



Leadership in the Digital Era

Lockheed Martin Leadership Institute Idea Report

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What is Digital Transformation?

Digital transformation is about **how people change** due to the rapid advancements in technology that shape the digital era. While technology is an important piece of digital transformation, the key concept is the way people's **lives are impacted** and changed by that technology. An important aspect to consider is the need for greater investment in human capital, in addition to technology. Many of the simpler problems of this new era will be solved with **automation**, but the more complex issues will need to be addressed by highly skilled individuals.

LOCKHEED MARTIN



Leadership Institute

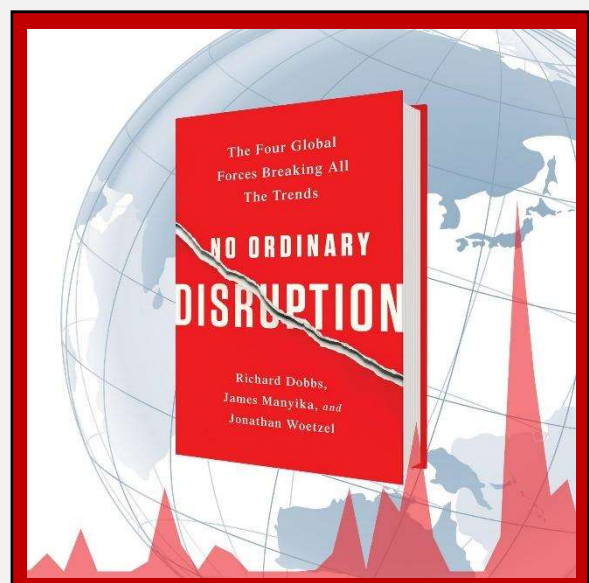
College of Engineering and Computing

Why Should You Care?

Today's economy is constantly being disrupted and constantly evolving. **Companies must now be willing to make changes continuously** and use their company to shape their industry, not mold themselves after the industry. **If a company is making changes in response to a changing industry, they have already fallen behind and will likely be left behind.** Companies must now be the driving force behind their industry. This is similar to the ideas presented by John Kotter in *Our Iceberg is Melting*. The penguins are forced to adapt to a nomadic lifestyle, or face extinction. Much like the penguins, we should prepare for the digital era or face extinction.

What can we do to prepare? This seemingly simple question has an almost infinite amount of answers. The first thing individuals need to do to prepare is to "Reset Their Intuition." This idea is presented in ***No Ordinary Disruption: The Four Global Forces Breaking all the Trends*** by **Richard Dobbs, James Manyika, and Jonathan Woetzel**. Up to this point in history, many companies would institute changes perhaps every 10-15 years and ride out the profits of the change for a similar length of time. This is simply no longer possible.

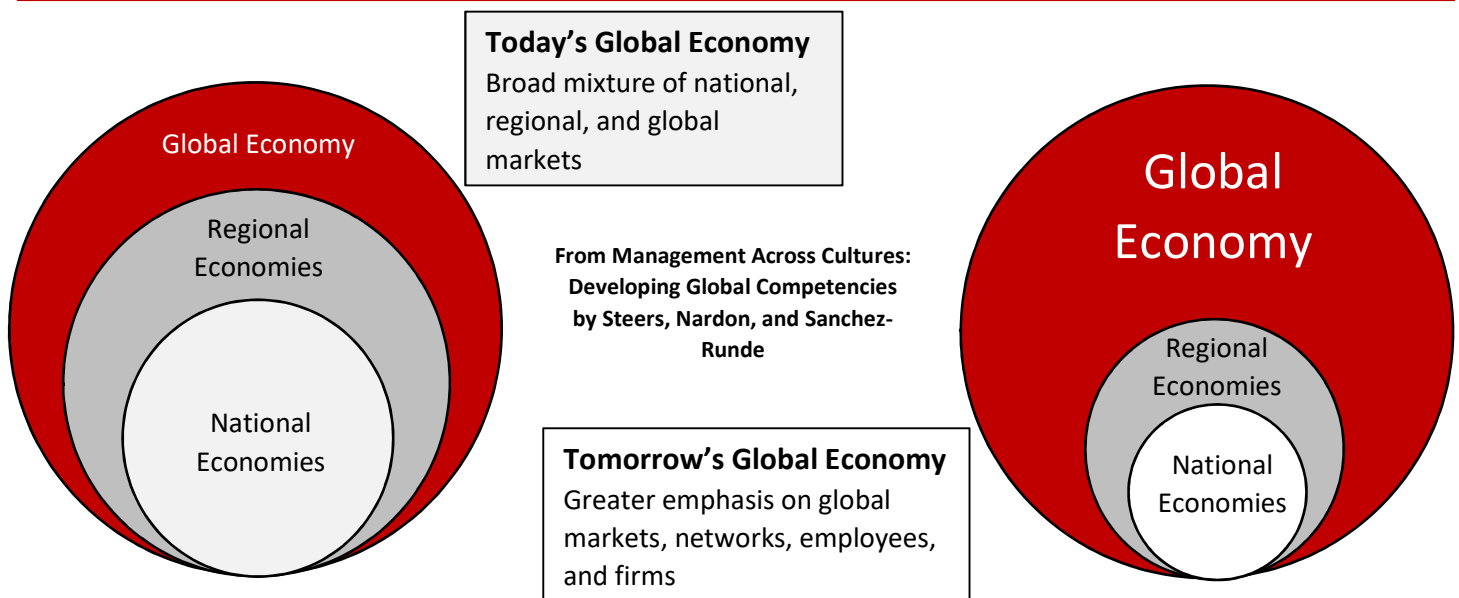
"If a company is making changes in response to a changing industry, they have already fallen behind and will likely be left behind."



Source: McKinsey & Company

How Can We Prepare?

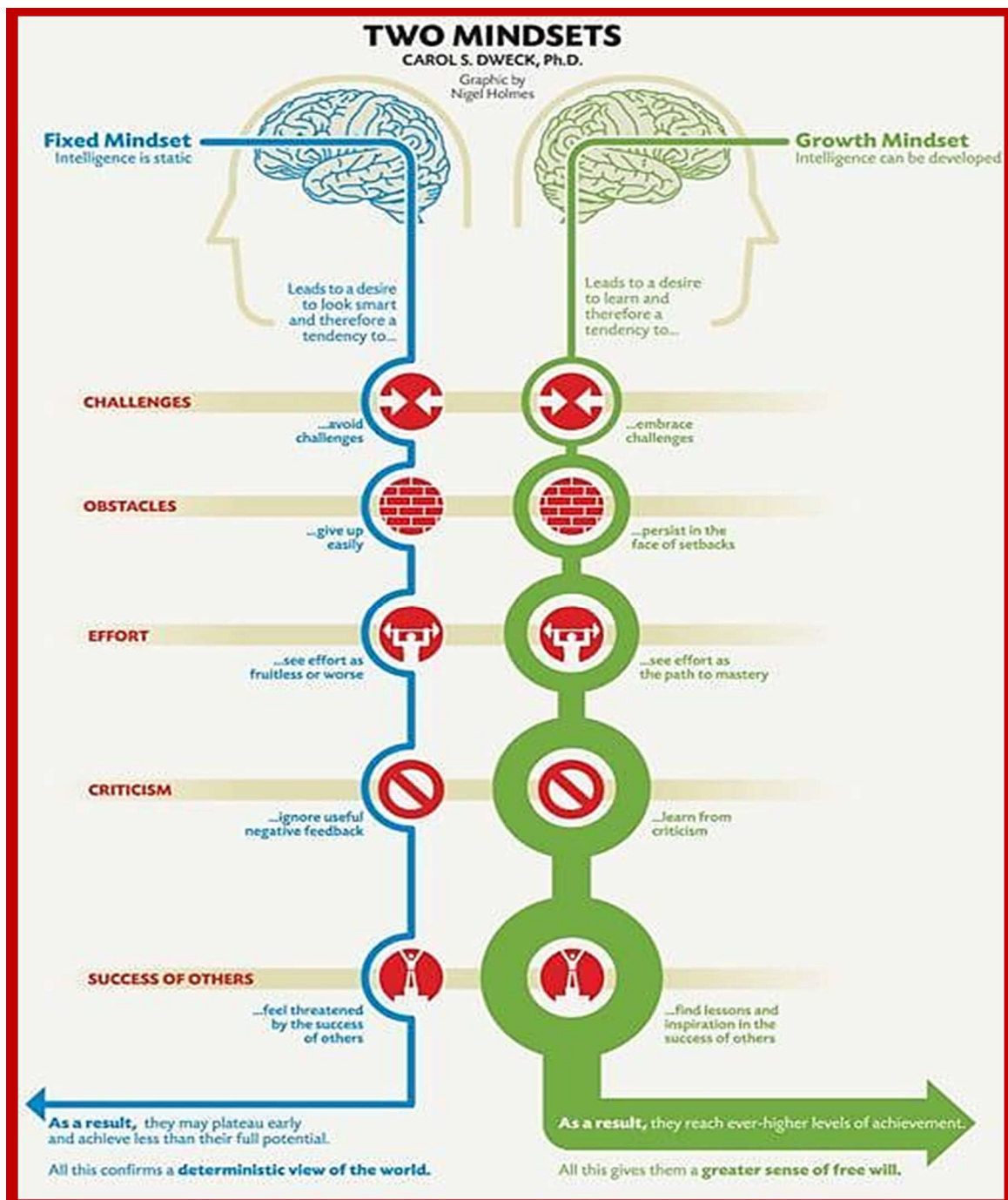
The new Digital Era will provide many unique challenges that society has never faced before. Numerous industries will be disrupted, and many individuals will lose their jobs to automation. A simple example of this is the trucking industry. **It is likely that in 15 to 20 years many cars and trucks will be autonomous, which could potentially eliminate an entire workforce.** To prepare for this, individuals should seek to either adapt their industry, or seek opportunities in newly created industries. It is important that these individuals do this quickly as there is a great advantage to actively seeking new opportunity as opposed to being forced to find new employment.



Social interactions of people of different nationalities are becoming more of a daily occurrence. This can result in uncomfortable situations, especially when individuals are tasked with managing people of different cultures. **With the rise of telecommuting and international business, there is a need for leaders in companies to be multi-culturally competent.** Even the best managers around the world need to learn how to manage between cultures to be truly effective in today's internationally focused and digital world. Leaders who do not embrace this multicultural mindset will be limited to shrinking regional and local markets.

How Do People Need to Be in the Digital Era to be Effective?

Leadership training primarily revolves around **mindsets**. The way we think about and approach problems is critical to the outcomes. One of the popular ways to talk about contrasting mindsets is the “Growth vs. Fixed” mindset comparison. This was popularized by Carol S. Dweck, Ph.D. and a TED Talk she gave featuring this infographic:



The **growth mindset** can be very powerful and transformative for people, but there is an important point to be made on this: mindsets can be very difficult to change and have a lot to do with subconscious thought and assumptions. It is entirely possible for people to have a growth mindset about some things and a fixed mindset about others. The important thing to realize is that a mindset is a choice. **We are constantly choosing the kind of mindset we have**, but we rarely think about it like that. In fact, we don't realize that people habitually choose whatever mindset is most comfortable for as long as it is comfortable. This points towards two major gaps in current mindsets: a crippling fear of pain in any shape or form and chronic short-sightedness about the future.

The first point is that we as humans are conditioned to choose the path of least resistance. Our modern, western society is all about doing more things with less effort. It's not a bad thing to want to make things easier, but the problem arises from only doing something if it is easy. For example, if students are given homework to do and are told that it won't be graded for any points, how many do you think would do it? Odds are, most wouldn't put in the effort. Even if doing the homework helped them understand the material better and subsequently do better in the class, it's more likely that most would not do the homework simply because they'd rather do something they enjoy than doing something difficult, yet beneficial. **We choose to be comfortable now at the expense of future success.**

The second point stems from a lack of motivation in the current mindsets of students (and adults). We live in a society that puts all value on the present and gives barely any thought to the future. We need to develop mindsets that place more value on long-term thinking. Doing uncomfortable things doesn't make any sense unless you are thinking about the long term. Going to the gym just to be tired and sweaty doesn't make sense unless you think long term about your future health and well-being. In the same sense, putting in the time to work on yourself and the places you have a fixed mindset doesn't make sense unless you think long term about what you want to accomplish in your life.

The key to being successful in the digital era is to actively seek new and exciting experiences in areas that you are interested in. In a commencement speech at Stanford University in the early 2000's, Steve Jobs made the famous quote, "You can't connect the dots looking forward; you can only connect them looking backwards. So, you have to trust that the dots will somehow connect in your future." He later encourages the new graduates to pursue only what they are interested in as they will never know when something they picked up over the years would come in handy. If we continue to seek new opportunities, making numerous dots along the way, we will be able to connect them in the future when we are successful. This inspirational idea challenges individuals to always be looking for opportunity and prevent them from remaining stagnant in their professional careers.

Why Do We Care About Digital Transformation?

We believe learning about digital transformation is **essential for all college students**, because this is the world we are entering. As soon as we graduate, we will be tasked with transforming companies to the new **digital era**. This gives us a great opportunity to quickly progress in our careers; however, it does make our future uncertain. We have absolutely no idea what the world will look like in 30 years. We must always be learning to be **better prepared for tomorrow**.

What Leadership Areas Need More Attention in Undergraduate Education?

One of the books we have read to try to understand how people will need to be in the digital era is *Stealing Fire* by Steven Kotler and Jamie Wheal. The book is essentially about how changing your brain chemistry for a limited amount of time can have dramatic impacts on your life (for the better, of course). The book talks about how having an “ecstatic moment” or “Ah-ha moment” can drastically improve your **critical thinking, productivity, and creativity** both during the moment and for an extended period afterwards (in some cases, the benefits were still present after several months). The world’s top organizations and individuals like Google, the Navy SEALs, and Elon Musk have been leveraging this altered state of consciousness to accomplish things that have changed our world and will continue to do so into the future. We believe that this boost in **critical thinking, productivity, and creativity** will also be beneficial to students.

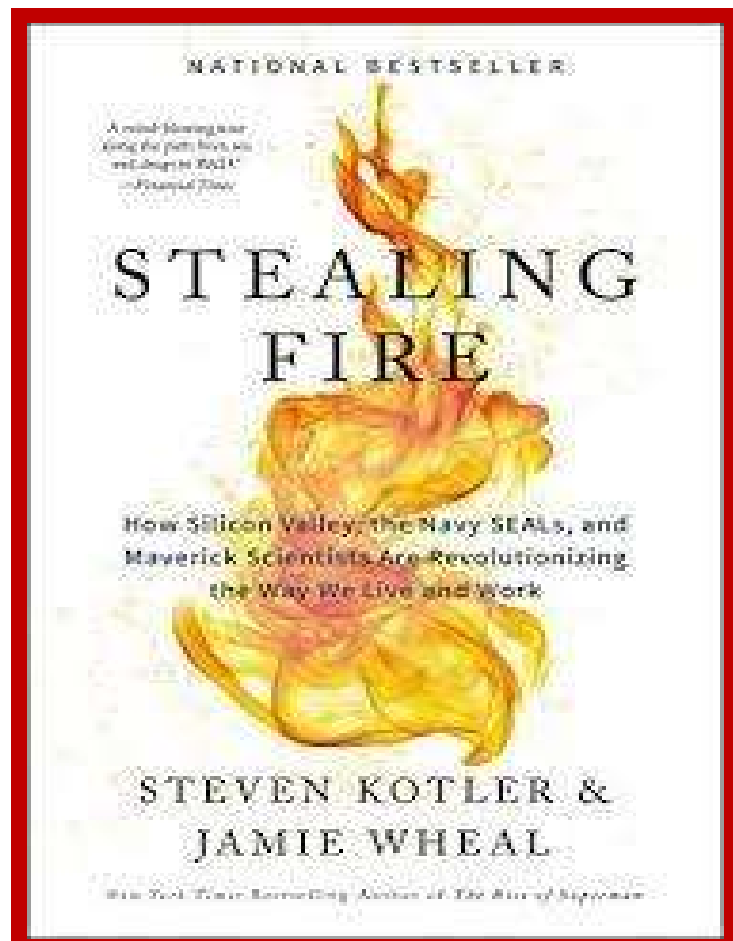
This may sound far-fetched or fanciful, but **there have been practical, real-world breakthroughs from the leveraging of altered brain chemistry** for the sake of working out complex problems. One example that is given in *Stealing Fire* is about a study done by the International Foundation for Advanced Study on twenty-seven test subjects. These subjects were mostly engineers, mathematicians, and architects from places like Hewlett-Packard and Stanford. They were brought in because they all had been failing at solving a highly technical problem for months. They were all given micro-doses of either LSD or mescaline, then they took tests designed to measure different categories of cognitive performance enhancement. They were then given four hours to work on their respective problems.

Everyone in the test experienced a **boost in creativity**, with some being scored at a **200% increase**. The even more interesting result were the breakthrough solutions they created, including, “design of a linear electron accelerator beam-steering device, a mathematical theorem regarding NOR-gate circuits, a new design for a vibratory microtome, a space probe designed to measure solar properties, and a new conceptual model of a photon.” (Kotler, 49). Not exactly what you’d initially expect when you hear that a bunch of people take psychedelics.

What it comes down to is **finding a way to get the conscious mind to take a break and let the subconscious mind take over**. The conscious mind is a potent tool, capable of complex logic and organization, but the subconscious mind is far superior at taking in large amounts of information and finding patterns and systems that the conscious mind would skip past in an instant. So how do we get here? The answer is frustrating and easy at the same time. We need to intentionally do something that gives our conscious mind a break and lets our subconscious mind take the reins for a little bit.

In addition to these ideas, there are **two main areas** of leadership that we believe many students would benefit from learning while still in their undergraduate studies, the first of which is **the beauty of ambiguity**. Since we began schooling, our generation has been given a rubric for every class we have ever taken. We have used this reliance on the syllabus and rubrics to game the system and maximize our grades, but not our learning. This is a major discredit to our generation, and our creativity has been limited. We need to be given more ambiguous assignments to complete to fully understand that life does not have a syllabus. Our boss is not going to give us a rubric.

Another area that needs more attention is **quick decision making**. In our digital world, everything will constantly be changing and there may not be an opportunity for individuals to sit and ponder complex ideas for long periods of time. We must make quick and dynamic decisions, or we may be left behind.



What Can College Students Start Doing Now?

While it might be easy to say that a person will need to develop resilience, inner strength, and things of that nature, the question remains of what that looks like in a practical sense. **One thing that plays a big role in personal development is conscious effort.** Difficult things like inner strength and strategic thinking take a long time to develop, and they will take even longer if they are not consciously being pursued. This requires a **developed vision** of the kind of person a student wants to be like in the future.

When it comes to **resilience**, students need to consciously put themselves into positions where they are not comfortable but work through it anyway. Resilience is something that only comes through experience, and it can be thought of as a **mental muscle**. If a person only ever works on something until it gets difficult, they will stagnate. Rather, if the student can stick through challenging and discouraging times, they will learn more about how they operate under pressure. In the same way that wisdom is a byproduct of experiencing failure, **resilience is a byproduct of experiencing challenges and not giving up** no matter how difficult things get. This is different than naturally experiencing the challenges of life and getting through them, which every person will do. *Conscious* effort is critical to self-development. What that looks like on a personal level is up to the individual, but it comes down to a person being aware of the things that sound “too hard” or “not worth the effort,” and doing them anyway.

We must recognize the importance of mental **breaks** from the normal student-problems that students face with the express purpose of **changing the way our individual brains are functioning** for a short amount of time. It is important for everyone to realize that these methods, if leveraged purposefully, can change their brains and consequently their lives.

Resiliency

Inner
Strength

Strategic
Thinking

Collaborative
Spirit

How Will Digital Transformation Change the Institute?

Digital transformation has the potential to greatly influence the Institute as a whole, particularly in content. Students should be looking to apply the learnings from the Institute to their education and careers.

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