone turns to you for support, let them know that they're not alone and their need is your priority.

THE THIRTY-SECOND RULE

Everyone makes mistakes. Massimino has a lengthy list of his own, including breaking the Hubble Space Telescope during a spacewalk. He's learned that what matters most when you make a mistake is to admit it immediately so that others don't repeat it. When you make a mistake, your response should be to admit it, learn from it, and move on.

If you're prone to dwelling on your mistakes (like Massimino is), before you move on from a mistake indulge yourself in the *thirty-second rule*: Give yourself thirty seconds to wallow in every bit of regret you can muster, then let it go.

Maximize the thirty-second rule by:

- Calling yourself the worst mistake-making names you can think of.
- Pinpointing what you regret so you're angry about the right thing rather than everything.
- Chastising yourself one last time and vowing to never make the same mistake again.

BE AMAZED

When a seasoned astronaut told Massimino what he most appreciated about a moon landing was that the moon's gravity made it easier to go the bathroom, Massimino realized that even the most incredible experience can become mundane if you do it often.

However, for Massimino viewing Earth from space was always an amazing experience. His feelings of awe have influenced his perspectives on life on Earth, our place in the universe, and the majestic mystery and miracle of outer space.

Anyone can choose to be amazed at the world we live in and the simplest aspects of daily life. Resist being bogged down in life's mundanities. Never stop looking for opportunities to be awed by the world around you.

Use these techniques for inspiration:

- Apply all your senses to observing and appreciating your surroundings.
- Embrace challenges as opportunities to grow.
- Believe you have a purpose for being here and draw strength from it.

KNOW WHEN TO PIVOT

In 2011, when NASA transitioned to commercial enterprises to enable new space technology, including massive automation of manual tasks, Massimino and his fellow astronauts were skeptical. However, they soon recognized the safety, financial, sustainability, and innovative benefits this transition delivered.

However, in 2010 Massimino was faced with an even more impactful personal transition when he was offered the opportunity to fly on the International Space Station. The assignment would require two and half years of preparation with substantial time away from his home and family and six months in space. After deep consideration, he turned down an opportunity he would have been overjoyed to accept at an earlier point in his life. In that moment he sadly realized he was no longer an astronaut.

Change can be difficult, but it's inevitable. You never know what opportunities life might offer you. After leaving his career as an astronaut, unexpected circumstances led Massimino to become a valued spokesperson for the space industry as well as a college professor and occasional TV personality, which turned out to be one of his greatest adventures.

When faced with change, use these techniques to help yourself embrace it:

- Acknowledge that nothing lasts forever.
- View change as a new opportunity.
- Approach change like your first step on a spacewalk: You don't know what's out there, but it could be glorious.
- Be curious because human curiosity drives the remarkable.

ABOUT THE AUTHOR

Mike Massimino is a *New York Times* best-selling author who served as a NASA astronaut from 1996 to 2014. He's a four-time spacewalker who completed two missions to the Hubble Space Telescope, including the final Hubble servicing mission, which has been called the most dangerous and complex mission in space shuttle history. Massimino set a team record with his crewmates for the most cumulative spacewalking time in a single space shuttle mission, and he was also the first person to tweet from space. He's currently a professor at Columbia University, an adviser at the Intrepid Museum, an expert television commentator, and an in-demand keynote speaker. He also had a recurring role as himself on *The Big Bang Theory* television series.

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