

The New Transformation for the Academe as Catalyst for the Industrial Revolution 4.0

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Industrial Revolution 4.0



1900

First Industrial Revolution

Water and steam power

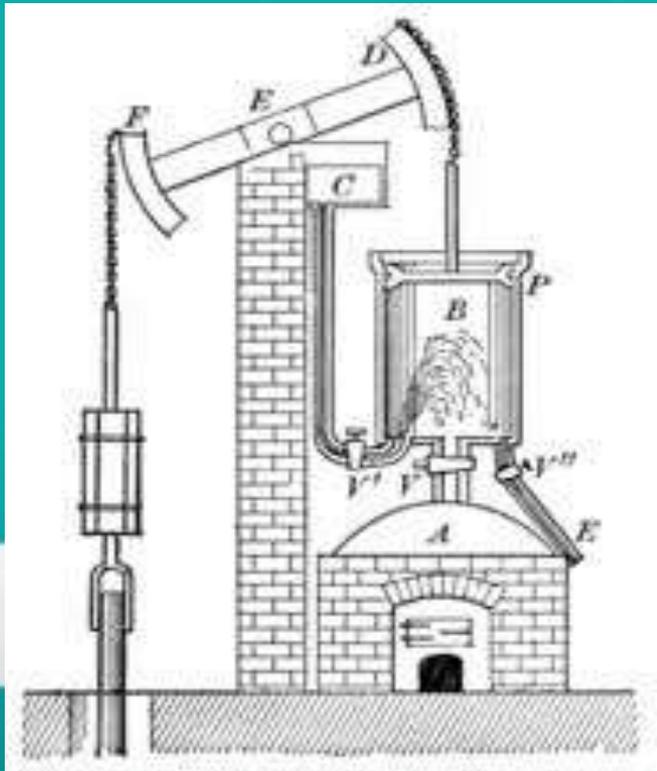
1800



First Industrial Revolution

Water and steam power

To create the **steam**, most **steam engines** heated the **water** by burning coal. The **steam engine** helped to **power** the Industrial Revolution. Before **steam power**, most factories and mills were powered by **water**, wind, horse, or man. **Water** was a good source of **power**, but factories had to be located near a river.



1900

First Industrial Revolution

Water and steam power

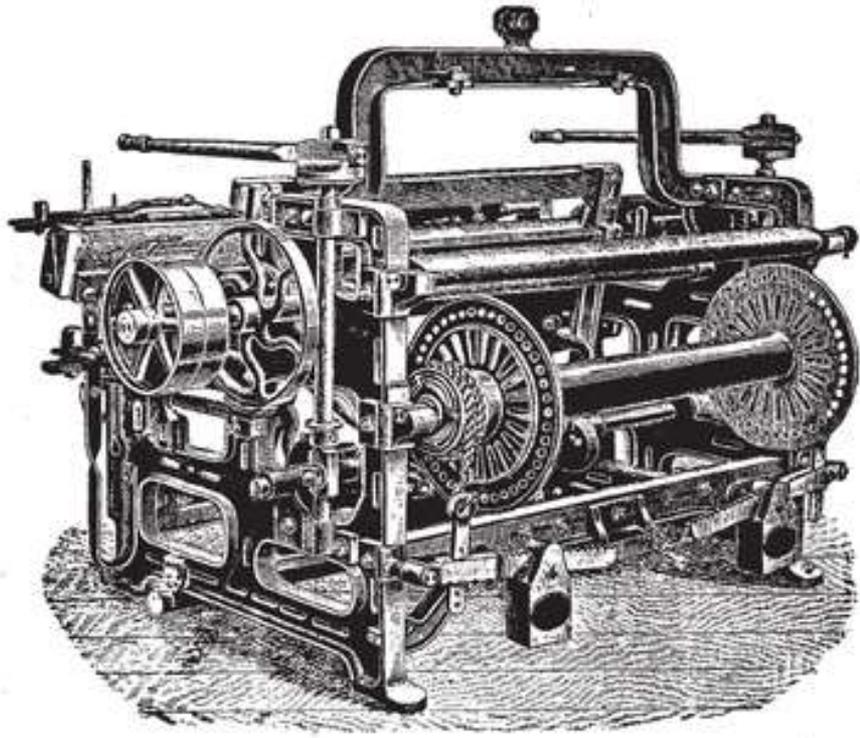
First power loom, 1784



1800



First Industrial Revolution



Water and steam power

First power loom, 1784

In 1787 Cartwright opened a weaving mill in Doncaster and two years later began using steam engines produced by **James Watt** and **Matthew Boulton**, to drive his looms.

2000

Second Industrial Revolution

Electric energy



1900



2000

Second Industrial Revolution

Electric energy

Electrical energy is a form of **energy** resulting from the flow of **electric** charge. **Energy** is the ability to do work or apply force to move an object. In the case of **electrical energy**, the force is **electrical** attraction or repulsion between charged particles.

1900

2000

Second Industrial Revolution

Electric energy

First assembly belt, 1870



1900



2000

Second Industrial Revolution

Electric energy

First assembly belt, 1870



Third Industrial Revolution

Electronics and
Information Technology



2000

Third Industrial Revolution

Electronics and
information technology

First programmable
logic controller, 1969

Wireless and
Mobile computing



2000

Third Industrial Revolution

Electronics and
information technology

First programmable
logic controller, 1969

Wireless and
Mobile computing



2000





Third Industrial Revolution

Electronics and
information technology

First programmable
logic controller, 1969

Wireless and
Mobile computing



2000

2100

Fourth Industrial Revolution

Cyber-physical systems



2000



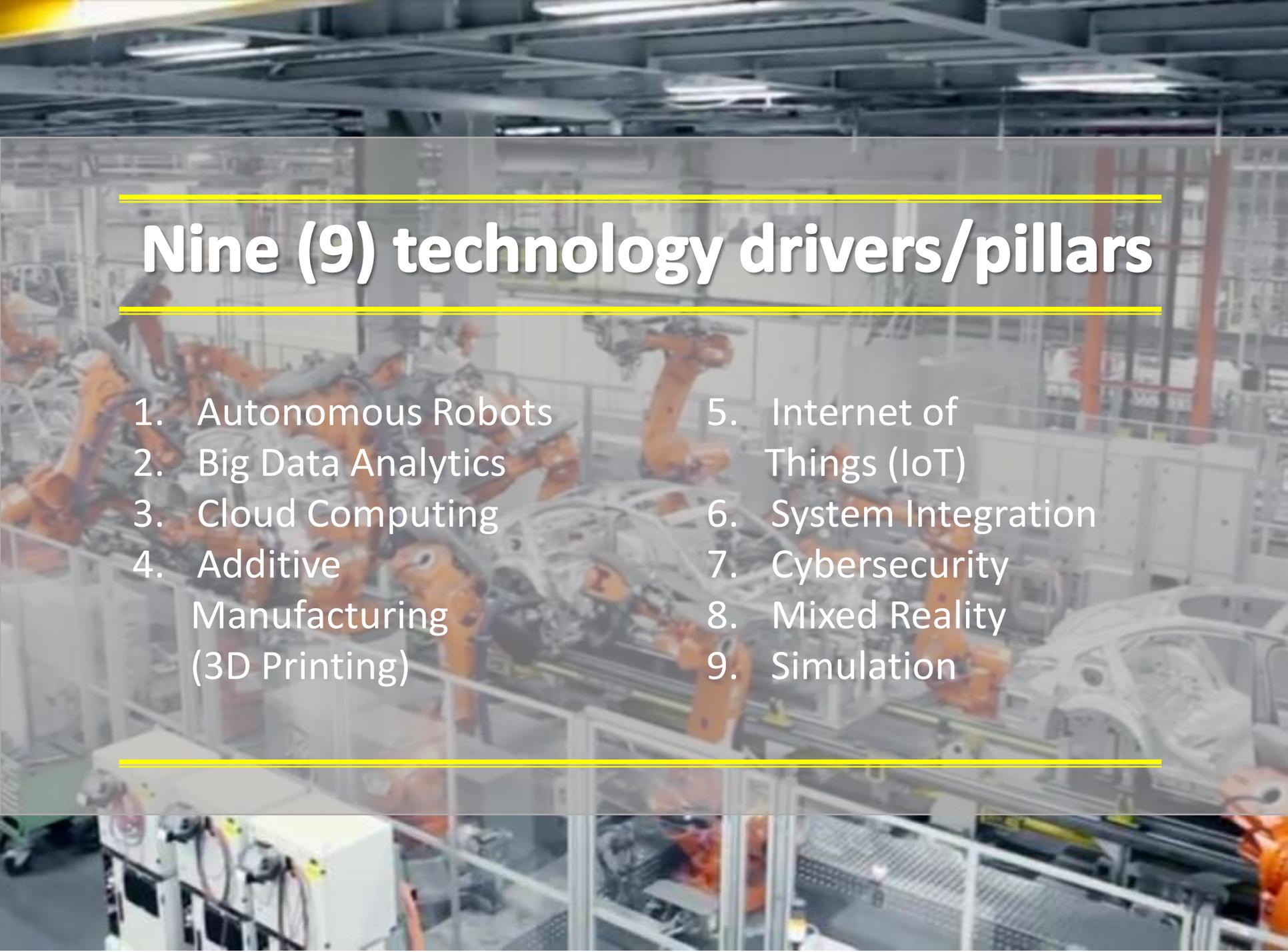


Industrial Revolution 4.0

Smart Manufacturing

Cyber-physical systems

Augmented Age



Nine (9) technology drivers/pillars

1. Autonomous Robots
2. Big Data Analytics
3. Cloud Computing
4. Additive Manufacturing (3D Printing)
5. Internet of Things (IoT)
6. System Integration
7. Cybersecurity
8. Mixed Reality
9. Simulation

IoT and Big Data



Autonomous Robots and Cybersecurity

Mixed Reality

Robotic Firefighters

The Academe as Catalyst for the Industrial Revolution 4.0



Global Innovation Index 2019 rankings

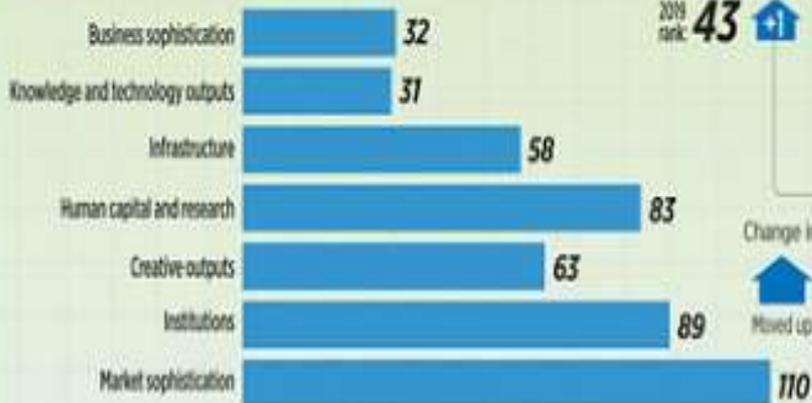
Country/Economy	Score (0–100)	Rank
Switzerland	67.24	1
Sweden	63.65	2
United States of America	61.73	3
Netherlands	61.44	4
United Kingdom	61.30	5
Finland	59.83	6
Denmark	58.44	7
Singapore	58.37	8
Germany	58.19	9
Israel	57.43	10
Republic of Korea	56.55	11
Ireland	56.10	12
Hong Kong, China	55.54	13
China	54.82	14
Japan	54.68	15

GLOBAL INNOVATION INDEX 2019

Innovation performance of select economies

Ranking of Philippines in the seven GII areas

(1 is highest possible ranking)



Global Top 10

2019 rank	Country	Change in ranking from 2018
1	Switzerland	Unchanged
2	Sweden	+1
3	USA	+3
4	Netherlands	-2
5	United Kingdom	-1
6	Finland	+1
7	Denmark	+1
8	Singapore	-3
9	Germany	Unchanged
10	Israel	+1

The 2019 Global Innovation Index, released on July 24, tracks the performance of 129 economies in fostering innovation and ranks them against 80 indicators ranging from traditional metrics such as research and development investments and international patent and trademark applications to newer indicators such as mobile-phone application creation and high-tech exports. Switzerland once again tops the list for the 2019 ranking while Singapore, at the eighth spot, is the highest-placed Asian economy and also leads among the eight Southeast Asian economies covered in the report. By comparison, the Philippines ranks 54th globally, 19 places up from the 2018 ranking.

VIETNAM
2019 rank: **42** +3

CAMBODIA
2019 rank: **98**

THAILAND
2019 rank: **43** +1

PHILIPPINES
2019 rank: **54** +19

Change in ranking from 2018

Moved up Moved down Unchanged

MALAYSIA
2019 rank: **35**

INDONESIA
2019 rank: **85**

SINGAPORE
2019 rank: **8** -3

BRUNEI
2019 rank: **71** -4

Business World (2019)



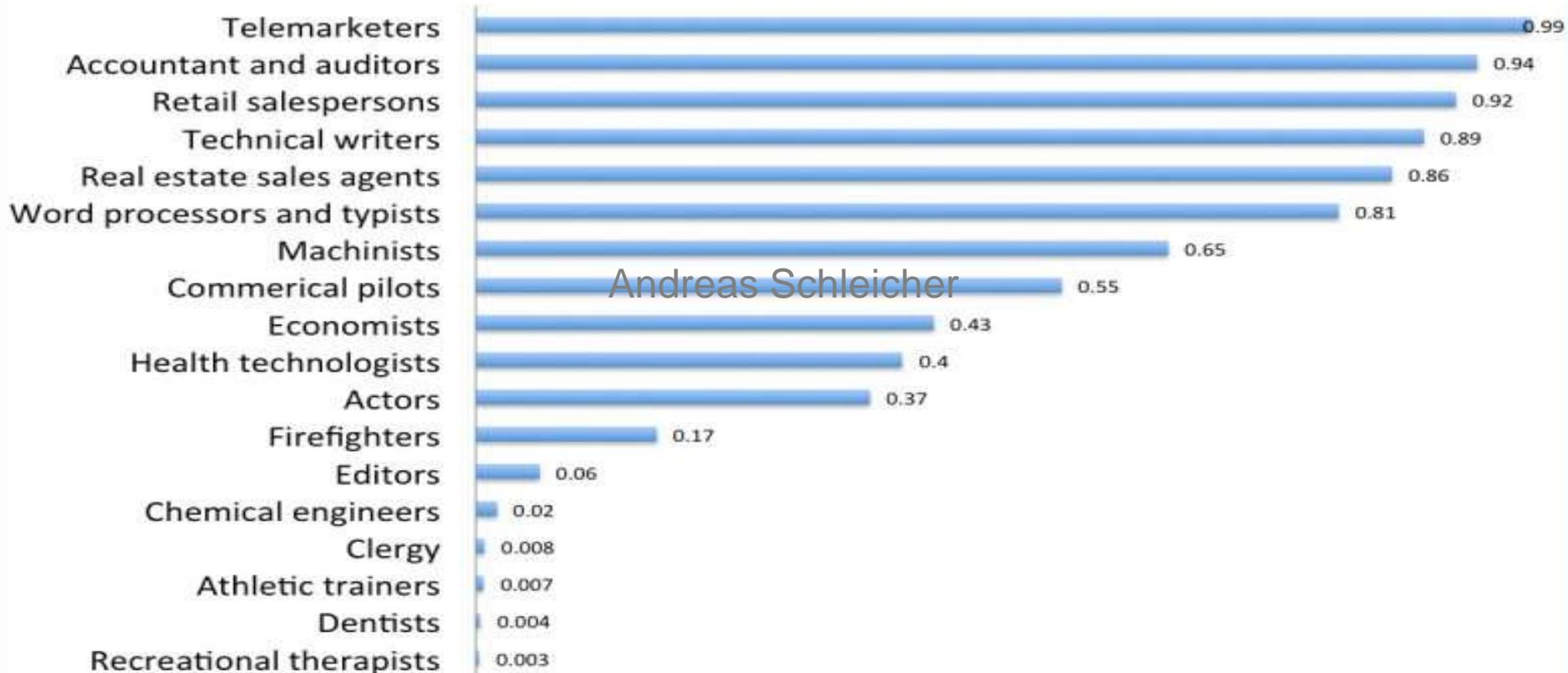


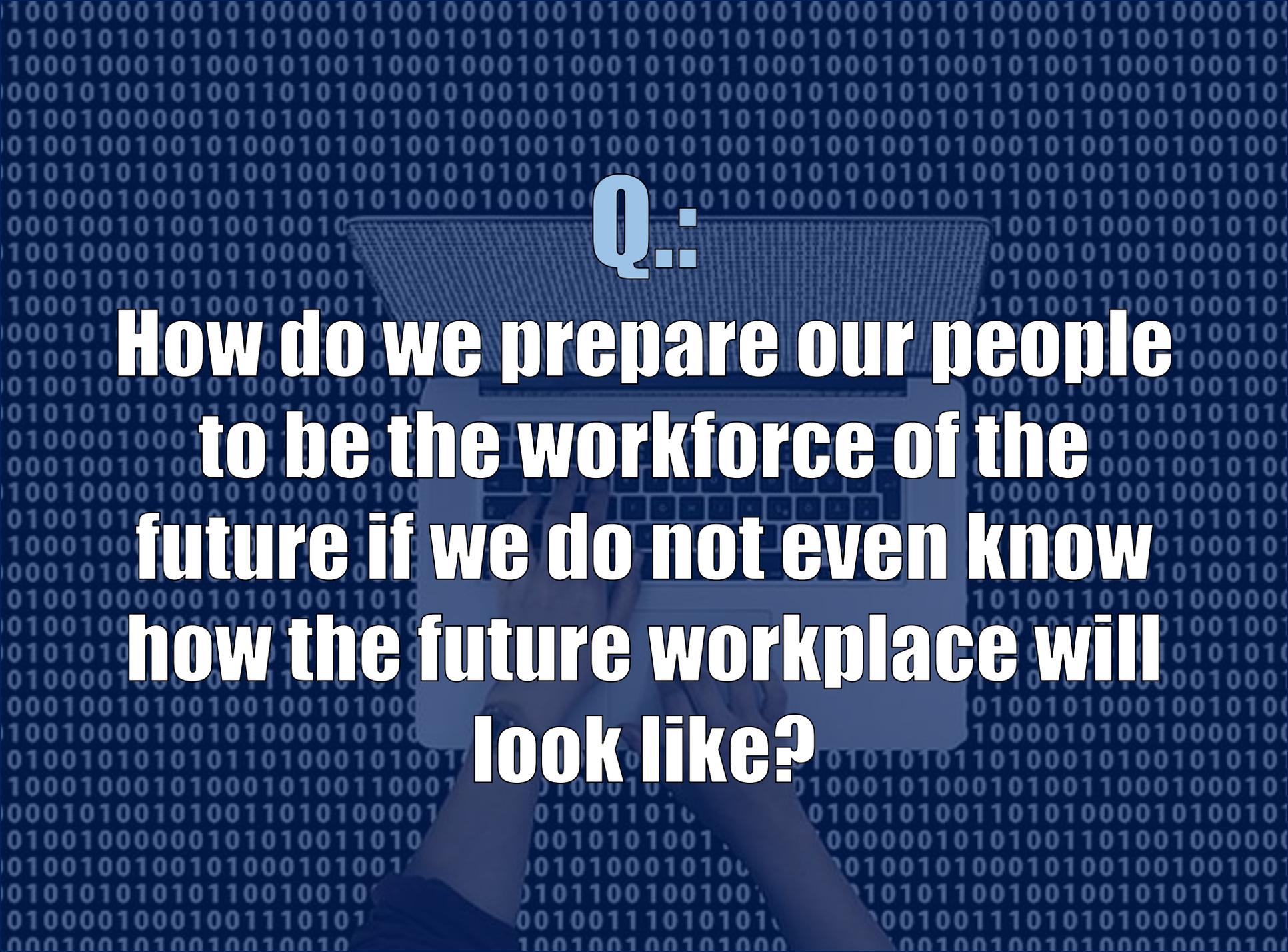
40%

**of the jobs
we know today
will be almost gone
by 2025**

Source: <https://www.economist.com/graphic-detail/2018/04/24/a-study-finds-nearly-half-of-jobs-are-vulnerable-to-automation>

Probability Robots Will Take Your Job In Next 20 Years, 1=Certain



A person is shown from the chest up, sitting at a desk with a laptop. The person is wearing a dark jacket and has their hands on the laptop. The background is a dark blue field filled with white binary code (0s and 1s) arranged in a grid pattern. The person and laptop are semi-transparent, allowing the binary code to be seen through them.

Q.:

How do we prepare our people to be the workforce of the future if we do not even know how the future workplace will look like?

21st Century Skills

They're essential in
the age of the
Internet.

Source: <https://www.aeseducation.com/careercenter21/what-are-21st-century-skills>
<https://www.oecd.org/site/educeri21st/40756908.pdf>

New Learning Paradigm

Traditional Learning	Social Learning
Classroom based	Anytime Anywhere
Curriculum based	Experience Based
Syndicated Content	Personalized & User Generated Content
Teacher/Trainer Centric	Learner Centric



Blended Learning Model



Community of Learners

Create private social learning groups to discuss and share ideas & opportunities to learn together as a community



Just-in-time

Make learning accessible anytime, and push updates & announcements to mobile devices



Track & Reward

Track training participation & measure training effectiveness, and use leaderboards to reward learners

Character

Attitude

Mindset

Flexibility

Adaptability

Agility

A group of business professionals in a meeting room are gathered around a wooden table. They are holding large, colorful puzzle pieces (yellow, blue, red, green) that are being assembled on the table. The scene is brightly lit, and the focus is on the collaborative effort of fitting the pieces together.

Outcome #1

**Solutions
Provider**

Solutions Provider

Problem being experienced by a substantial segment of society

Collective requirement of people in a potential market segment

Recognition

PAIN POINTS

Pain Points

Exercise with a Partner

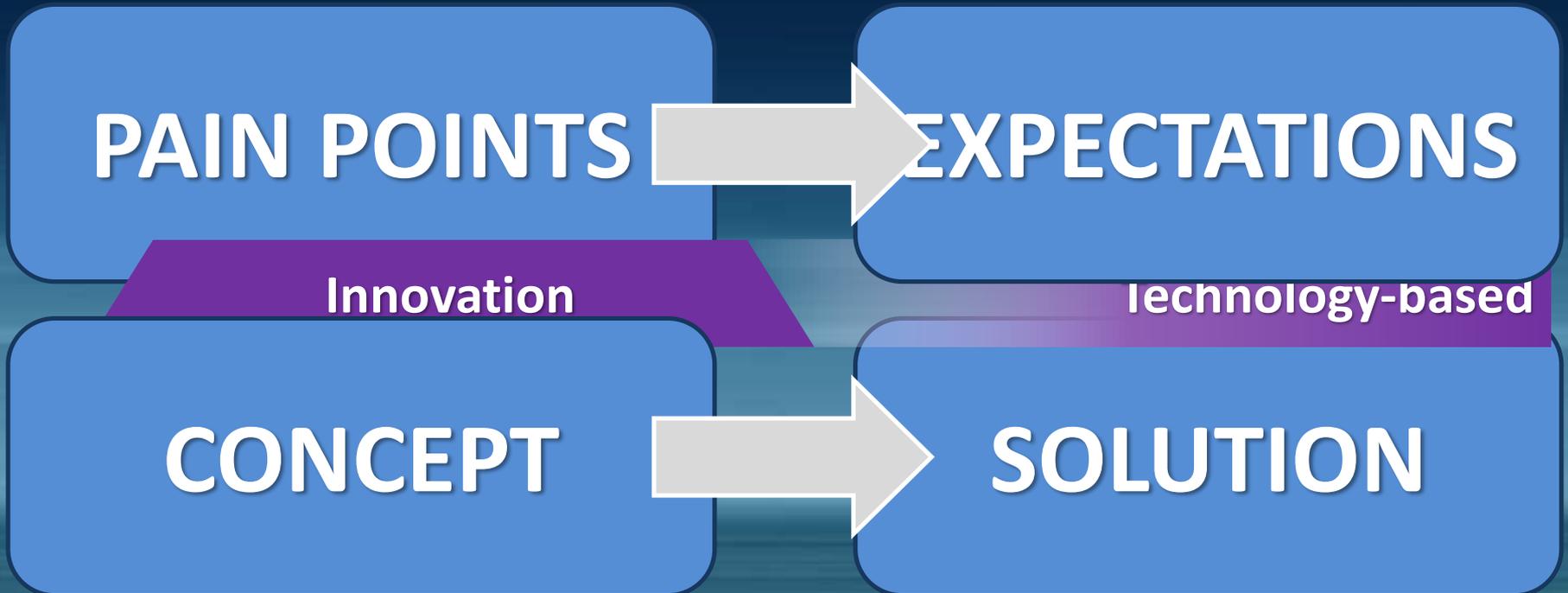
**EXCHANGE
PAIN POINTS**



Outcome #2

**Market
Driven**

Market Driven





+



=



SKIN

SOLE

SHOOZ



Outcome #3

Keen
Observer

Keen Observer

**Refining of
ideas**

**FIRMING UP
OF AN
INVENTION**

**EMPLOYING
SUCCESSIVE
CREATIVE
ITERATIONS**

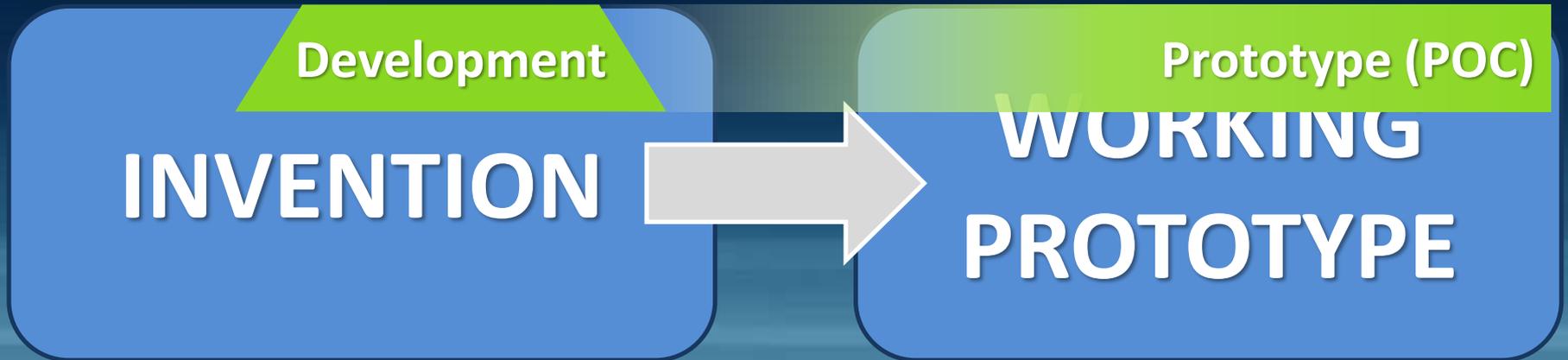
**The correct answer is 15
But did you see the gorilla?**



Outcome #4

Attentive
to
Details

Attentive to Details



Exercise with a Partner

**CHANGE
BLINDNESS**



Outcome #5

**Committed
to
Excellence**







Outcome #6

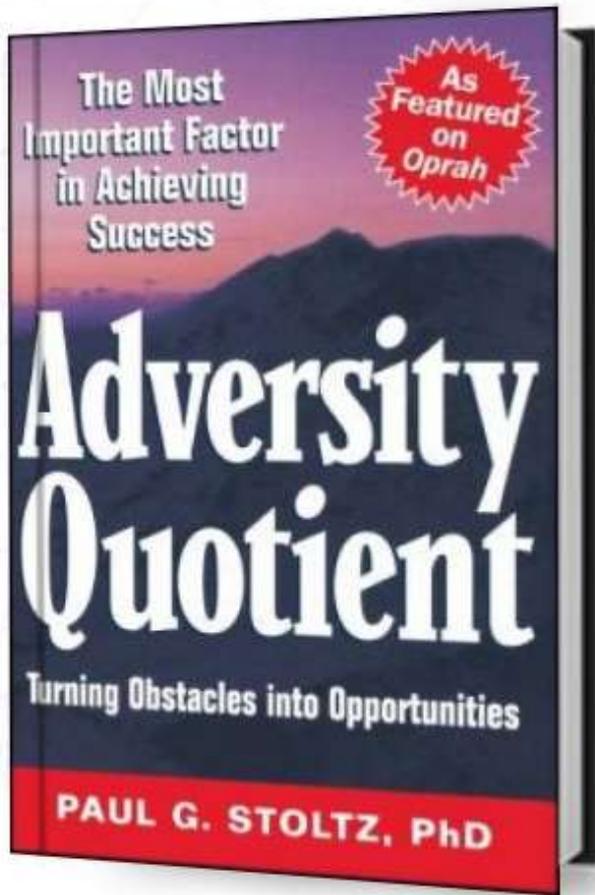
**Possesses
Grit**

A photograph of Angela Lee Duckworth, a woman with dark hair, wearing a black patterned top, speaking and gesturing with her hands. The background is a blurred blue stage.

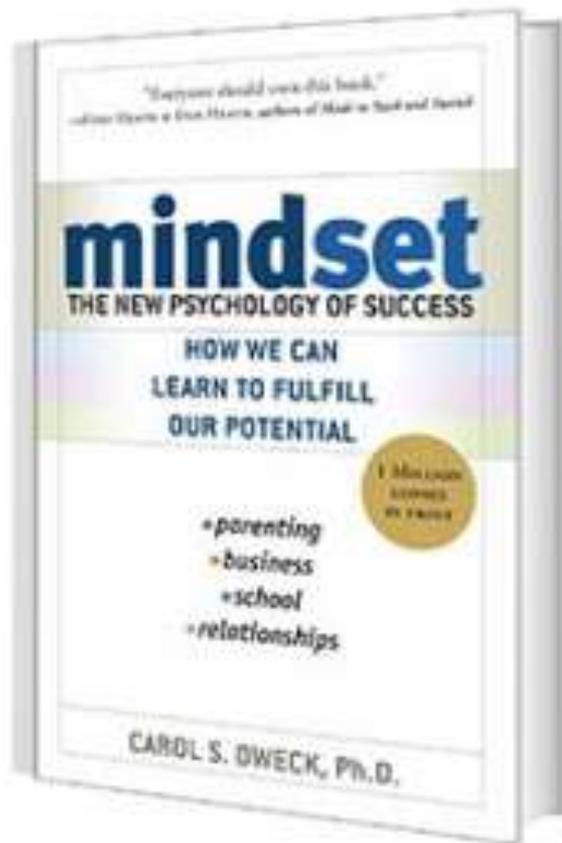
*“Grit is
living life
like a
marathon,
not a
sprint.”*

Angela Lee Duckworth | TED Talks Education

**Grit: The power of passion and
perseverance**

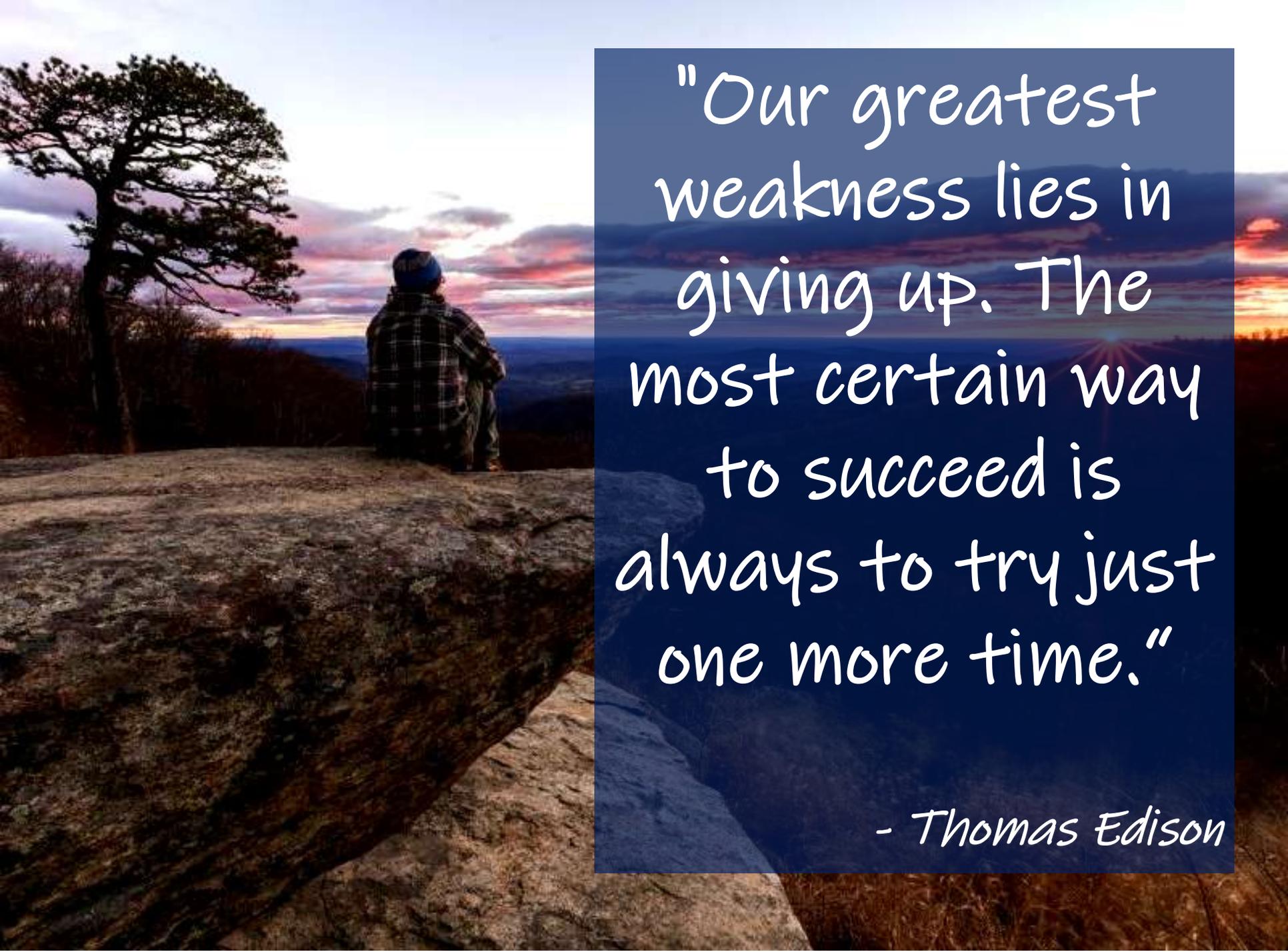


Grit in psychology is a positive, non-cognitive trait based on an individual's perseverance of effort combined with the passion for a particular long-term goal or end state. This perseverance of effort promotes the overcoming of obstacles or challenges that lie on the path to accomplishment and serves as a driving force in achievement realization.



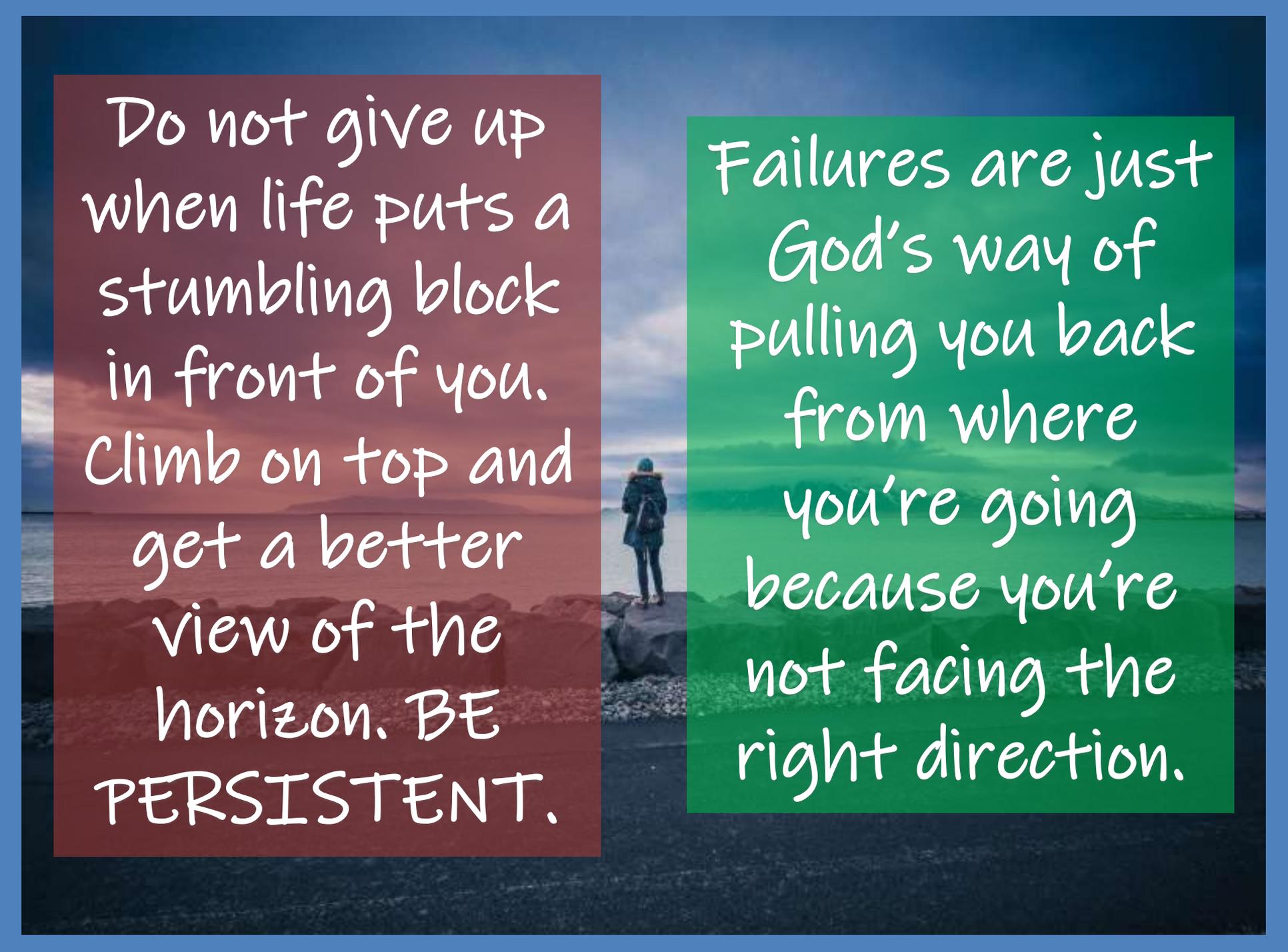
GROWTH MINDSET

When students believe they can get smarter, they understand that effort makes them stronger. Therefore they put in extra time and effort, and that leads to higher achievement.

A person wearing a plaid jacket and a blue beanie is sitting on a large, flat rock on a hillside. They are looking out over a valley towards a sunset. The sky is filled with colorful clouds in shades of orange, pink, and purple. A large, dark tree stands to the left of the person. The overall scene is serene and contemplative.

"Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time."

- Thomas Edison

A person wearing a dark jacket and a hat stands on a rocky shore, looking out at the ocean under a cloudy sky. The scene is split into two vertical panels with text overlays. The left panel has a reddish-brown background, and the right panel has a green background.

Do not give up
when life puts a
stumbling block
in front of you.
Climb on top and
get a better
view of the
horizon. BE
PERSISTENT.

Failures are just
God's way of
pulling you back
from where
you're going
because you're
not facing the
right direction.

26.

a.



b.



c.



d.



Do not go back to your
'eX'.

Just MOVE ON ...



Thank
you!!

**Contact me:
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