Digital Transformation Topics, Perspectives and Opportunities to Help Cameroon Succeed and Thrive in the Post COVID-19 World

Prepared for
The CAPDA Conference in Yaounde & Libreville Cameroon, Central Africa

William Favre Slater, III
Chicago, Illinois
July 23, 2020

Slater Technologies

Internet Society Blockchain SIG

Internet Society Cameroon Chapter

Disclaimer

This presentation will be delivered at the request of the organizers of the CAPDA Conference in Yaounde & Libreville, Cameroon.

The content presentation is from William Favre Slater, III, a private U. S. Citizen, & President of Slater Technologies, Inc., and his research sources. It was prepared and presented with Good Will as a Service to Benefit the Good Citizens of Republic of Cameroon, and not as a representative of the U.S. Government or the Internet Society.

Mr. Slater only represents himself in his dealings with the Citizens of Cameroon and is solely responsible for his comments and content.

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Objectives :

- ✓ Lessons learned and Diagnostics from the pandemic with a view to carrying out an effective audit of the level of digitalization of processes and training.
- ✓ Listen, understand what is going on and question certain doubts.
- ✓ Reevaluate the global digital strategic chain for the benefit of emerging markets with the aim for a better and affordable internet and innovative fluidity.
- ✓ Appreciate and strengthen our resilience in terms of teleworking, distance learning and online management
- ✓ Effectively manage future digital changes, disruptions and transformations.

Expected results:

- ✓ Transformation of teleworking and distance learning into a real performance lever.
- ✓ New social agreement to bounce back from pandemic.
- ✓ Identifications of the various innovations resulting from pandemics.
- ✓ Listing of digital opportunities available in the aftermath of the crisis.
- ✓ Maturation of teleworking and distance learning.

Sub-themes:

1. « How to reinvent our society at the end of the current crisis »
2. « Post health crisis: Vision, perspective and leadership »
3. « New global perspectives, challenges and development opportunities »
4. « Make distance training and telecommuting a real performance lever »
5. « Regional integration and issue of digital transformation: consultation framework. »
6. « Innovation strategies for better choices for Africa; support of the informal sector and capital market. »
7. « The geopolitical war around Artificial Intelligence.
8. What digital independence for what sovereignty? »
9. « The contribution of Data in data security and digital architecture. »
10. « Digital perspective and transformative leadership: teleworking and speed / agility of decisions Perspective. »
11. "The fourth industrial revolution, its socio-economic impact and the challenges ahead"

Executive Summary

- 2020 has brought the entire World many unexpected surprises and business challenges.

- For Leaders are strategic and resourceful, Technologies such as the Internet, distributed & decentralized computing, AI, Blockchain & Quantum Computing offer great hope for the future.

- This presentation will present Digital Transformation Topics, Perspectives and Opportunities to Help Cameroon Succeed and Thrive in the Post COVID-19 World.

Agenda

- Executive Summary
- Agenda
- The World in 2020
- CAPDA Digital Transformation Topics, Perspectives and Opportunities to Help Cameroon Succeed and Thrive in the Post COVID-19 World
- Why Is There Hope?
- Africa & Cameroon & Me
- Conclusion
- Resources
  - Cameroon Today
    - Demographics & Education
    - Economy
    - Geography
    - The Political Situation
    - Electrical Infrastructure
    - ICT Capabilities
    - ICT Influencers & Development Opportunities
  - Additional Resources

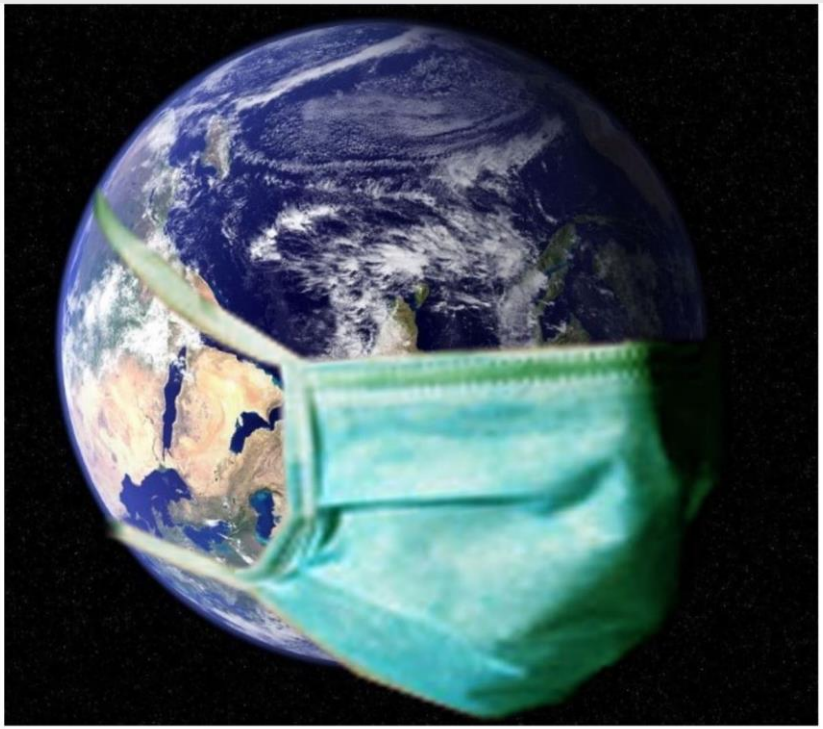
The World in 2020

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

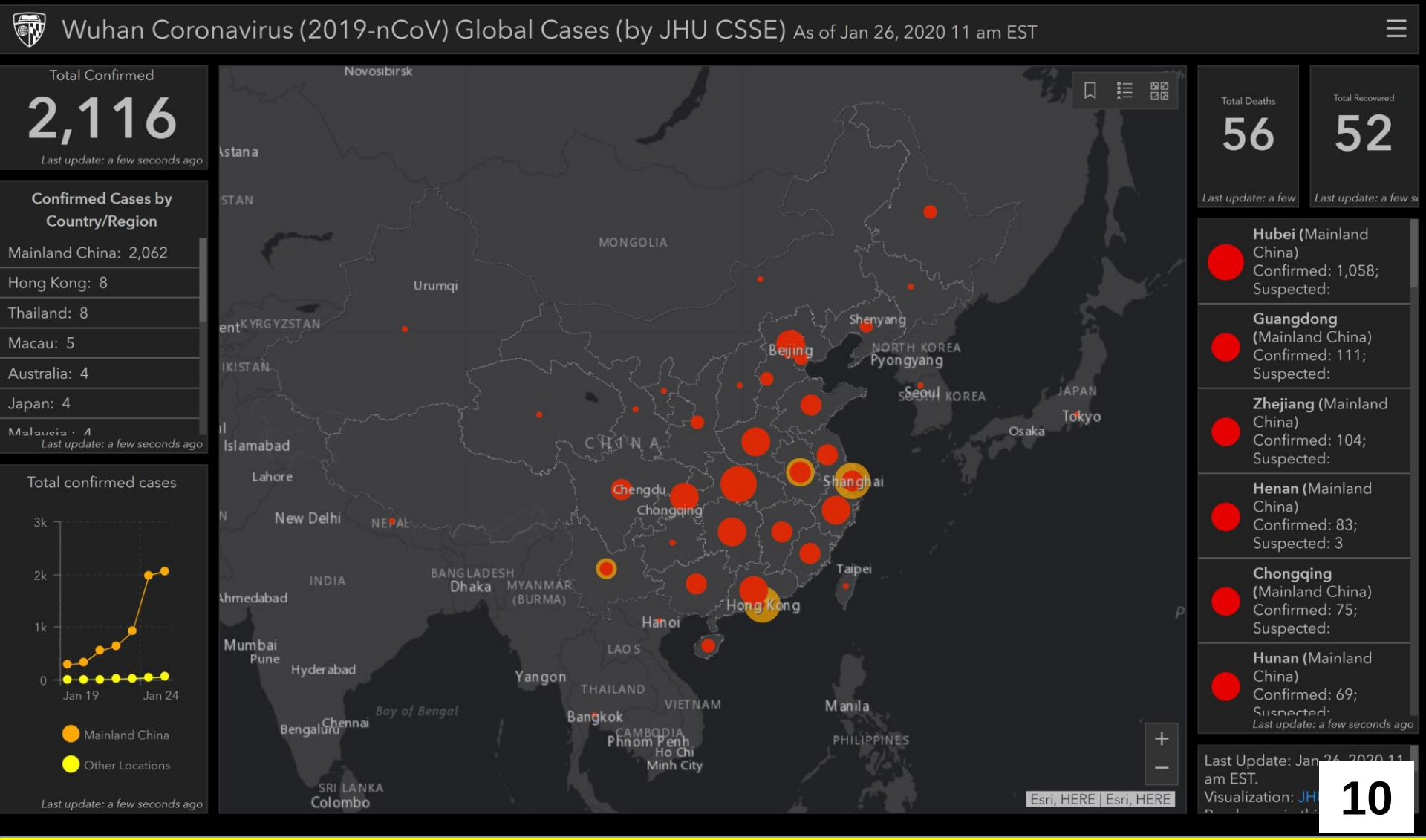
The World in 2020

Remember that ancient Chinese Curse, "May You Live in Interesting Times."?

1. **CoronaVirus & COVID-19**
2. **Global Pandemic**
3. **Economic Uncertainty**
4. **Layoffs**
5. **Civil Unrest & Riots**
6. **Lockdowns**
7. **Social Distancing**
8. **Teleworking**
9. **Masks**
10. **Contact Tracing**
11. **Fear Everywhere**

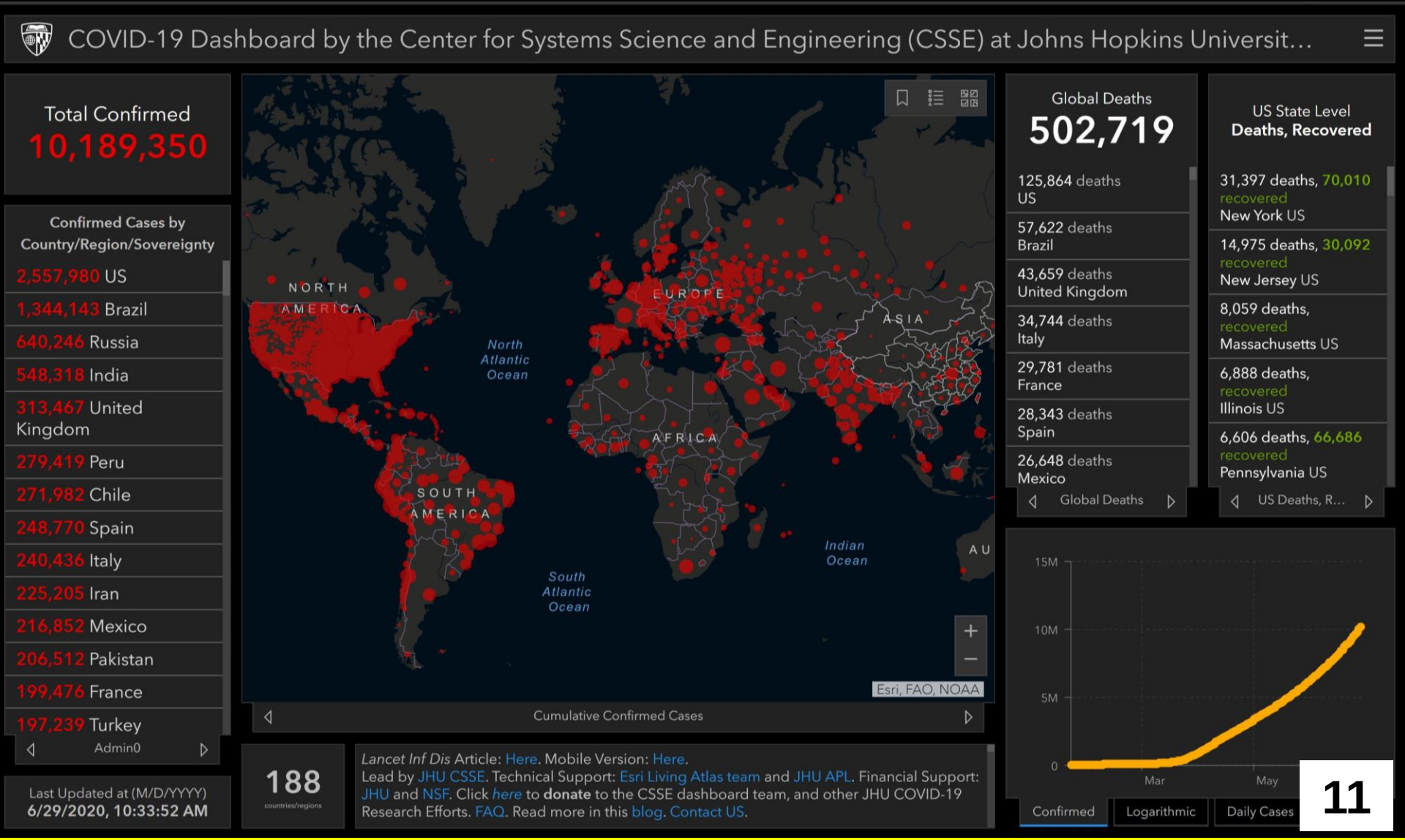


CoronaVirus Heatmap – Johns Hopkins University – January 26, 2020



Slater Technologies
Internet Society Blockchain SIG
Internet Society Cameroon Chapter

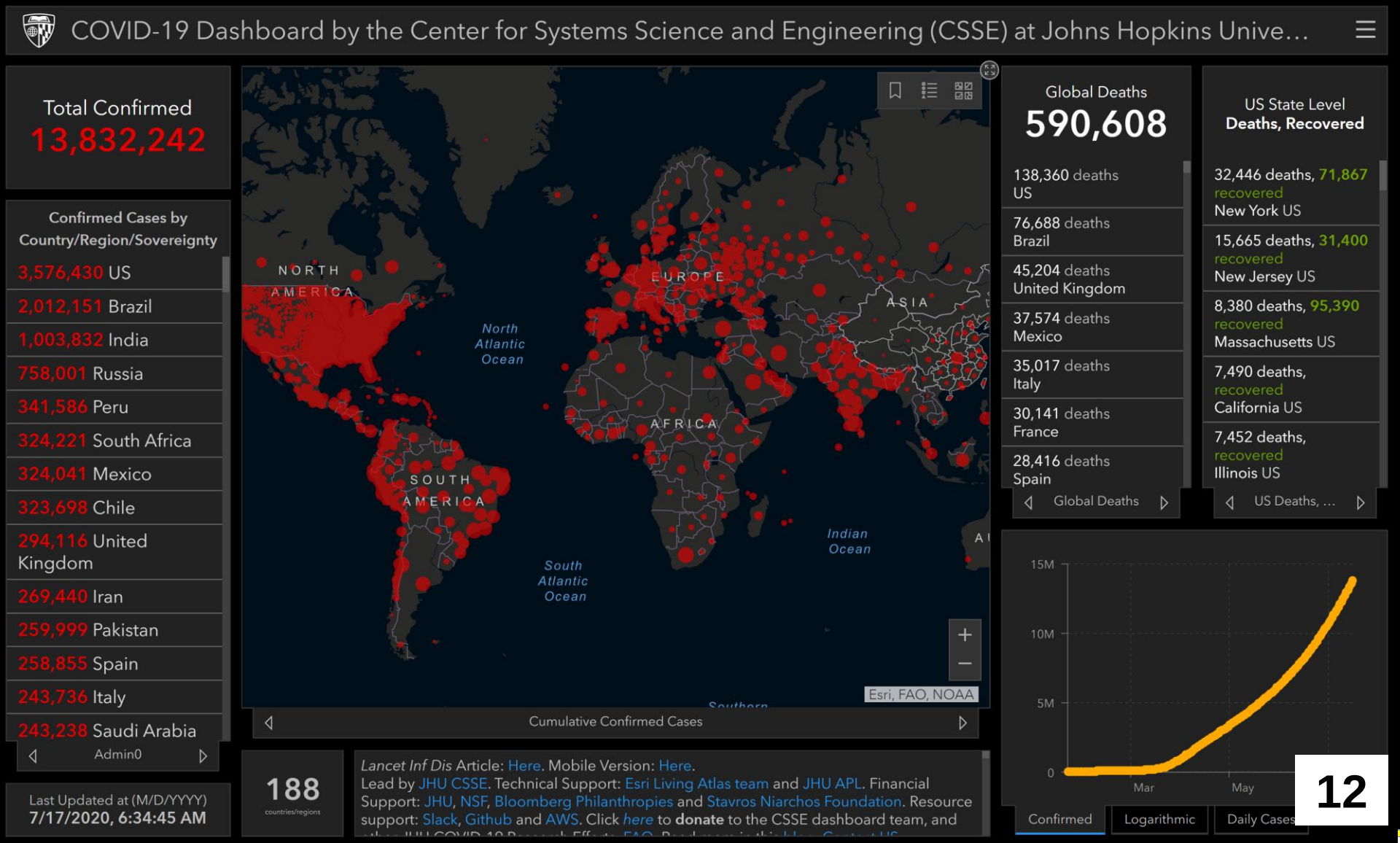
CoronaVirus Heatmap – Johns Hopkins University - June 29, 2020



11

Slater Technologies
Internet Society Blockchain SIG
Internet Society Cameroon Chapter

CoronaVirus Heatmap – Johns Hopkins University - July 17, 2020

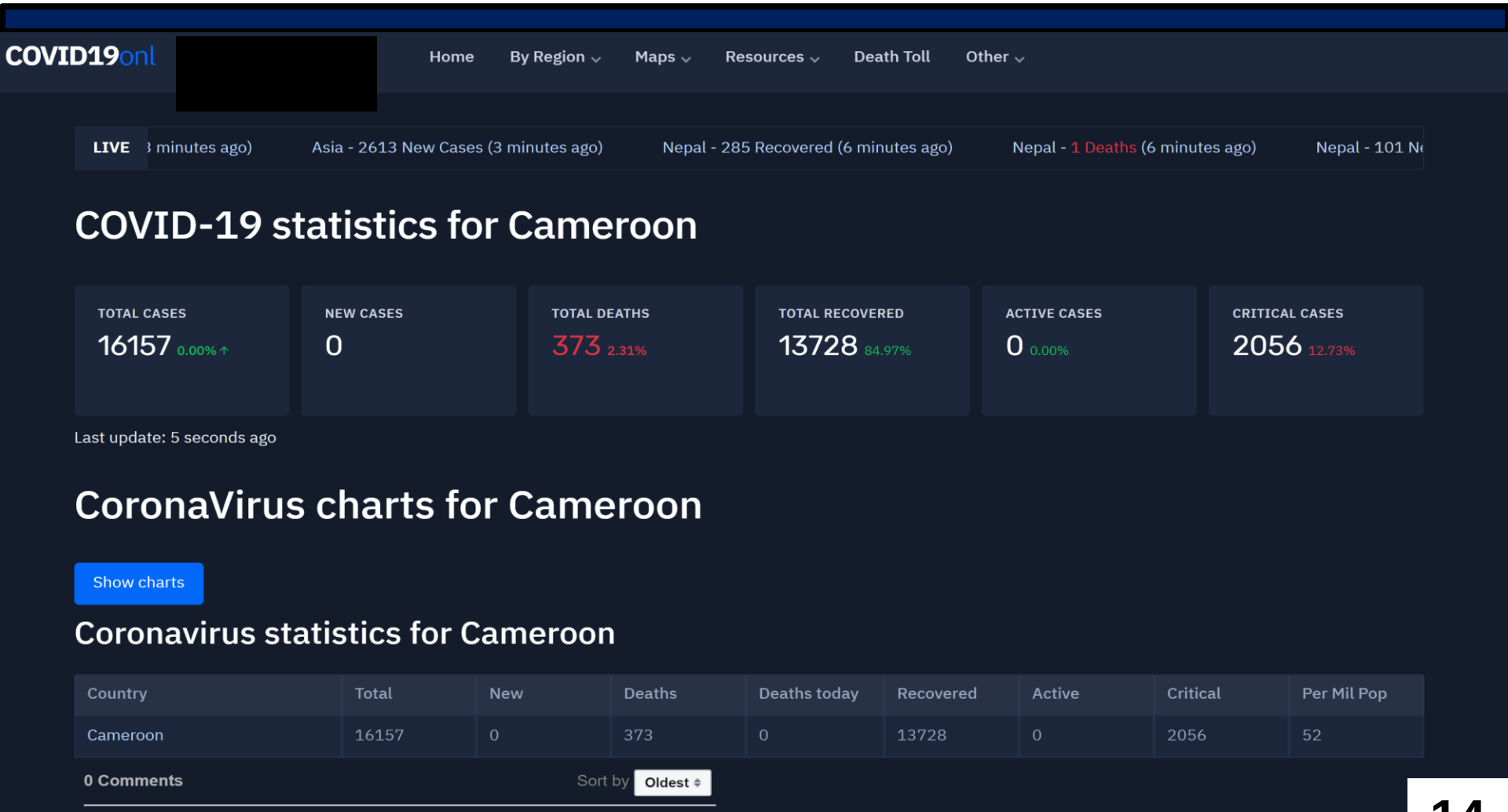


12

Slater Technologies
Internet Society Blockchain SIG
Internet Society Cameroon Chapter

Cameroon Today – The COVID-19 Crisis

Cameroon Today – The COVID-19 Crisis

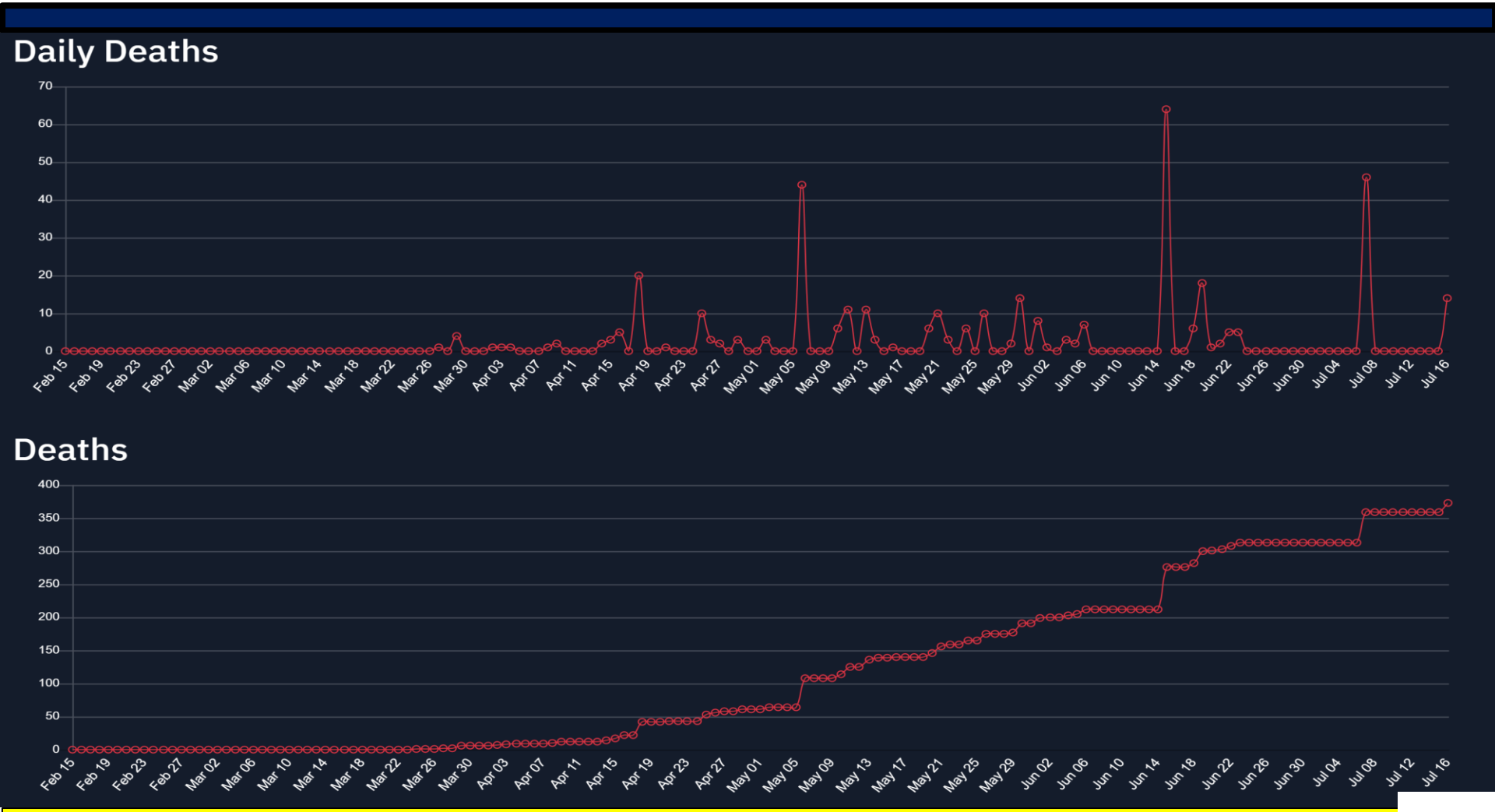


Source: COVID-19 statistics for Cameroon. Retrieved from https://www.covid19.onl/country/cameroon on July 17, 2020.

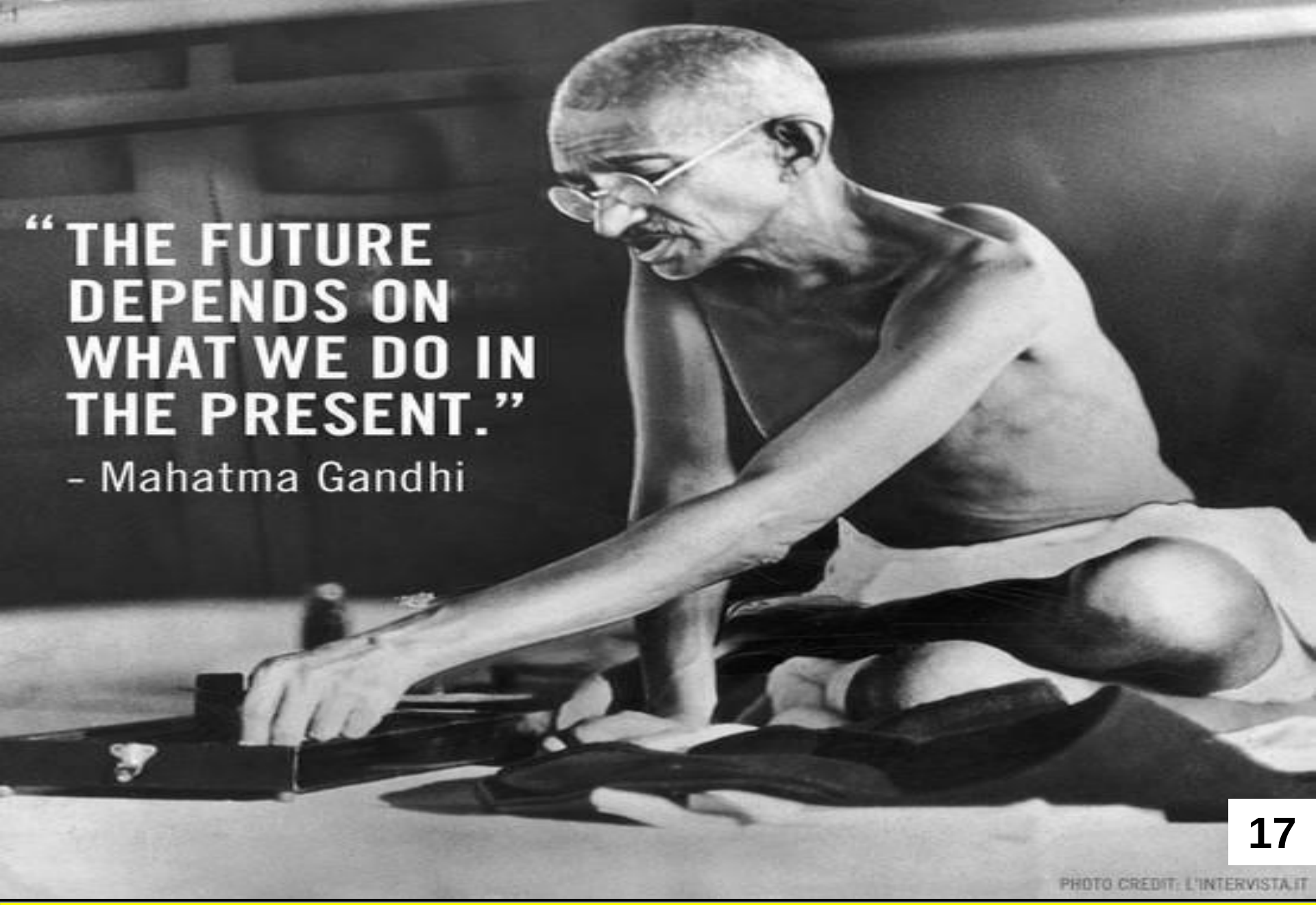
Cameroon Today – The COVID-19 Crisis

Source: COVID-19 statistics for Cameroon. Retrieved from https://www.covid19.onl/country/cameroon on July 17, 2020.

Cameroon Today – The COVID-19 Crisis



Source: COVID-19 statistics for Cameroon. Retrieved from https://www.covid19.onl/country/cameroon on July 17, 2020.


“THE FUTURE DEPENDS ON WHAT WE DO IN THE PRESENT.”
- Mahatma Gandhi
PHOTO CREDIT: L'INTERVISTA.IT

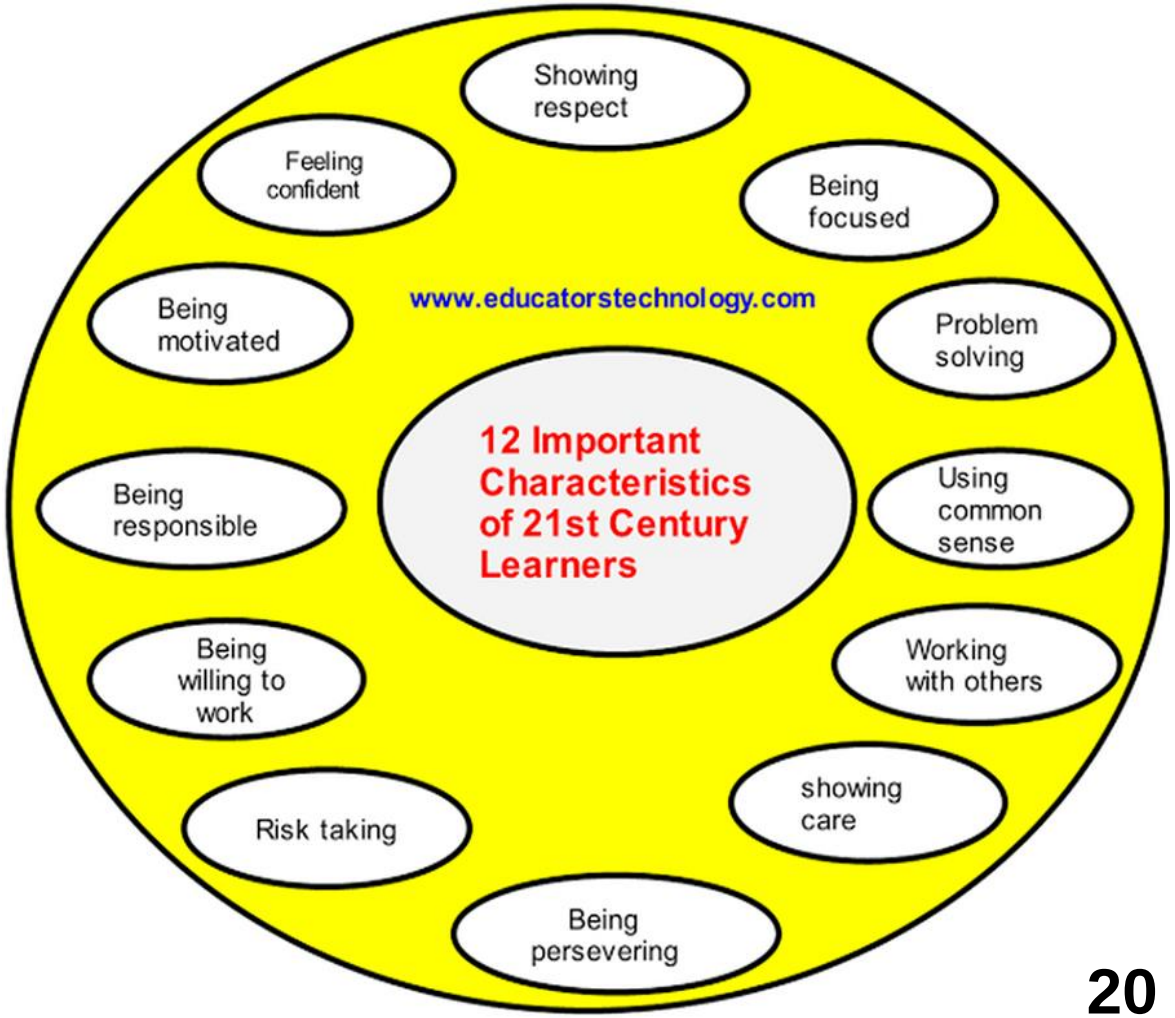
"The future is already here – it's just not evenly distributed."
–William Gibson

How to Reinvent Our Society at the End of the Current Crisis

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

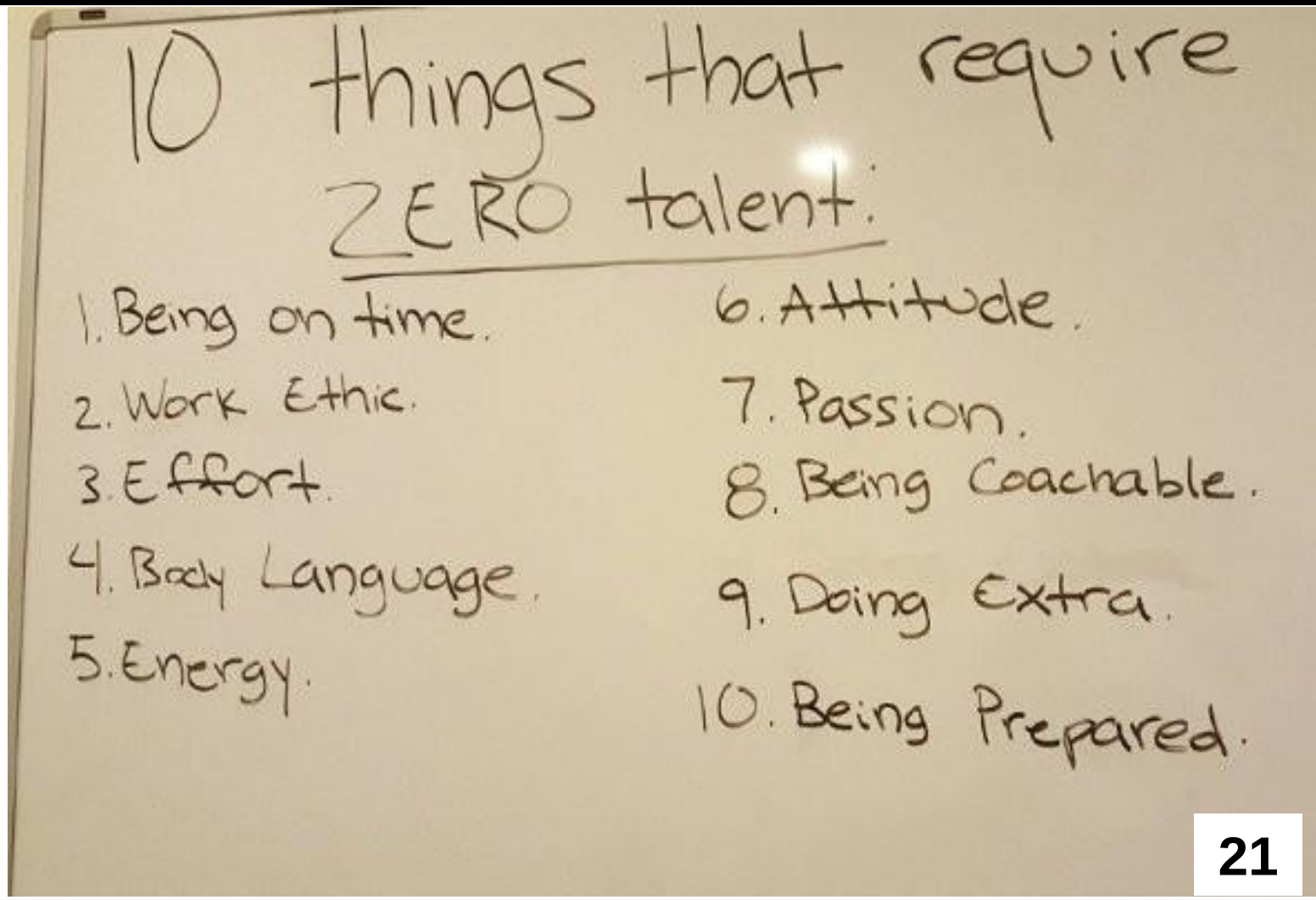
Reinventing Cameroonian Society at the End of the Health Crisis

- Design a World based on Values of Unity, Equality, Understanding, and Mutual Respect
- Understand and document the importance of interdependence, and mutual support.
- Create infrastructures, technologies, policies and procedures that enable communication at the speed of 21st Century Business.
- Prepare for, enable, and embrace the 4th and 5th Industrial Revolutions.



Reinventing Cameroonian Society at the End of the Health Crisis

- 10 Things that Require ZERO Talent **(and ZERO Money)**



Reinventing Cameroonian Society at the End of the Health Crisis

What Would It Take to Reskill Entire Industries?

Today, we believe this need is no longer just a recommendation, but a necessary step to economic recovery. The good news is that some investments in reskilling are already in the works. In the last year, many of the world's largest employers have made pledges to help their workforces build new skills. Amazon announced a $700 million fund to reskill 100,000 workers. Orange, the French telecoms giant, announced an investment of €1.5 billion for a similar initiative. And PwC, the global professional services firm, tops those with an investment pledge of $3 billion.

Miguel Navarro/Getty Images

Tweet from me on April 30, 2020:
#Yuge #CybersecurityTrainingNews

#Fortinet Makes All Online #CybersecurityTraining Courses Available for Free to Address Skills Gap
https://finance.yahoo.com/news/fortinet-makes-online-cybersecurity-training-130010867.html

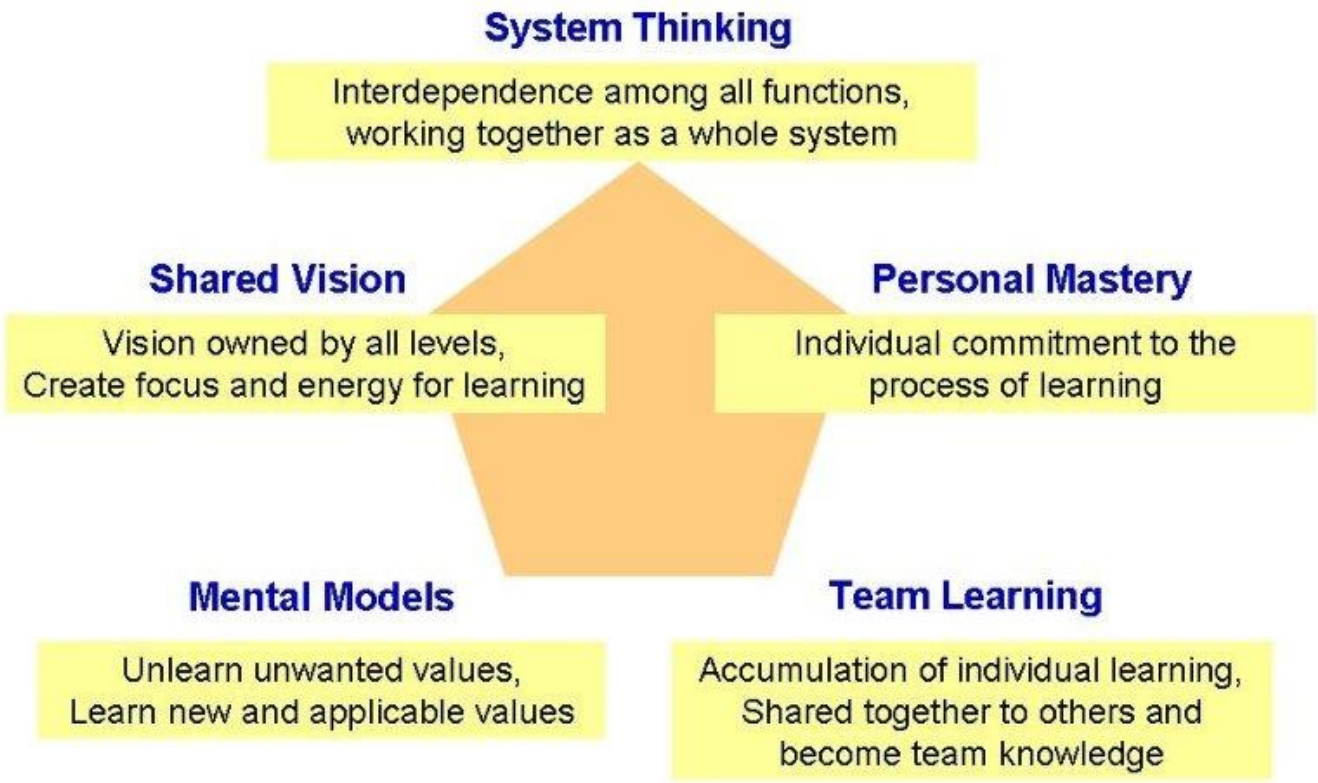
Source: Chopra-McGowan, A. and Reddy, S. B. (2020). What Would It Take to Reskill Entire Industries? Retrieved from https://hbr.org/2020/07/what-would-it-take-to-reskill-entire-industries on July 14, 2020.

Post Health Crisis:
Vision, Perspective & Leadership

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Post Health Crisis: Vision, Perspective & Leadership

Learning Organization Components



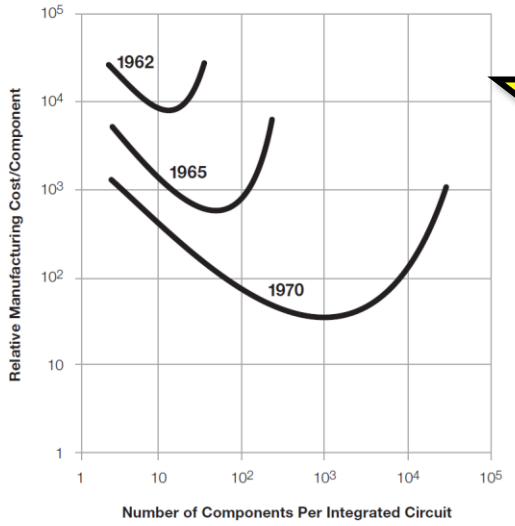
Concept taken from Peter Senge – The Fifth Discipline

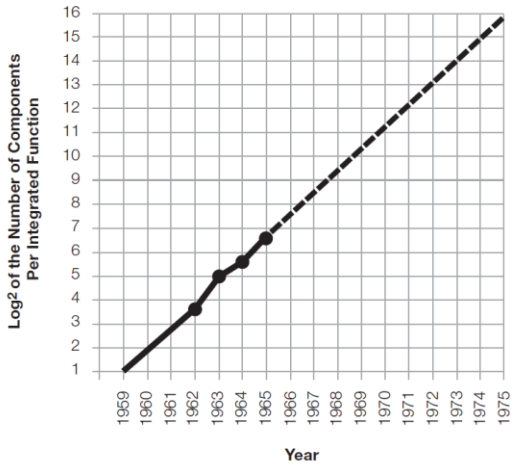
New Global Perspectives, Challenges and Development Opportunities

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

New Global Perspectives, Challenges and Development Opportunities

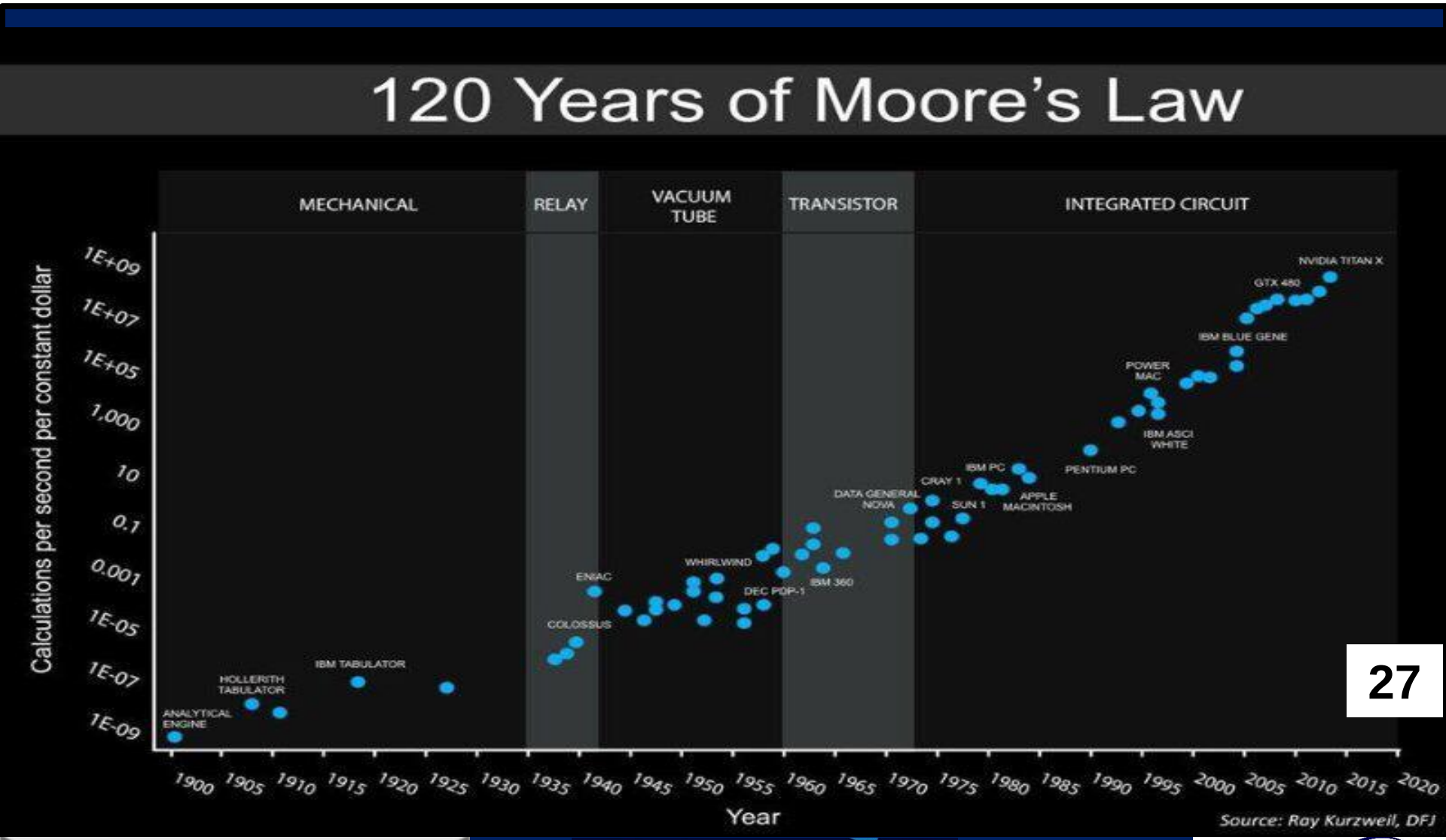
- Ever since ***Moore's Law*** was introduced in April 1965, technology leaders have realized that electrical parts such as computers and memory and networking devices have a finite useful life and that their value decreases rapidly over time.
- **The challenge for technology leaders and stakeholders** is to make the correct choices and investment decisions with an understanding that the whatever they decide today will be less valuable and obsolete in 4 to 6 years. For example, in the U..S., big tech firms replace the servers in their Data Centers every 48 to 60 months.
- **The challenge is for the users of new technologies**: they must rapidly, continually retool and master the skills to required tp deliver the maximum return on investment to the managers who made the decisions to acquire these technologies. ICT professionals are therefore always having to rapidly learn new skills just to keep up in their profession.



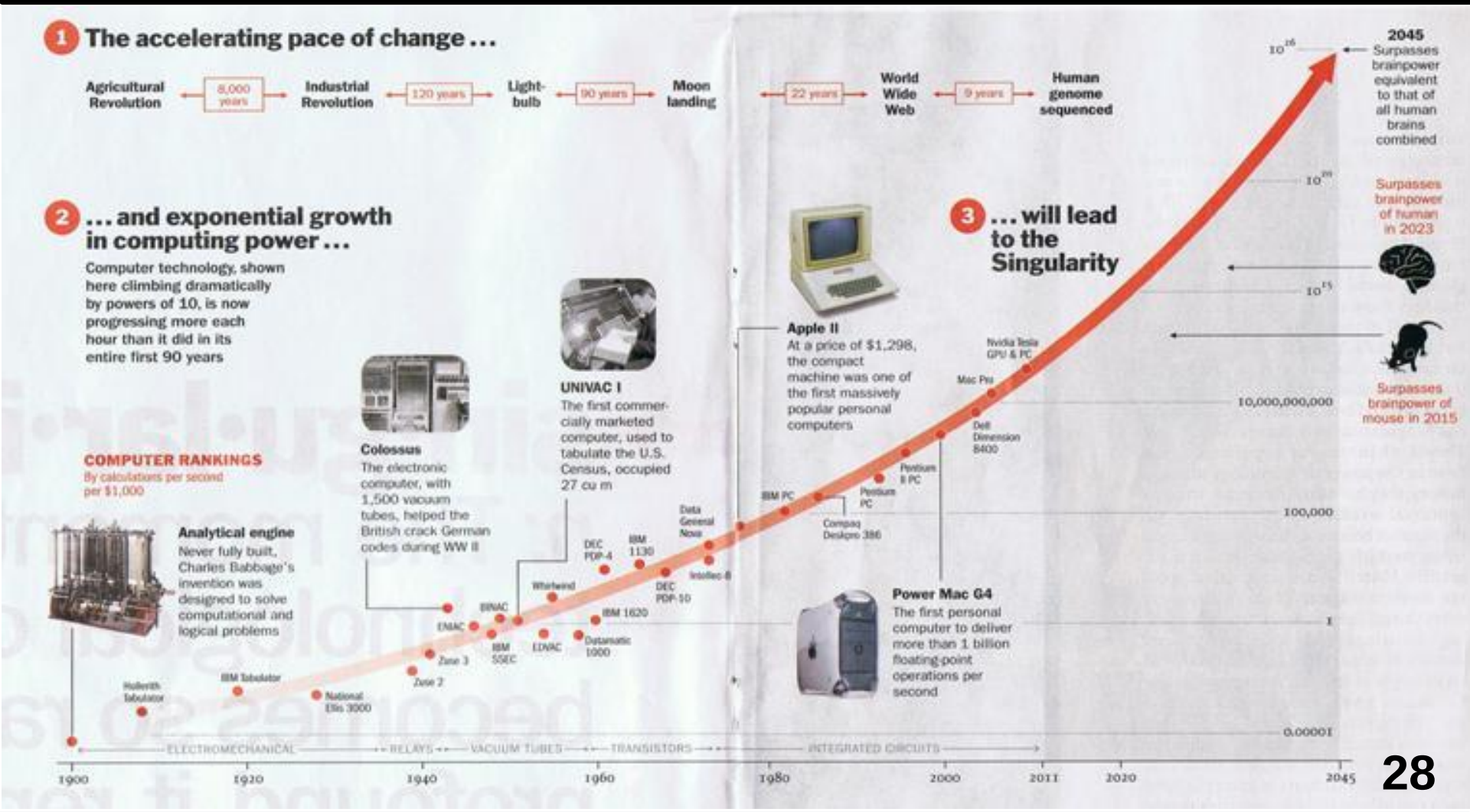


Source: Moore, G. E. (1965). Cramming More Components onto Integrated Circuits. Published in Electronics Magazine, April 1965. .

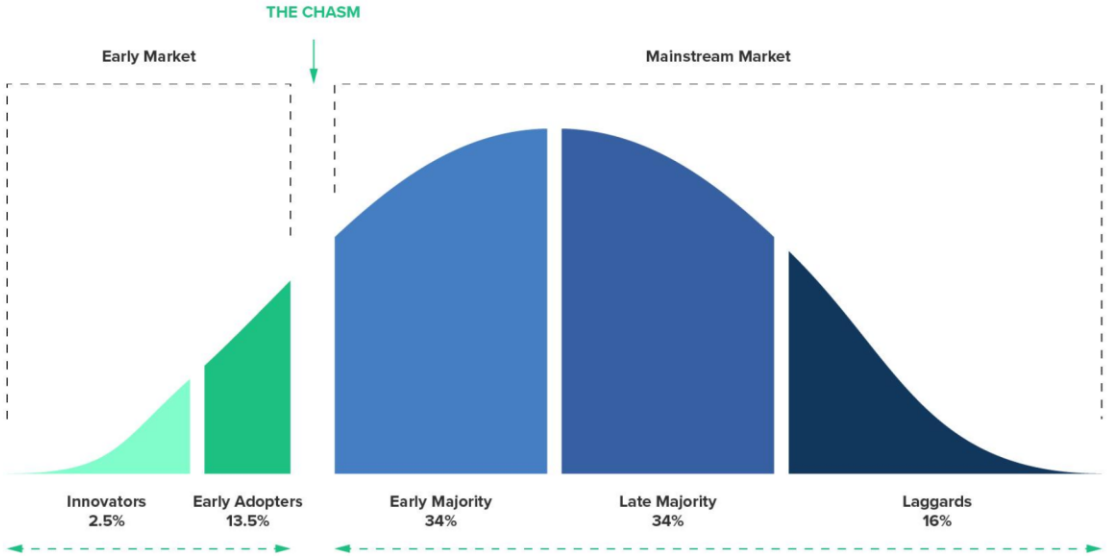
New Global Perspectives, Challenges and Development Opportunities



New Global Perspectives, Challenges and Development Opportunities



New Global Perspectives, Challenges and Development Opportunities



Bell curve graphic of the technology adoption life cycle.

In the technology adoption life cycle, "Innovators" are the smallest group, yet the most successful. They are followed by "Early Adopters," then "Early Majority," and later, "The Majority," or everyone else. As innovators, great designers usually fall into the "Early Adopters" category—big risk takers in uncharted territory. A great designer is also a visionary with the ability to think strategically and analyze trends in order to design better products or services.

Source: Bharadwaj, H. (2018). New Realities: VR, AR, MR, and the Future of Design.

New Global Perspectives, Challenges and Development Opportunities

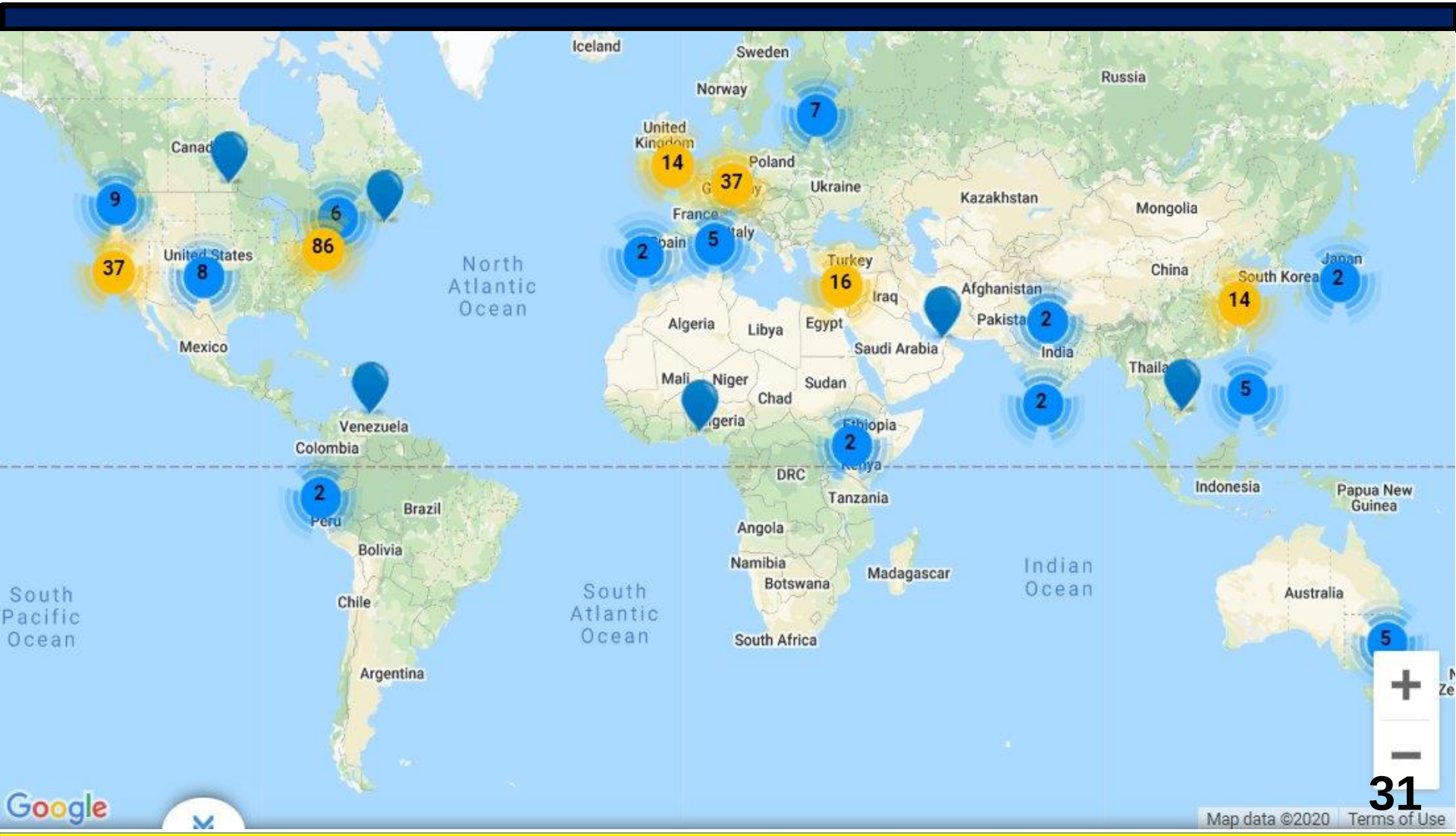
The Drivers of Rapid Technology Adoption

Across industries, there is a broad consensus that the opportunities to reduce costs and digitally transform are the biggest factors behind the shift to more rapid implementation, followed by competitive fear.

	Opportunities to reduce costs	Opportunities for digital transformation	Competitive fear	Consumer product awareness (for example, iPads)	Pressure from the business units	Pressure from the C-suite	Pressure from senior management	Pressure from line management
Automotive	50%	100%	50%	0%	0%	0%	0%	0%
Banking	50%	33%	67%	0%	17%	17%	0%	0%
Consulting	43%	29%	29%	57%	43%	29%	43%	0%
Consumer	100%	100%	100%	50%	0%	0%	0%	0%
Education	44%	67%	22%	33%	33%	22%	11%	11%
Energy	80%	80%	20%	40%	20%	0%	0%	0%
Engineering	80%	20%	80%	0%	0%	0%	0%	0%
Financial Services	63%	69%	50%	38%	38%	25%	19%	6%
Food and Beverage	100%	33%	0%	67%	67%	33%	0%	67%
Government	83%	100%	33%	67%	0%	0%	0%	0%
Health Care	77%	46%	54%	38%	46%	31%	31%	8%
Insurance	33%	67%	67%	33%	33%	33%	0%	0%
Manufacturing	40%	40%	40%	60%	80%	0%	20%	20%
Media	100%	100%	50%	50%	50%	50%	50%	50%
Pharmaceuticals	80%	40%	60%	40%	60%	20%	40%	0%
Retail	100%	50%	0%	0%	0%	50%	0%	0%
Technology Services	71%	79%	71%	57%	36%	21%	21%	7%
Telecommunications	50%	25%	50%	25%	25%	13%	13%	13%
Transportation	100%	50%	0%	50%	50%	0%	0%	0%

Source: "Implement First, Ask Questions Later (or Not at All),"
By Stephen J. Andriole, *MIT Sloan Management Review*, April 2018
sloanreview.mit.edu/x/59404

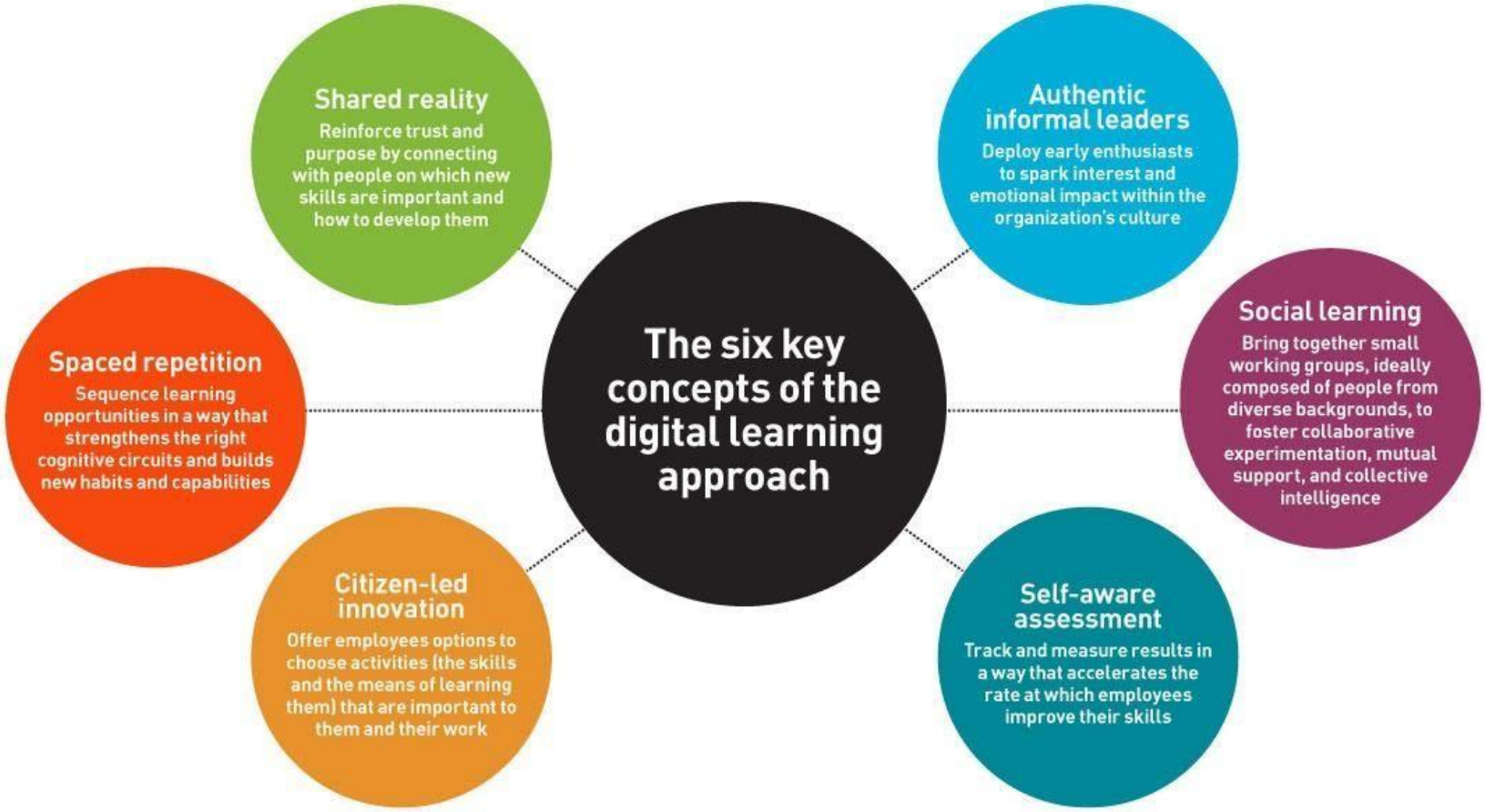
Digital Innovations in Response to COVID-19



Make Distance Learning and Telecommuting a Real Performance Lever

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Make Distance Learning and Telecommuting a Real Performance Lever



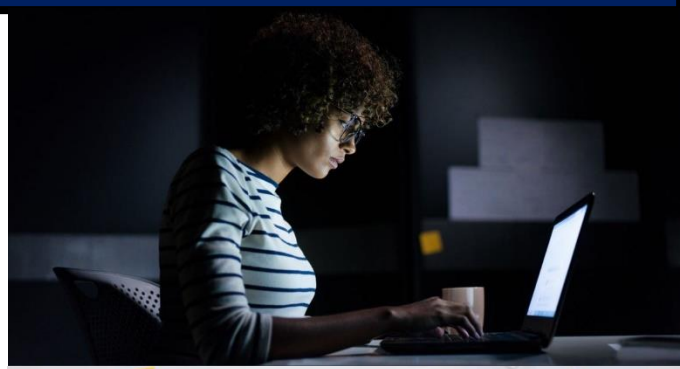
Source: www.strategy-business.com/digitallearning

©2020 PwC. All rights reserved.

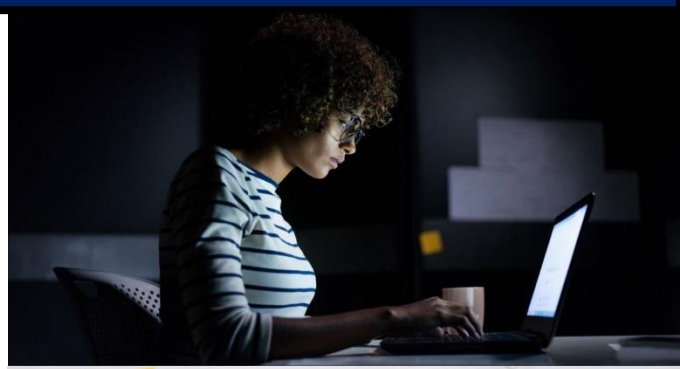
pwc | strategy&

Laying the Groundwork for Telecommuting Success

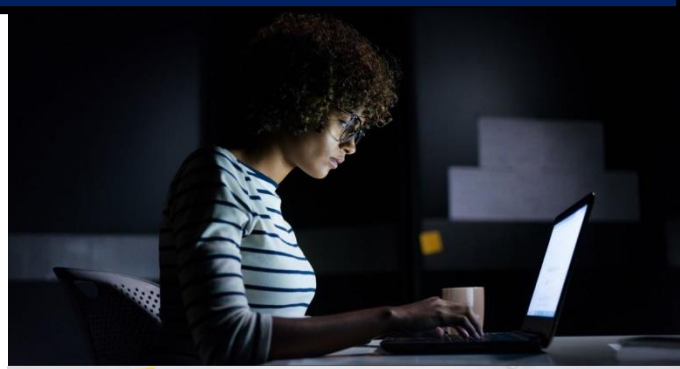
- Create & Maintain a Shared Vision for success
- Pursue business opportunities in which your organization can support the customer, be successful, and win follow-on opportunities
- Strong, capable technical recruiting
- Strategic partnering for staff augmentation
- Strong leaders with successful track records
- Reliable, talented, dedicated employees with successful track records
- Create work plans and schedules that are aligned with the Customer's requirements and demands
- Have flexibility with the Customer's requirements and demands
- Execute on your strategic and tactical plans
- Report the results
- Share the feedback and kudos, bad and good
- Make adjustments and improvements when necessary



Laying the Groundwork for Telecommuting Success



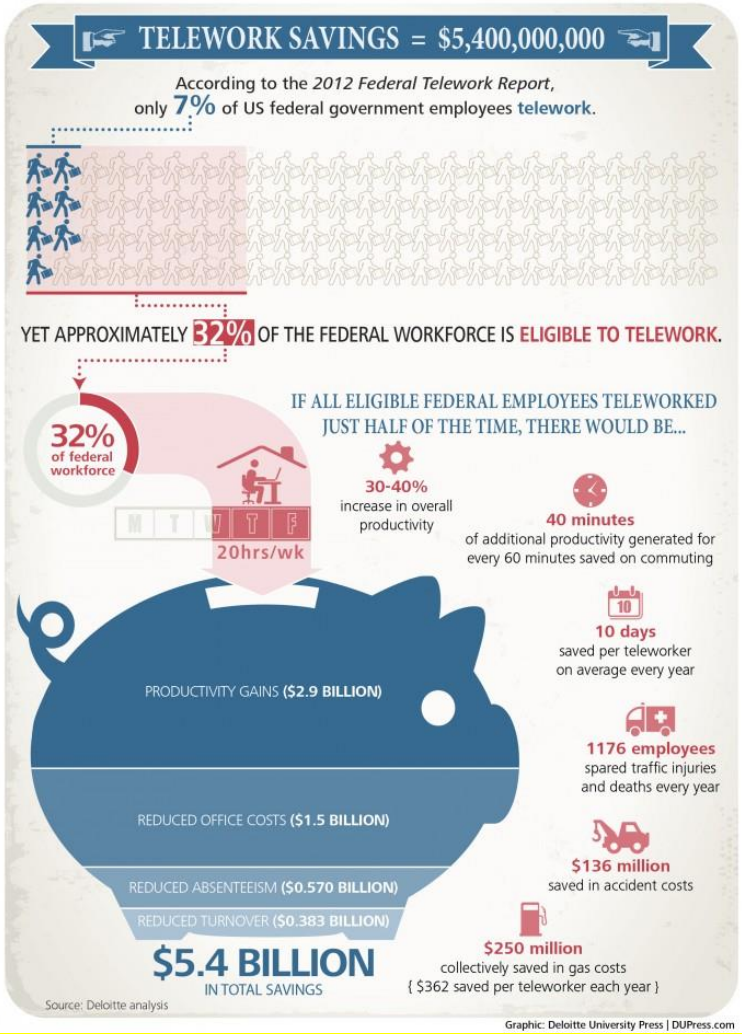
Laying the Groundwork for Telecommuting Success

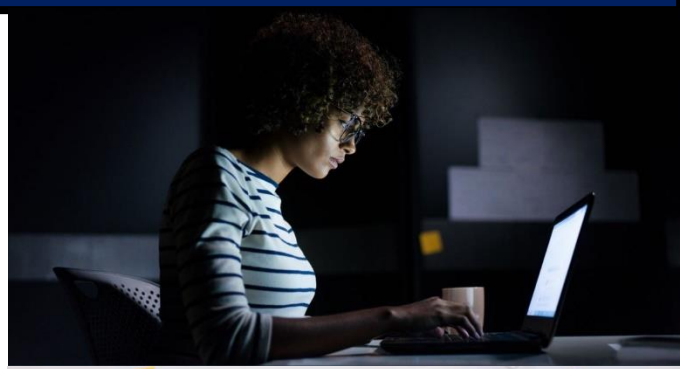


Note: It you start at the top and go clockwise & perform the tasks in each area, you stand a good chance of getting Teleworking Management right.

Source: http://www.telework.gov

Laying the Groundwork for Telecommuting Success





Innovation Strategies for Better Choices for Africa: Support of the Informal Sector & Capital Market

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Innovation Strategies for Better Choices for Africa: Support of the Informal Sector & Capital Market

- Create a ***Digital Futures Committee*** comprised of passionate leaders with a shared vision and purpose to advance Cameroon's Digital Economy, and who will actively work with the leaders of Cameroonian organizations (see table at the right) who are responsibly for creating and leading the development of the Digital Economy. Strive for actionable findings and viable strategies.
- Appoint representatives of the ***Digital Futures Committee*** to coordinate with other such committees in other African nations to foster a culture and spirit of cooperation. Information-sharing, and even friendly competition.
- Appoint representatives of the ***Digital Futures Committee*** to coordinate with other such committees in the U.S. and the U.K, and in France, to foster a culture and spirit of cooperation and Information-sharing,
- Appoint representatives of the ***Digital Futures Committee*** to coordinate with other such committees in the United Nations, to foster a culture and spirit of cooperation and Information-sharing,
- Appoint representatives of the ***Digital Futures Committee*** to coordinate with other such committees in the Internet Sociiety foster a a spirit of cooperation and Information-sharing,
- Publicly Report their findings for comment in an annual report to the Cameroonian Government, all contributors, and Stakeholders.

Organism	Strategic and regulation Missions	Creation
Ministry of Posts and Telecommunications (MINPOSTEL)	• Development and Implementation of Government policy of Telecommunication and ICT • ICT Infrastructure • Coordination • Policies	1958
National Agency for Information and Communication Technology (ANTIC)	• Promote and monitor government actions • Regulating electronic security activities. • Certification (Application and specification of ICT tools	2002
National Center for Development of Computer Science (CENADI)	• Advisory • Tools support • Technology adoption, development and deployment	1988
Telecommunication Regulatory Board (ART)	• Legislation • Regulation • Monitoring of activities for telecommunication operators and users, • Assets allocation	1998

Table2. Government Strategic and Regulatory Missions for the Digital Economy

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Digital Economy Indicators

The Digital Economy Fact Book, in its ninth edition (Britton and McGonegal, 2007), presents a factual basis from which analysis of a given entity in the new economy can start. The indicators are:

- The Growth of the Internet: host computers and domains, online population, number of Websites, ISP, etc.;
- The Hardware Sector: PC sales, cell phones, smartphones, data storage, gaming hardware, etc.;
- The Communications Sector: telephone subscription, wireless industry, VoIP, email, etc.;
- The Digital Media: TV, Internet Video, Music, Radio, Gaming, Online News, Blogging, Social Networking, etc.;
- The Electronic Commerce: Internet advertising, online finance, online travel, online health care, and the types of e-commerce systems (B2C, B2B, etc.).
- The Threats to the Digital Economy: malicious software, spam, phishing, identity theft, piracy, privacy violation, etc.
- The Worldwide Digital Economy: funding for new ideas, mergers and acquisitions, outsourcing and offshoring, IT spending, etc.

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Key Trends Affecting ICT and Its Development

- The emergence of four great forces: mobile, social media, cloud computing and massive data (big data);
- Open data from public or private entities ;
- Promoting open government data by governments to increase the transparency of the public sector and provide benefits economic and social;
- Constant high spending on research and development (R&D) and many patents, reflecting the key role of ICT in innovation;
- An increase in broadband subscriptions and the use of a smart phones or digital tablets
- An increase in global Internet traffic, but at a slower pace in previous years;
- Exponential growth in energy consumption associated with Internet use: In 2013, the Internet and all new technologies consumed about 10% of the world's production of electricity;
- A gap between SMEs and large companies regarding the acquisition or the development of ICT;
- An increase in world trade of ICT goods and services;
- Faster growth in the ICT services than in the manufacture of ICT goods;
- Convergence of service and manufacturing in the ICT sectors;
- Birth and growth of digital companies, which result in new business models that challenge the regulatory environments;
- The emergence of a collaborative economy which contributes to the creation of new consumption patterns, favoring exchanges and sharing of goods and services;
- Improving the performance of telecommunication networks through the deployment of optical fiber and 4G networks;
- Questionings related to governance (routing Requirements or local content, data storage, network neutrality, acceptance Universal multilingual domain names, etc.).

All these trends are crucial because they can form the basis of a set of useful key performance indicators in the digital economy.

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Components of the Digital Economy Development

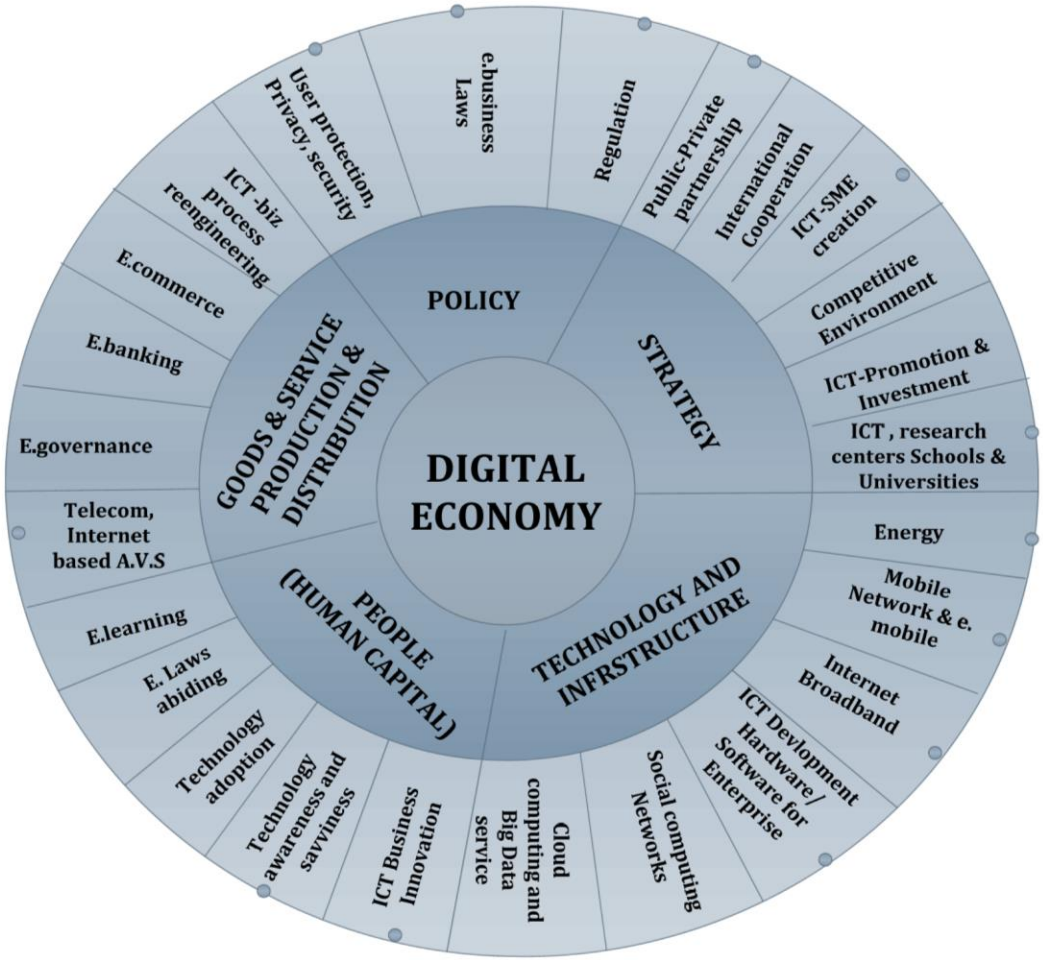


Figure 3 Major Components of Digital Economy Development

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Digital Perspective & Transformative Leadership: Teleworking & Speed / Agility of Decisions Perspective

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Digital Perspective & Transformative Leadership: Teleworking & Speed / Agility of Decisions Perspective

Telework Challenges & Solutions for Management & Teams

Category	Challenge	Solution
Management and Teams	**Meeting Customer Expectations**	Always show the Customer that we are Customer-focused and listening to his or her expectations.
Management and Teams	**Managing and collaboration across Time Zones**	Ask for flexibility and adaptability.
Management and Teams	**Getting Access to Government Furnished Equipment and Customer Resources**	Alerted the Customer about the issue(s).
Management and Teams	**Meeting Schedule Challenges**	Hire professionals that rise to meet the challenge.
Management	**Keeping Team Members Productive, Engaged, and Motivated in spite of the Challenges**	Hire professionals that rise to meet the challenges.
Management and Teams	**Attending meetings and still getting work done and avoiding burnout**	Hire professionals that rise to meet the challenge.
Management and Teams	**Technical Support**	Ensure that people are available and that they have back-ups.
Management and Teams	**Meeting Customer Management Expectations, Delivery and Report Schedules**	Hire professionals that rise to meet the challenge.
Management and Teams	**Meeting Management Expectations and Reports Schedules**	Hire professionals that rise to meet the challenge.

Source: Slater, W. F. (2015). Telework: Risks, Challenges, Perils, and Successes.

Digital Perspective & Transformative Leadership: Teleworking & Speed / Agility of Decisions Perspective

10 Reasons You May Not be Cut-out to Be a Teleworker
1. You fall prey to external distractions
2. You're a sitting duck for internal distractions
3. You can't put together the necessary equipment, services, or infrastructure to do your job
4. You can't sustain enough (or any) proactive contact with the office
5. You don't function well without a lot of structure
6. You have a manager who can't or won't manage remotely
7. You can't establish boundaries with friends, family, or neighbors
8. You can't bring yourself to quit for the day
9. You can't work independently
10. You hate missing out on collaborative opportunities

Source: http://http://www.techrepublic.com/blog/10-things/10-signs-that-you-arent-cut-out-to-be-a-telecommuter/

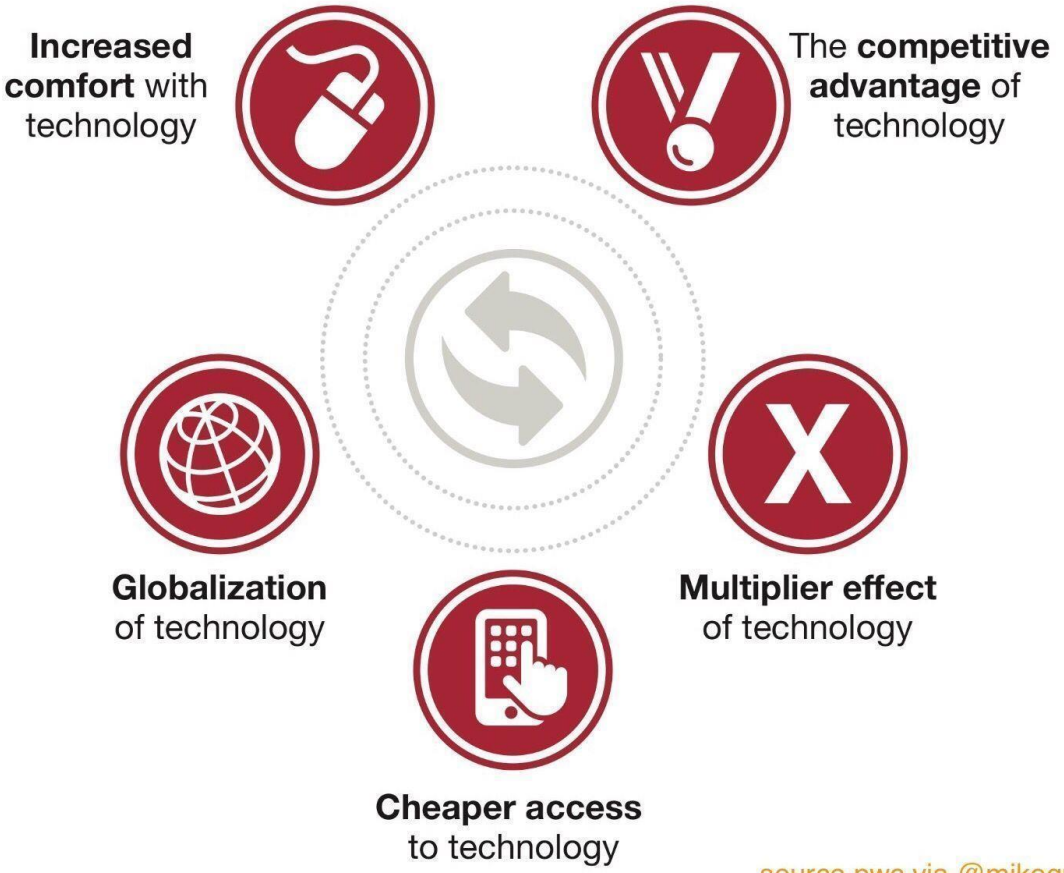
The Fourth Industrial Revolution, its Socio-Economic Impact, and the Challenges Ahead

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

The Fourth Industrial Revolution, its Socio-Economic Impact, and the Challenges Ahead

The Fourth Industrial Revolution, its Socio-Economic Impact, and the Challenges Ahead

Exhibit 9: Catalysts of change



source pwc via @mikequindazzi

The Fourth Industrial Revolution, its Socio-Economic Impact, and the Challenges Ahead

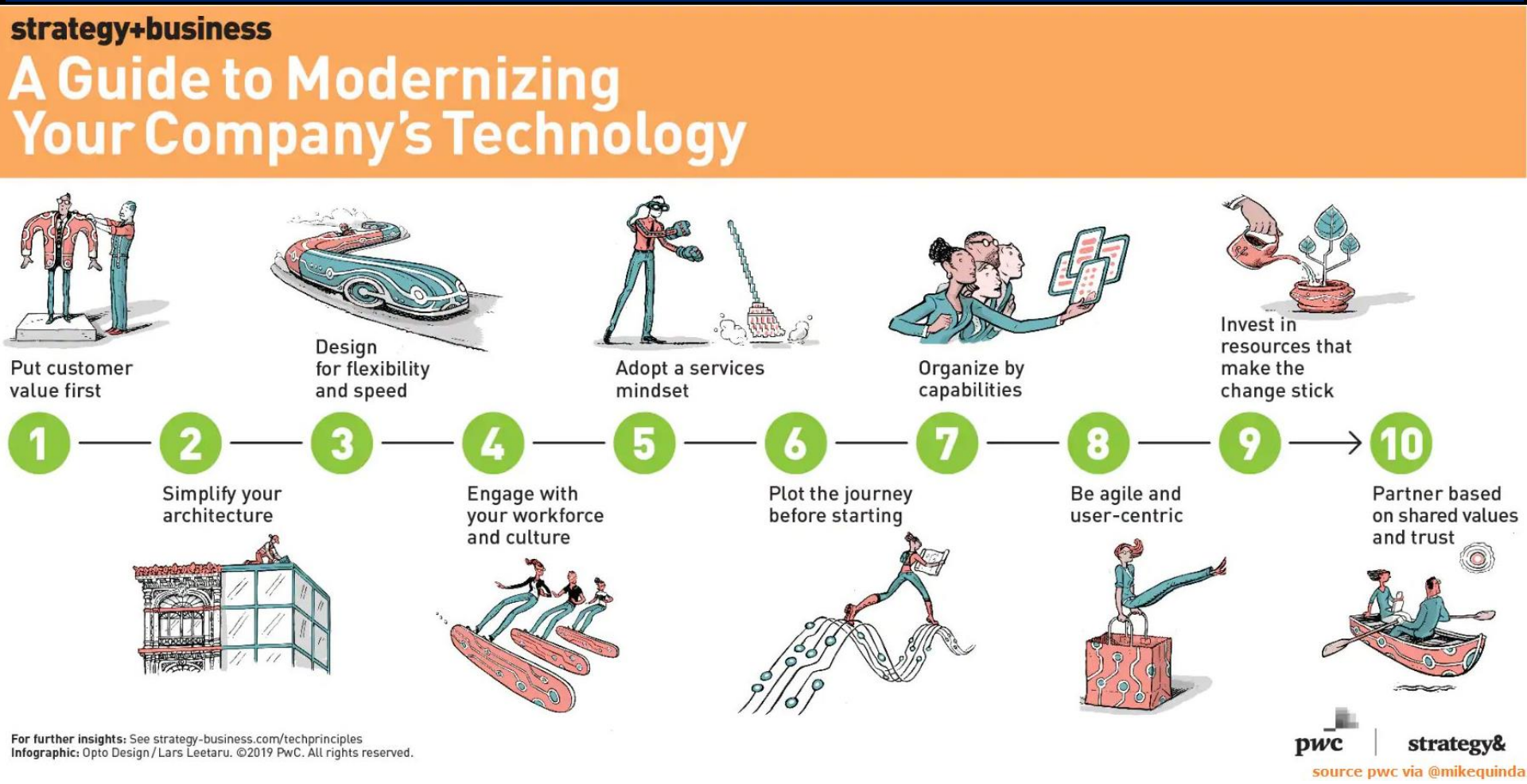
The Drivers of Rapid Technology Adoption

Across industries, there is a broad consensus that the opportunities to reduce costs and digitally transform are the biggest factors behind the shift to more rapid implementation, followed by competitive fear.

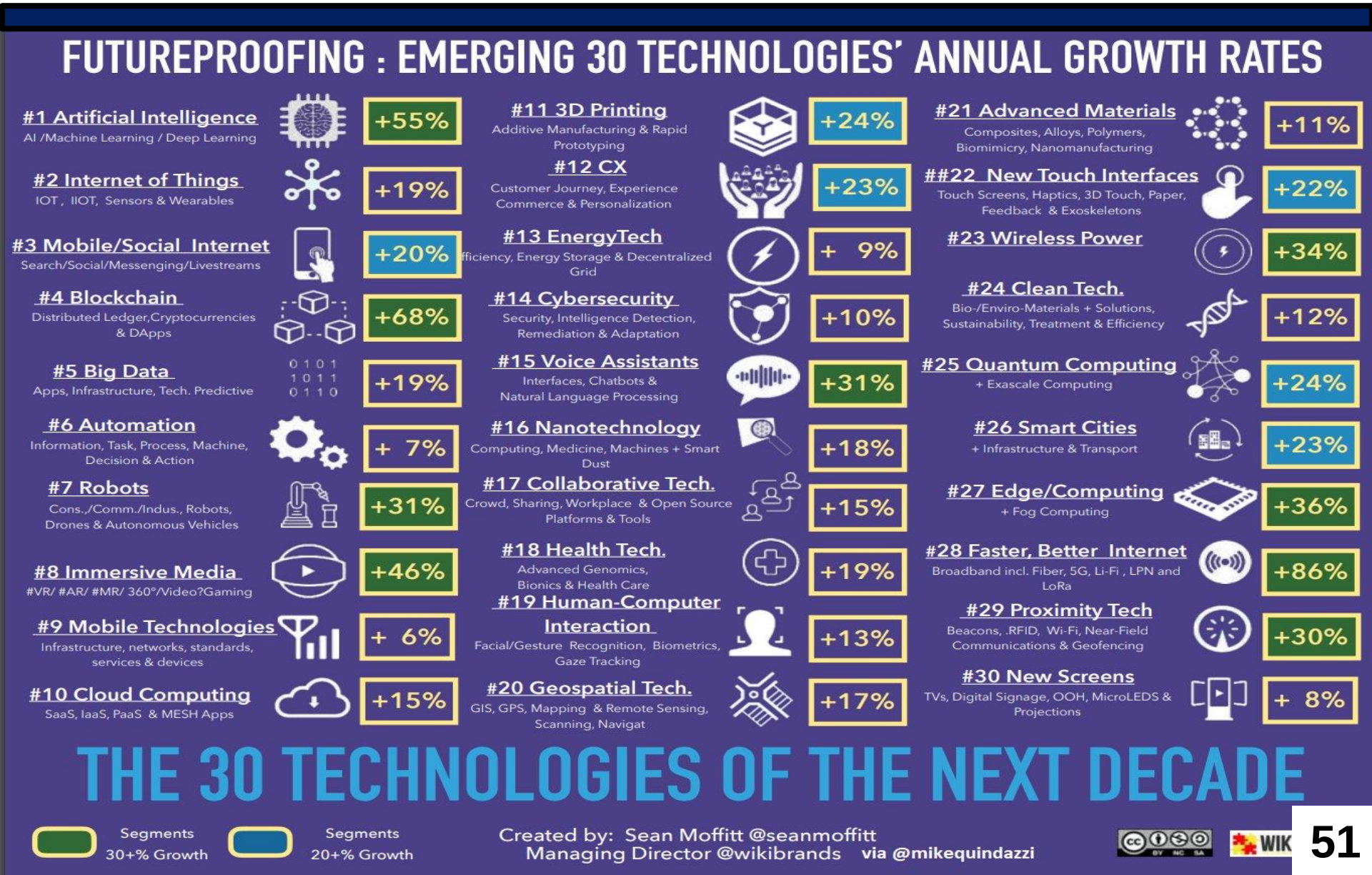
	Opportunities to reduce costs	Opportunities for digital transformation	Competitive fear	Consumer product awareness (for example, iPads)	Pressure from the business units	Pressure from the C-suite	Pressure from senior management	Pressure from line management
Automotive	50%	100%	50%	0%	0%	0%	0%	0%
Banking	50%	33%	67%	0%	17%	17%	0%	0%
Consulting	43%	29%	29%	57%	43%	29%	43%	0%
Consumer	100%	100%	100%	50%	0%	0%	0%	0%
Education	44%	67%	22%	33%	33%	22%	11%	11%
Energy	80%	80%	20%	40%	20%	0%	0%	0%
Engineering	80%	20%	80%	0%	0%	0%	0%	0%
Financial Services	63%	69%	50%	38%	38%	25%	19%	6%
Food and Beverage	100%	33%	0%	67%	67%	33%	0%	67%
Government	93%	100%	33%	67%	0%	0%	0%	0%
Health Care	77%	46%	54%	38%	46%	31%	31%	8%
Insurance	33%	67%	67%	33%	33%	33%	0%	0%
Manufacturing	40%	40%	40%	60%	60%	0%	20%	20%
Media	100%	100%	50%	50%	50%	50%	50%	50%
Pharmaceuticals	80%	40%	60%	40%	60%	20%	40%	0%
Retail	100%	50%	0%	0%	0%	50%	0%	0%
Technology Services	71%	79%	71%	57%	36%	21%	21%	7%
Telecommunications	50%	25%	50%	25%	25%	13%	13%	13%
Transportation	100%	50%	0%	50%	50%	0%	0%	0%

Source: "Implement First, Ask Questions Later (or Not at All)," By Stephen J. Andriole, *MIT Sloan Management Review*, April 2018 sloanreview.mit.edu/x/59404

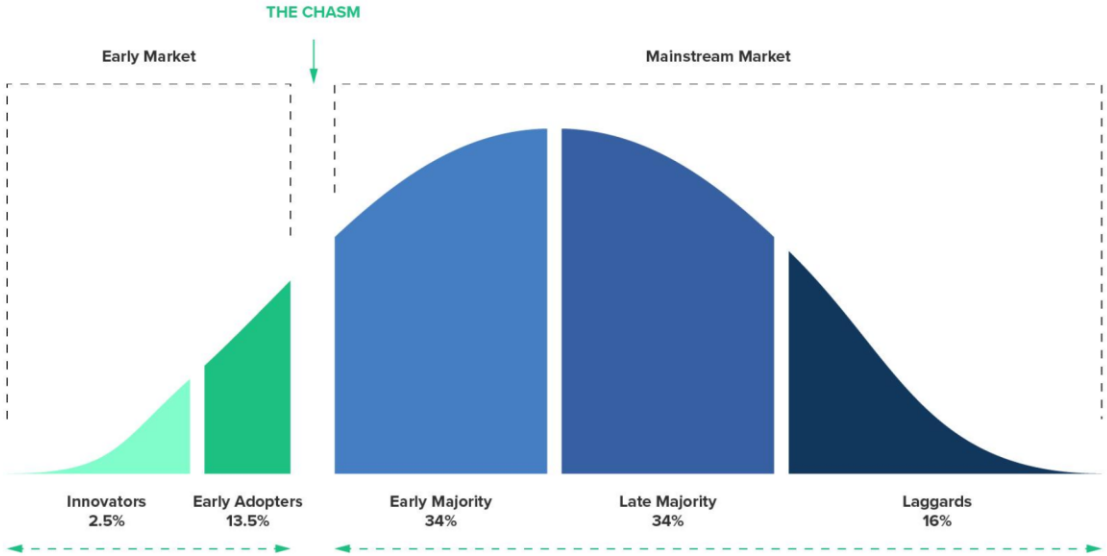
The Fourth Industrial Revolution, its Socio-Economic Impact, and the Challenges Ahead



The Fourth Industrial Revolution, its Socio-Economic Impact, and the Challenges Ahead



The Fourth Industrial Revolution, its Socio-Economic Impact, and the Challenges Ahead



Bell curve graphic of the technology adoption life cycle.

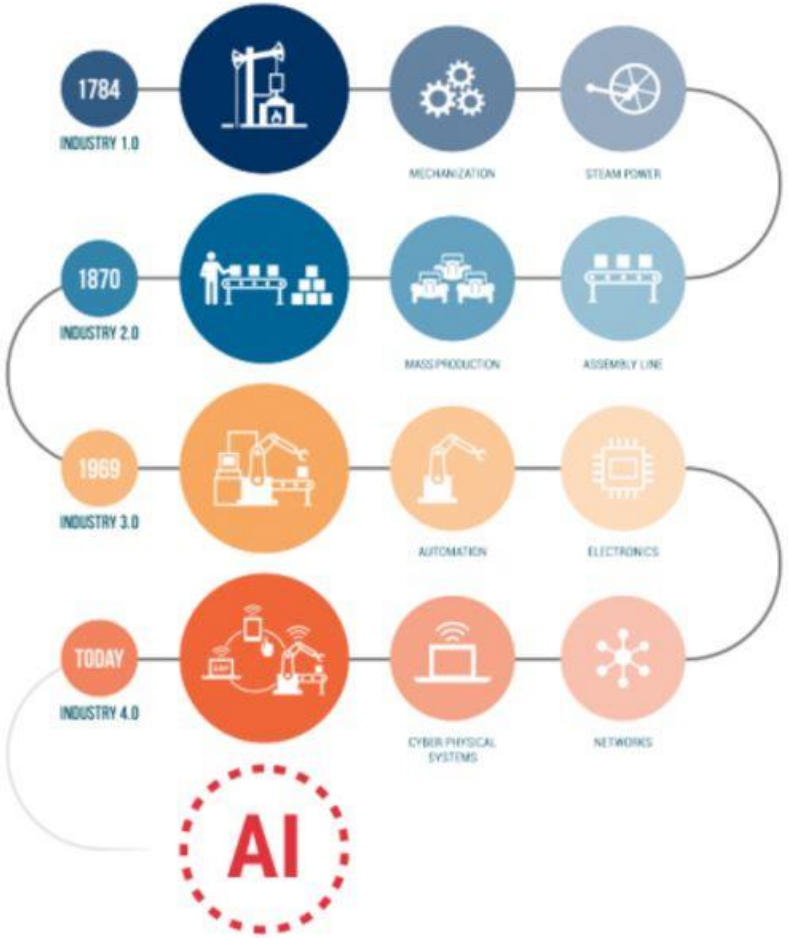
In the technology adoption life cycle, "Innovators" are the smallest group, yet the most successful. They are followed by "Early Adopters," then "Early Majority," and later, "The Majority," or everyone else. As innovators, great designers usually fall into the "Early Adopters" category—big risk takers in uncharted territory. A great designer is also a visionary with the ability to think strategically and analyze trends in order to design better products or services.

Source: Bharadwaj, H. (2018). New Realities: VR, AR, MR, and the Future of Design.

The Fourth Industrial Revolution, its Socio-Economic Impact, and the Challenges Ahead

WE ARE AT THE CUSP OF THE 5TH INDUSTRIAL REVOLUTION

Recent rapid adoption and application of artificial intelligence algorithms — triggered by access to big data and better hardware processing capabilities — are changing the face of blue and white collar jobs.



Source: Bharadwaj, H. (2018). New Realities: VR, AR, MR, and the Future of Design.

Technology Is a Doubled-Edged Sword

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Technology Is a Double-Edged Sword

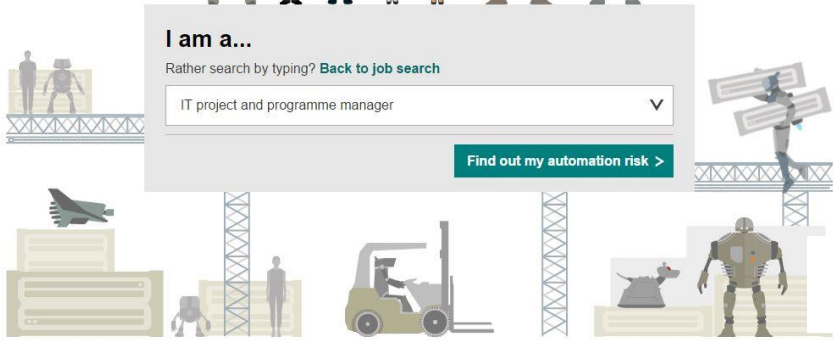
- **Job Creator / Job Destroyer**

McDonald's shows off a touch-screen kiosk installed in France in 2009.

McDonald's Europe

The city of Seattle raised their minimum wage to $15.00 per hour.

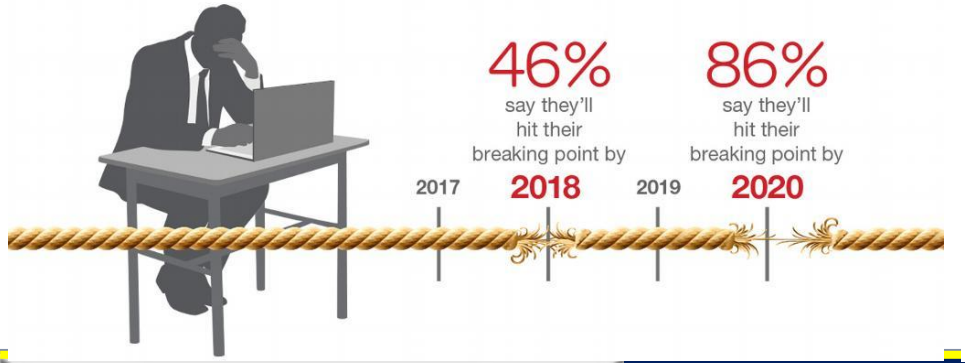
About 35% of current jobs in the UK are at high risk of computerisation over the following 20 years, according to a study by researchers at Oxford University and Deloitte.



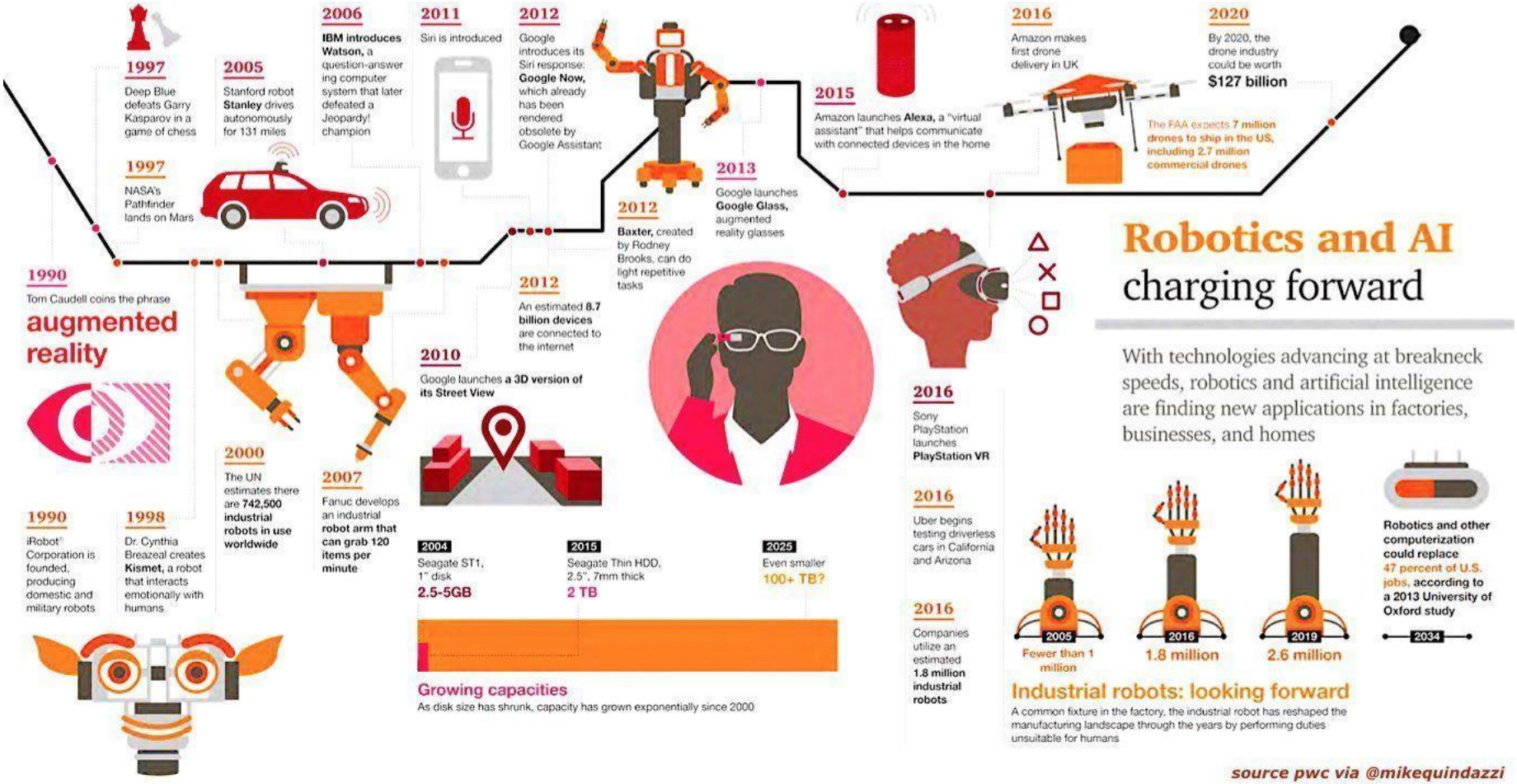
The Breaking Point

Bottom Line: People Can't Cope

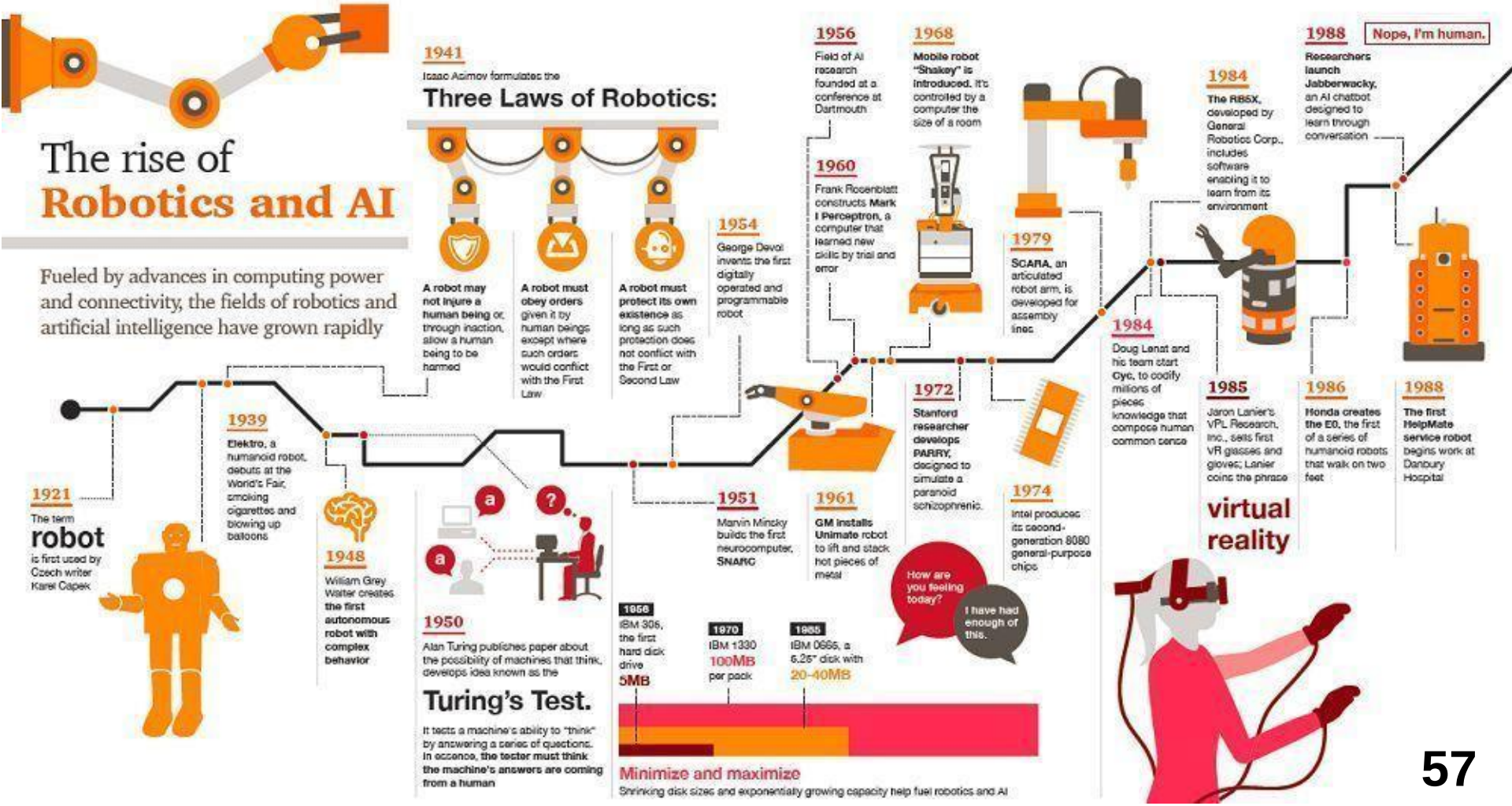
Companies will hit their breaking point and need greater automation to get work done



Technology Is a Double-Edged Sword



Technology Is a Double-Edged Sword



Why Is There Hope?

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Mary Meeker Says "YES"

- Investor Mary Meeker says Covid-19 crisis is separating businesses with strong online strategies from laggards
- Mary Meeker, who is known for her lengthy annual "Internet Trends" report, sent a letter to her firm's investors detailing observations from the Covid-19 crisis.
- Among them: The businesses who were already well along the offline-to-online transition are faring best.
  - https://www.cnbc.com/2020/04/17/mary-meeker-covid-19-report-online-businesses-beating-laggards.html
  - https://www.axios.com/mary-meeker-coronavirus-trends-report-0690fc96-294f-47e6-9c57-573f829a6d7c.html

Mary Meeker

- Why it matters: Bond's best-known partner, Mary Meeker, is a former bank analyst renowned for her annual Internet Trends Report, which many investors and entrepreneurs use as a touchstone for where tech is now and where it's going. This 28-page report to Bond's limited partners, obtained by Axios, shares some structural similarities.

Mary Meeker Says "YES"

- Some takeaways:

  - "Covid-19 has upended our modern lives in ways we're just starting to understand."
  - Prior epic viruses have permanently changed the world, but coronavirus may prove less impactful because of our information-sharing and scientific technologies.
  - Scientists and other domain experts are getting "more seats at the table."
  - Digital transformation is accelerating, due to so many people working from home. New work-life balances are also being struck.
  - This may become the "call to arms" to better marry technology with healthcare, in terms of everything from telehealth to rapid point-of-care diagnostics, to applying automation and AI to health care services.
  - "We are optimists and believe there is hope on the other side of despair.... We need government, business and entrepreneurial intervention at scale (deployed logically and effectively) to get to the other side."

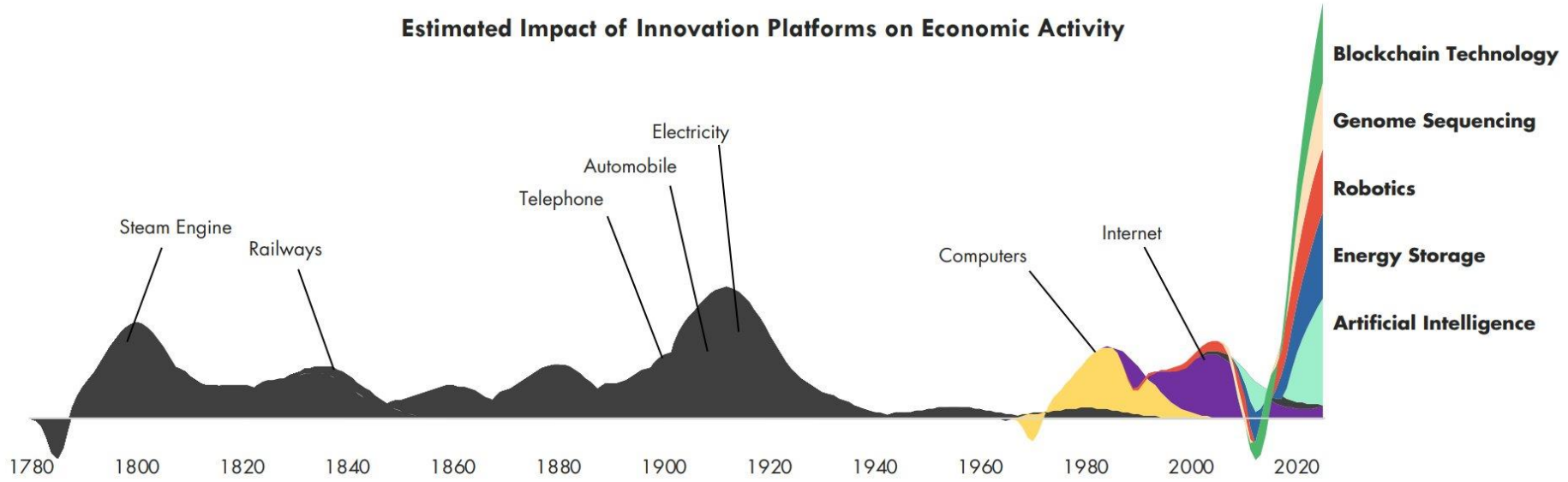
Mary Meeker

The Global Economy Is Undergoing the Largest Technology Transformations in History

BIG IDEAS 2019

Why Now?

According to ARK's research, the global economy is undergoing the largest technological transformation in history.



Source: ARK Investment Management LLC, 2018 | Forecasts are inherently limited and cannot be relied upon.

source ark investment management via @mikequindazzi

Slater Technologies
Internet Society Blockchain SIG
Internet Society Cameroon Chapter

More Good News

July 8, 2020

The United States launched Free Trade Agreement negotiations with Kenya.

This will serve as a model for additional agreements across Africa.

My Recommendations

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Recommendations

- Decide what can be done in each of these areas
  - Research and Innovation
  - Entrepreneurship & Startups
  - Digital Business Transformation
  - ICT Sector
  - Workforce
  - Digital Infrastructures
  - Governance
- Create a Digital Future Committee (Slide 39)
- Do a National Skills Inventory to Understand What You Have, and What You Need to Plan to Advance
- Engage Universities and High Schools to Solicit Inputs
- Create a Doable Strategic 3-year Roadmap
- Take advantage of the free training opportunities (Slide 22)
- Enlist the Support of Competent, Experienced Leaders, and If They Are External to Cameroon, Make Sure They Love Cameroon & Its Citizens, More Than Money
- Welcome Women to Participate
- Ensure That You Enlist the Support and Participation of Youth, aged 13 to 25. They are the Future of Cameroon.

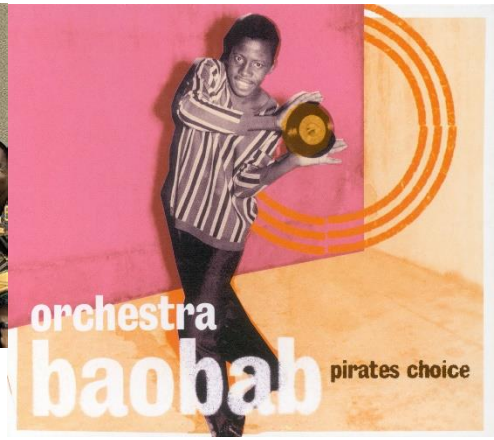
Source: Lombana-Bermudez, A., et al. (2020) "Youth and the Digital Economy: Exploring Youth Practices, Motivations, Skills, Pathways, and Value Creation,"

Conclusion

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

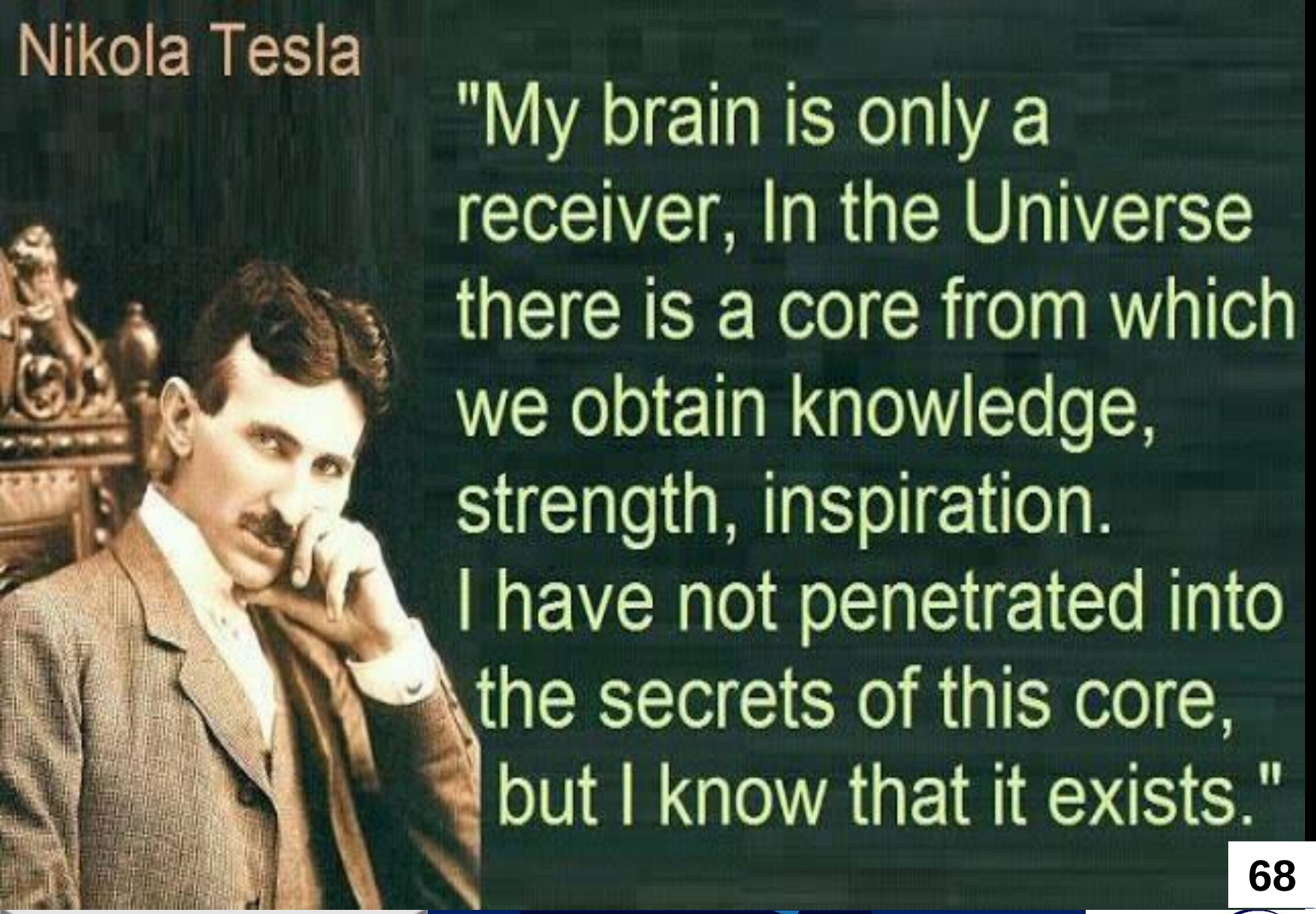
Africa & Cameroon & Me

- **Music**
  - ***Angelique Kidjo*** - Benin (since 1991, after her first album, I was hooked, Logozo, We We, Batonga)
  - ***Afro-Cuban – Buena Vista Social Club*** – Havana (2000)
  - ***Orchestra Baobab*** – Senegal (since 2004)
  - ***LadySmith Black Mambazo*** – South Africa (since 1991)
- **Friends**
  - Ghana
  - Nigeria
  - Morocco
  - Egypt
  - Mali
  - South Africa
  - Zimbabwe
  - Kenya
  - Benin
- **Art**
- **Culture**
- **Geography**
- **History** – Henry Louis Gates Tour of Africa Video - 1999
- **Cartography** – the Peters Projection
- **Food**
  - Introduced into the American South
    - Sweet Potatoes
    - Greens
    - Goat
    - Etc.
- **Cameroon IGF Working Group** invited me to participate



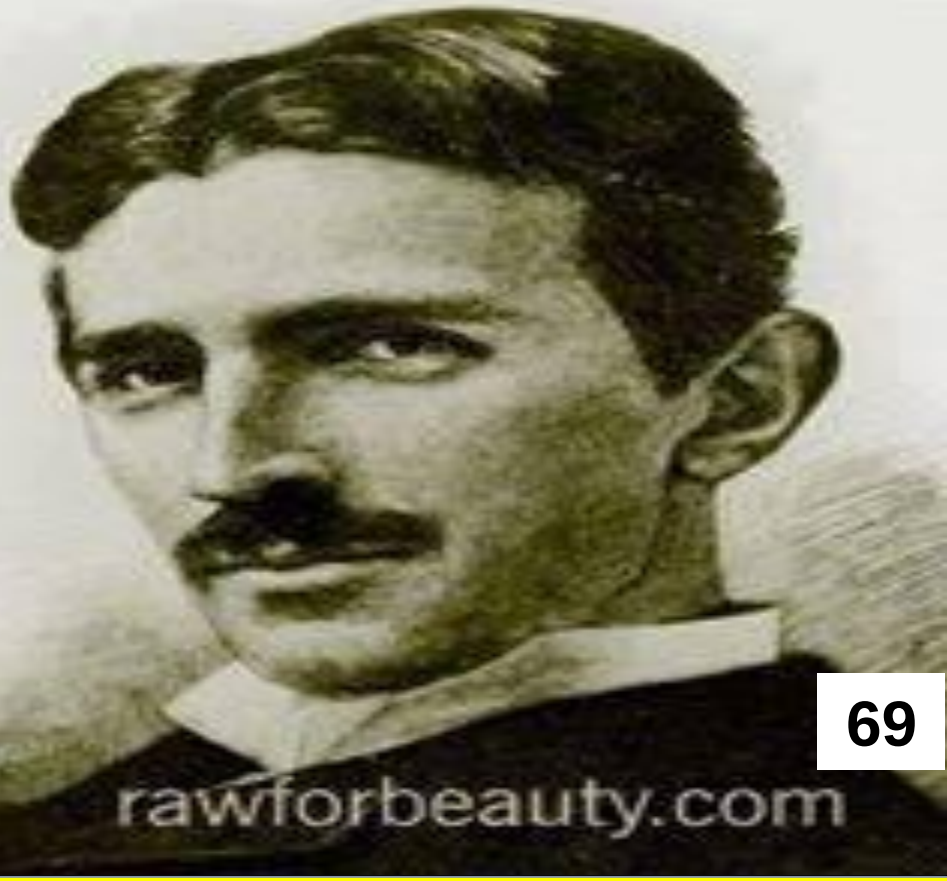
Conclusion

- We covered:
  - The World in 2020
  - Cameroon Today
  - CAPDA: Digital Transformation
  - Topics, Perspectives and Opportunities to Help Cameroon Succeed and Thrive in the Post COVID-19 World
  - Why Is There Hope?


Nikola Tesla
"My brain is only a receiver, In the Universe there is a core from which we obtain knowledge, strength, inspiration.
I have not penetrated into the secrets of this core, but I know that it exists."

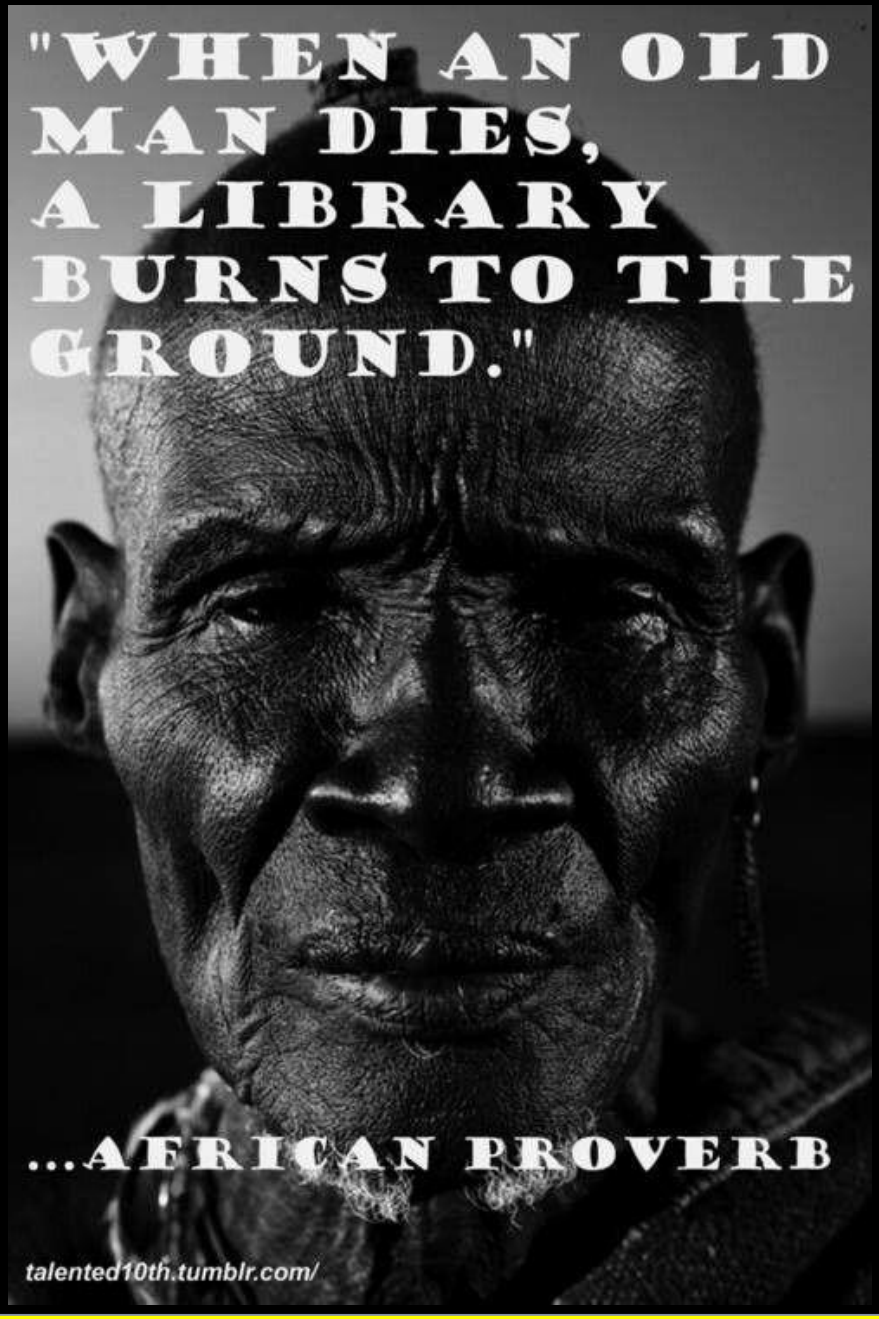
I don't care that they stole my idea I care that they don't have any of their own

- Nikola Tesla



I have learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.

Maya Angelou
1928-2014


"WHEN AN OLD MAN DIES, A LIBRARY BURNS TO THE GROUND."
...AFRICAN PROVERB
talented10th.tumblr.com/

Parting Thoughts:
As an ISOC Member Since 1998…
I Support Cameroon & Internet Freedom

Parting Thoughts:
Like Records on a Blockchain, Let Our Love, Support, & Friendship Be Immutable & Enduring

Source: Earth Empaths: The Beginning Is Near. Retrieved from https://www.earthempaths.net/wp/2015/08/22/the-beginning-is-near/

Digital Transformation Topics, Perspectives and Opportunities to Help Cameroon Succeed and Thrive in the Post COVID-19 World
Thank You!
Questions & Answers

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

William Favre Slater, III

- President / CEO / CISO of
  Slater Tecchnologies, Inc
- 312-758-0307
- slater@billslater.com
- williamslater@gmail.com
- http://billslater.com/interview
- 1515 W. Haddon Ave., Unit 309
  Chicago, IL 60642
  United States of America

William Favre Slater, III

Slater Technologies

Certified Teleworker

Resources

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Cameroon:
“Africa in Miniature”

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

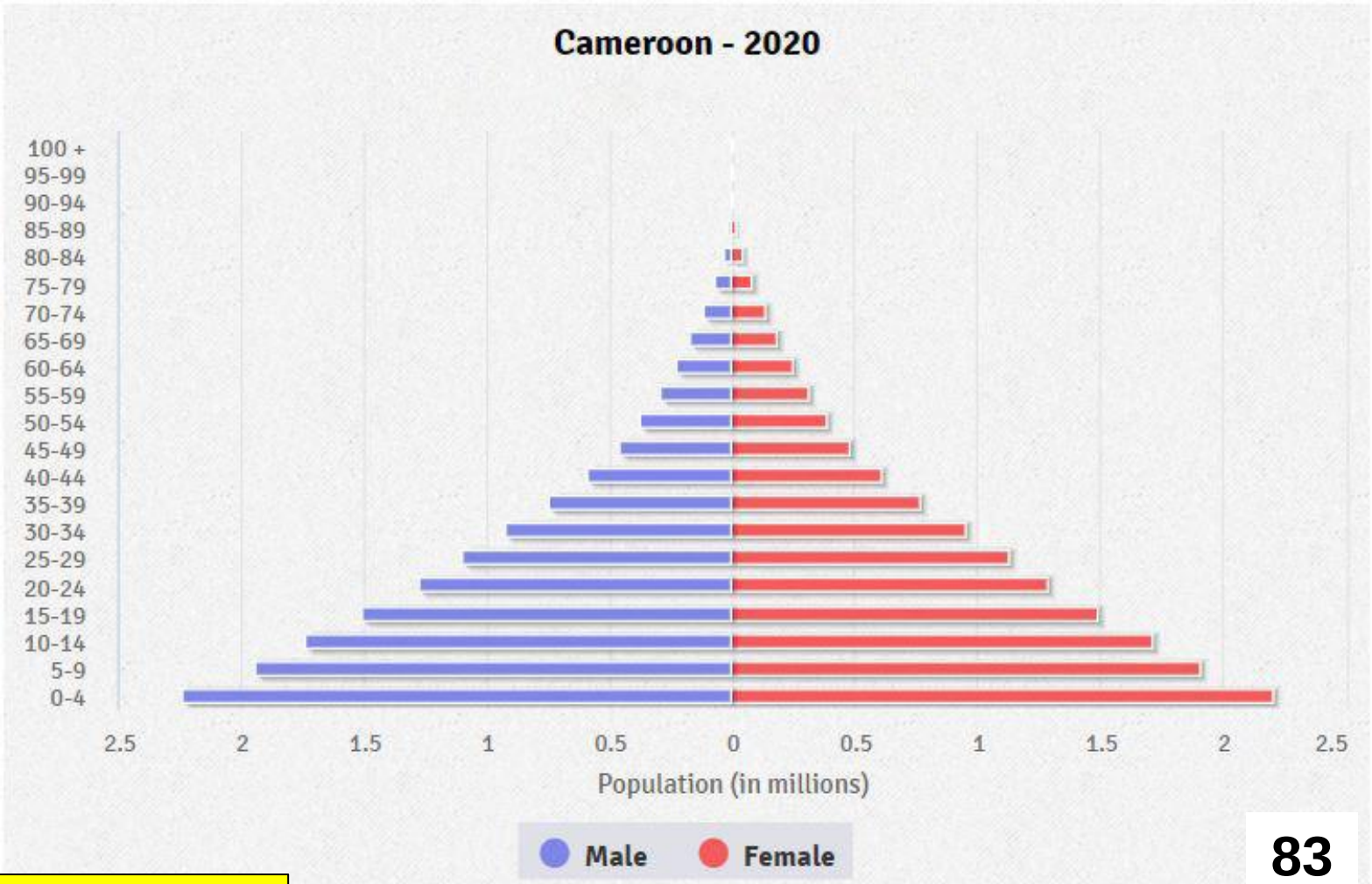
Resources - Cameroon

- Akpan, M. (2016) Cameroon Art and Culture: Ethnic groups, Religion, Tradition, Tribes, History and People. Published by CreateSpace Independent Publishing Platform.
- CIA. (2019) Cameroon World Fact Book: Retrieved from https://www.cia.gov/library/publications/the-world-factbook/geos/cm.html on July 8, 2020.
- COVID-19 Statistics. (2020) COVID-19 statistics for Cameroon. Retrieved from https://www.covid19.onl/country/cameroon on July 14, 2020.
- Displore. (2020). An HONEST Explanation of the ANGLOPHONE CRISIS in Cameroon. Retrieved from https://www.youtube.com/watch?v=JQXK1B_0IaM on July 10, 2020.
- Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challlenges and Perspectives. Retrieved from https://onlinelibrary.wiley.com/doi/pdf/10.1002/j.1681-4835.2016.tb00558.x on July 9, 2020.
- Hamel, P. J. and Guien, D. (2017). Cameroon Travel Adventure. Published by CreateSpace Independent Publishing Platform.
- Operation World. (2019). Cameroon. Published by IVPress.com. Retrieved from http://www.operationworld.org/print/141 on July 8, 2020.
- Sosale, S. and Majgaard, K. (2016). Fostering Skills in Cameroon: Inclusive Workforce Development, Competitiveness, and Growth (Directions in Development) 1st Ed. World Bank Publications.
- Tchouteu, J., et al. (2017). CAMEROON: The Haunted Heart of Africa. Published independently.
- West, B. (2011). Cameroon. Published by Bradt Travel Guides.

Cameroon Today – Demographics

Cameroon Today – The Demographics

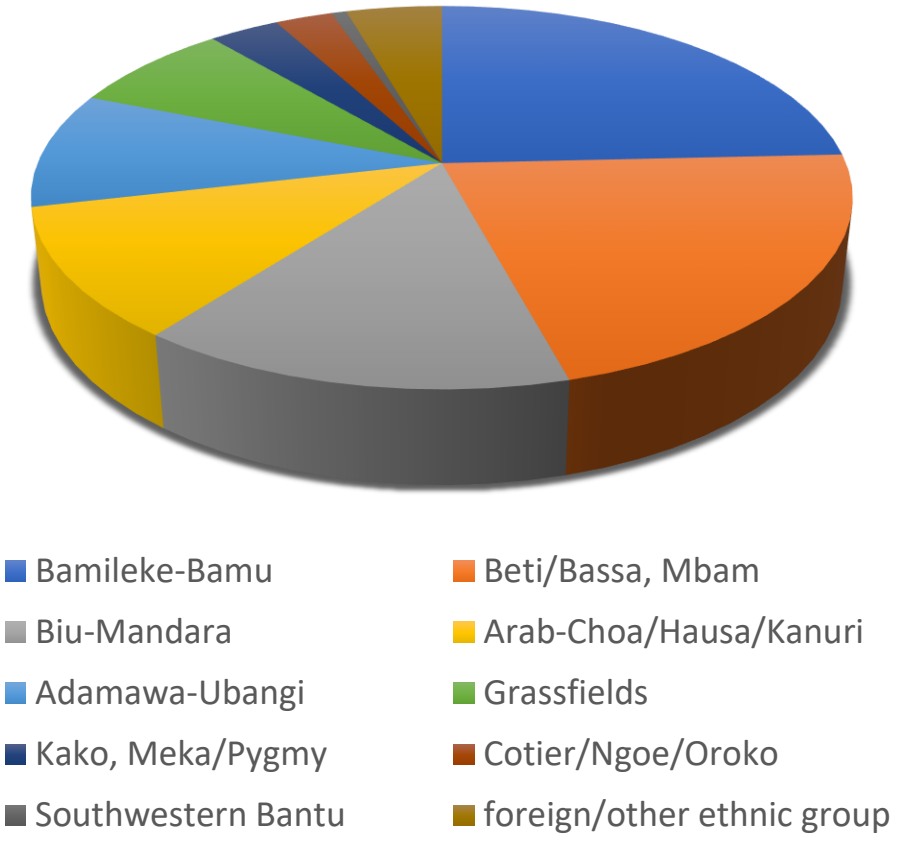
- About 27.7 million people
- Official Languages: French & English, with 279 others
- 60% age 25 or under
- 58% Urban
- 42% Rural
- Life Expectancy:
  - Male: 60.6
  - Female: 64
- Annual Growth: 2.7%



Source: CIA. (2019) Cameroon World Fact Book

Cameroon Today – The Demographics

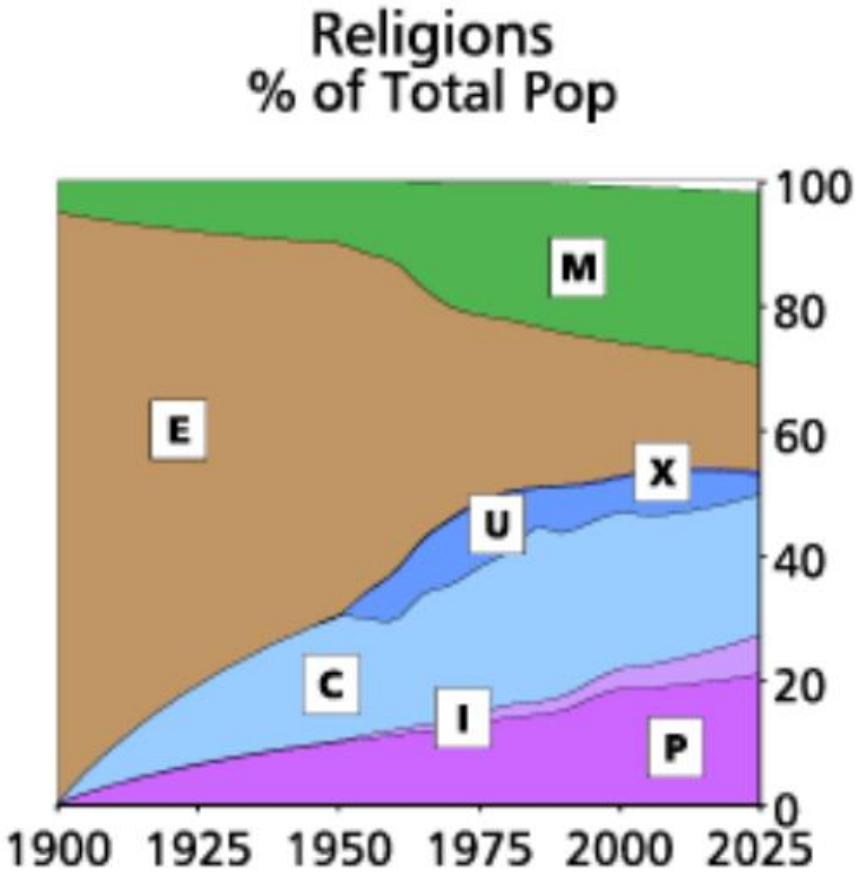
Cameroon Demographics by Ethnicity



Bamileke-Bamu	24.3%
Beti/Bassa, Mbam	21.6%
Biu-Mandara	14.6%
Arab-Choa/Hausa/Kanuri	11%
Adamawa-Ubangi	9.8%
Grassfields	7.7%
Kako, Meka/Pygmy	3.3%
Cotier/Ngoe/Oroko	2.7%
Southwestern Bantu	0.7%
foreign/other ethnic group	4.5%

Source: CIA. (2019) Cameroon World Fact Book

Cameroon Today – The Demographics



Christians	Other Religions
P=Protestant	J=Judaism
I=Independent	M=Muslim
A=Anglican	Bh=Bahai
C=Catholic	B=Buddhist
O=Orthodox	H=Hindu
S=Marginal	Sk=Sikh
U=Unaffiliated	Ch=Chinese Rel.
X=Other Christian; All Christians	E=Trad. Ethnic
	N=Non-Religious
	Z=Other

Source: Operation World. (2019). Cameroon.

Cameroon Today – The Economy

Cameroon Today – The Economy

- Annual GDP (2017): $89.54 Billion
- Annual Per Capita Income: $3700

Cameroon's market-based, diversified economy features oil and gas, timber, aluminum, agriculture, mining and the service sector. Oil remains Cameroon's main export commodity, and despite falling global oil prices, still accounts for nearly 40% of exports. Cameroon's economy suffers from factors that often impact underdeveloped countries, such as stagnant per capita income, a relatively inequitable distribution of income, a top-heavy civil service, endemic corruption, continuing inefficiencies of a large parastatal system in key sectors, and a generally unfavorable climate for business enterprise.

Since 1990, the government has embarked on various IMF and World Bank programs designed to spur business investment, increase efficiency in agriculture, improve trade, and recapitalize the nation's banks. The IMF continues to press for economic reforms, including increased budget transparency, privatization, and poverty reduction programs. The Government of Cameroon provides subsidies for electricity, food, and fuel that have strained the federal budget and diverted funds from education, healthcare, and infrastructure projects, as low oil prices have led to lower revenues.

Cameroon devotes significant resources to several large infrastructure projects currently under construction, including a deep seaport in Kribi and the Lom Pangar Hydropower Project. Cameroon's energy sector continues to diversify, recently opening a natural gas-powered electricity generating plant. Cameroon continues to seek foreign investment to improve its inadequate infrastructure, create jobs, and improve its economic footprint, but its unfavorable business environment remains a significant deterrent to foreign investment.

Source: CIA. (2019) Cameroon World Fact Book

Cameroon Today – The Geography

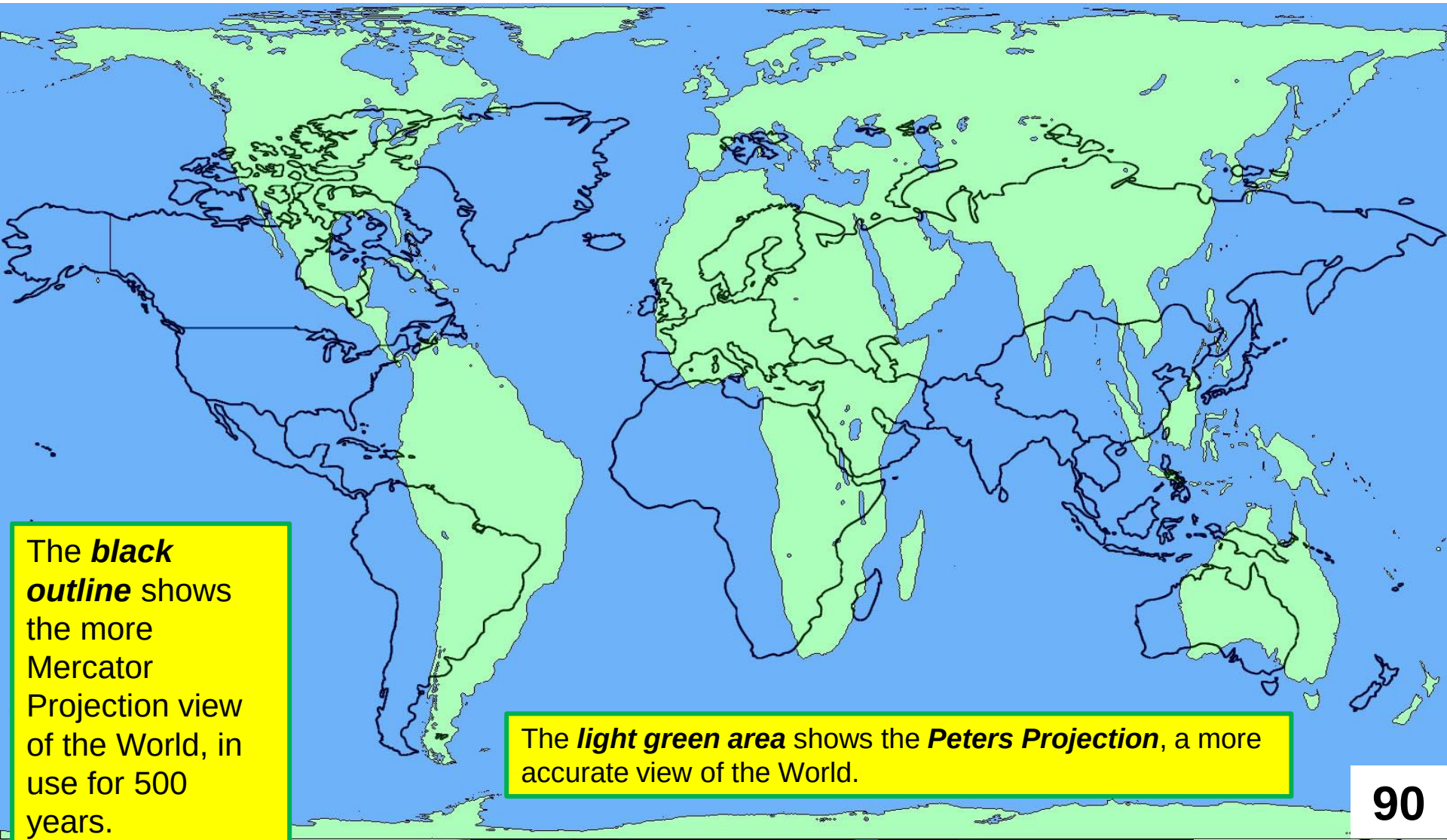
Cameroon Today – The Geography

- Central Africa, bordering the Bight of Biafra, between Equatorial Guinea and Nigeria
- Geographic coordinates: This entry includes rounded latitude and longitude figures for the centroid or center point of a country expressed in degrees and minutes; it is based on the locations provided in the Geographic Names Server (GNS), maintained by the National Geospatial-Intelligence Agency on behalf of the US Board on Geographic Names.
- 6 00 N, 12 00 E
- Map references: This entry includes the name of the Factbook reference map on which a country may be found. Note that boundary representations on these maps are not necessarily authoritative. The entry on Geographic coordinates may be helpful in finding some smaller countries.
- Area: This entry includes three subfields. Total area is the sum of all land and water areas delimited by international boundaries and/or coastlines. Land area is the aggregate of all surfaces delimited by international boundaries and/or coastlines, excluding inland water bodies (lakes, reservoirs, rivers). Water area is the sum of the surfaces of all inland water bodies, such as lakes, reservoirs, or rivers, as delimited by international boundaries and/or coastlines.
  - total: 475,440 sq km
  - land: 472,710 sq km
  - water: 2,730 sq km
  - country comparison to the world: 55
- Area - comparative: This entry provides an area comparison based on total area equivalents. Most entities are compared with the entire US or one of the 50 states based on area measurements (1990 revised) provided by the US Bureau of the Census. The smaller entities are compared with Washington, DC (178 sq km, 69 sq mi) or The Mall in Washington, DC (0.59 sq km, 0.23 sq mi, 146 acres). ***slightly larger than California***; about four times the size of Pennsylvania
- **“Africa in Miniature”**

Source: CIA. (2019) Cameroon World Fact Book

Slater Technologies
Internet Society Blockchain SIG
Internet Society Cameroon Chapter

Peters Projection



The ***black outline*** shows the more Mercator Projection view of the World, in use for 500 years.

The ***light green area*** shows the ***Peters Projection***, a more accurate view of the World.

Cameroon Today – The Political Situation

Political Situation – Crisis in Cameroon

Crisis in Cameroon

Crise au Cameroun

EQUITY

ÉQUITÉ

Source: Wikipedia article on the Anglophone Crisis

Anglophone Crisis

Part of the Anglophone problem

Undisputed Cameroonian territory

Part of Cameroon claimed by Ambazonia

Date	September 9, 2017[1] – present (2 years, 10 months and 2 days)
Location	Northwest Region and Southwest Region (Southern Cameroons), Cameroon (With occasional spillover into Littoral Region and West Region)[2]
Status	Ongoing

Belligerents	
Cameroon	Ambazonia
Commanders and leaders	
Paul Biya Philémon Yang Joseph Ngute René Claude Meka Valere Nka	Sisiku Ayuk Tabe Samuel Ikome Sako Ayaba Cho Lucas Ebenezer Akwanga
Units involved	
FAC Vigilante groups[3]	ADF SOCADEF ASC Other groups
Strength	
12,500 troops, 9,000 militia (total size of army)[4]	2,000–4,000 fighters (as of May 2019)[5]
Casualties and losses	
800-1,000 killed (as of February 2020)[6]	~1,000 killed (as of June 2019)[7]

~3,000 killed in total (as of September 2019)[8]

679,000 internally displaced (as of January 2020)[9]

51,000 refugees in Nigeria (as of January 2020)[9]

92

Cameroon is One and Indivisible.

The First Country in the World where Internet Federation is practiced

On twitter tweet using the hashtags #BringBackOurInternet

#FreeSouthernCameroons and also #AJNewsGrid @YourAnonCentral

Slater Technologies

Internet Society Blockchain SIG

Internet Society Cameroon Chapter

Cameroon Today – Electrical Infrastructure

Cameroon's Electrical Infrastructure

Type/Name	Year of construction	Nominal power
Dams		
Grand Eweng Dam Hydroelectric Power Plant	2017-2018	1200 Megawatts
Moussere Dam Hydroelectric Power Plant	2017-2018	330 Megawatts
Lom-Pangar dam Hydroelectric Power Plant	2012-2015	30 Megawatts
Song Loulou Dam Hydroelectric Power Plant	1950	384 Megawatts
Hydroelectric dam at Mekin	2013-2016	15 Megawatts
Hydroelectric dam at Memve'ele	2013-2017	201 Megawatts
Hydroelectric power plant of Edea	1981-1988	48 Megawatts
Sub Total		**2, 208 Megawatts**
Thermal power plants in function		
Kribi gas power plant		50 Megawatts
Ahala thermal power plant		60 Megawatts
Oyom-Abang thermal power plant		13 Megawatts
Limbe thermal power plant		80 Megawatts
Edea thermal power plant		300 Megawatts
Yassa-Dibamba thermal power plant		86 Megawatts
Sub Total		**589 Megawatts**
Grand Total		**2,797 Megawatts**

Table 1: Electricity Supply

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Author's Electrical Infrastructure Experience

CHICAGO DATA CENTER

Size:
705,000 square feet

Power:
120 MW (enough to power 87,000 homes in America)

Critical Load for IT Equipment:
60 MW

No. of Physical Servers:
330,000 Servers

Microsoft Chicago Data Center in Northlake, IL.

Author's Electrical Infrastructure Experience

CH1						
	Colo Rooms		Cabinets		Servers per Cabinet	
Second Floor	4		240		42	40,320
			Modules			
First Floor	1		56		2400	134,400
CH2						
	Colo Rooms		Cabinets		Servers per Cabinet	
Second Floor	4		240		42	40,320
			Modules			
First Floor	1		48		2400	115,200
					Total Production Servers	330,240

601 Northwest Hwy, Northlake, IL

Size: 705,000 square feet
Power: 120 MW (enough to power 87,000 homes)
Critical Load for IT Equipment: 60 MW
No. of Physical Servers: > 330,000 Servers

CHICAGO DATA CENTER

Microsoft Chicago Data Center Operations Team Summer 2008

Cameroon Today – ICT Infrastructure

Cameroon's Fiber Infrastructure

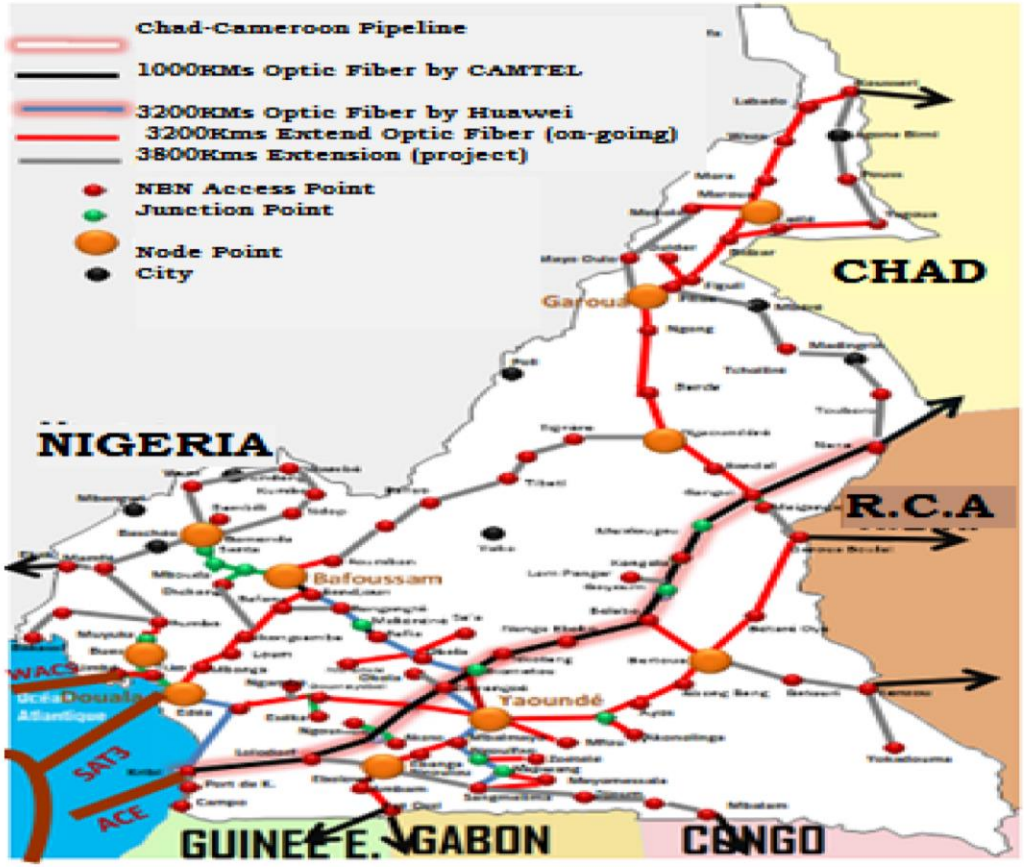


Figure 1: Optic Fiber Deployment

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

ICT Investments

	Cameroon	Senegal	Cote d'ivoire	Kenya
% GDP	3.4%	6%	5.7%	4.2%
Investment(ICT) (Billion CFA)	700	1200	1000	2000
Income (State) (Billion CFA)	195	250	300	1500
Direct Jobs	6000	5000	6000	20 000
Indirect Jobs	500,000	200,000	180,000	800,000

Table 6. Comparative Investment in ICTs

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Digital Economy & Cameroon National Economy

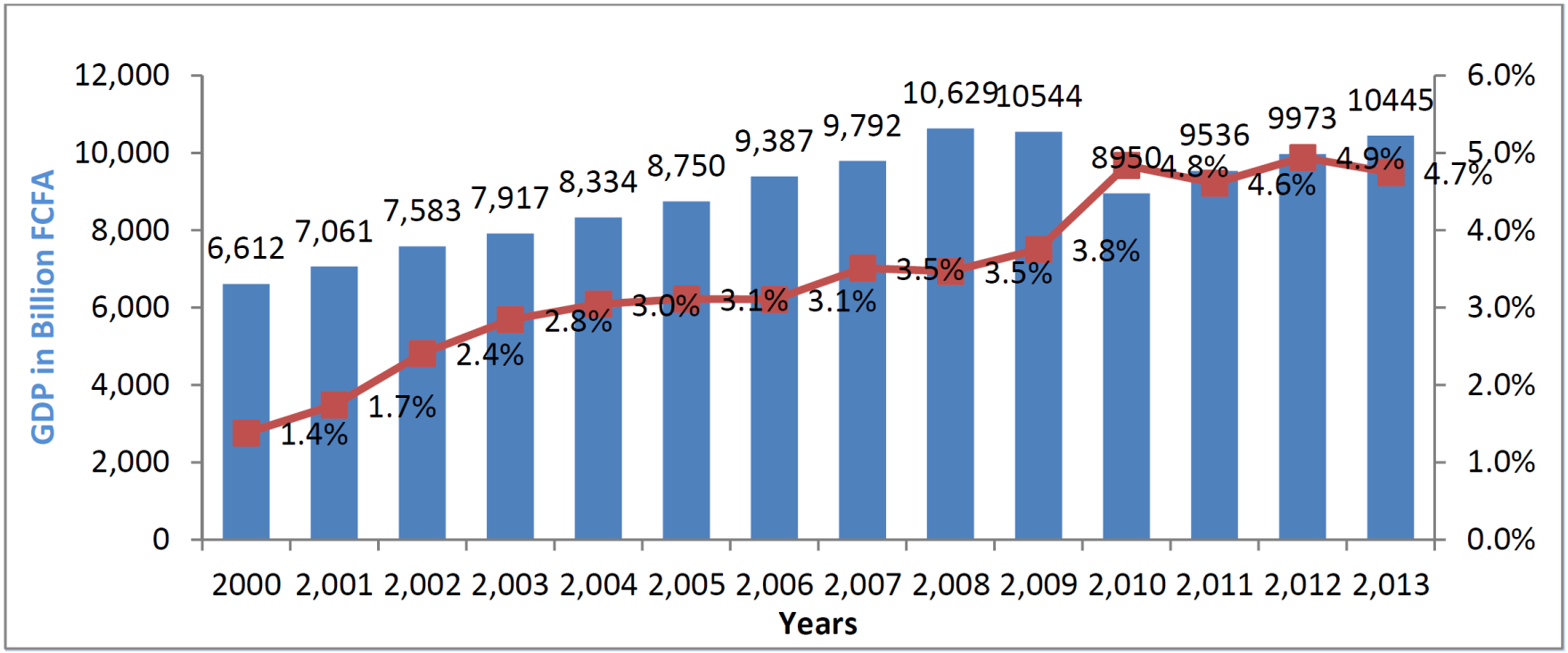


Figure 2 Contribution of Digital Economy to the Cameroon National Economy

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Cameroon Today –
ICT Influencers and Development Opportunities

Slater Technologies

Internet Society
Blockchain SIG

Internet Society
Cameroon Chapter

Digital Economy Indicators

The Digital Economy Fact Book, in its ninth edition (Britton and McGonegal, 2007), presents a factual basis from which analysis of a given entity in the new economy can start. The indicators are:

- The Growth of the Internet: host computers and domains, online population, number of Websites, ISP, etc.;
- The Hardware Sector: PC sales, cell phones, smartphones, data storage, gaming hardware, etc.;
- The Communications Sector: telephone subscription, wireless industry, VoIP, email, etc.;
- The Digital Media: TV, Internet Video, Music, Radio, Gaming, Online News, Blogging, Social Networking, etc.;
- The Electronic Commerce: Internet advertising, online finance, online travel, online health care, and the types of e-commerce systems (B2C, B2B, etc.).
- The Threats to the Digital Economy: malicious software, spam, phishing, identity theft, piracy, privacy violation, etc.
- The Worldwide Digital Economy: funding for new ideas, mergers and acquisitions, outsourcing and offshoring, IT spending, etc.

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Key Trends Affecting ICT and Its Development

- The emergence of four great forces: mobile, social media, cloud computing and massive data (big data);
- Open data from public or private entities ;
- Promoting open government data by governments to increase the transparency of the public sector and provide benefits economic and social;
- Constant high spending on research and development (R&D) and many patents, reflecting the key role of ICT in innovation;
- An increase in broadband subscriptions and the use of a smart phones or digital tablets
- An increase in global Internet traffic, but at a slower pace in previous years;
- Exponential growth in energy consumption associated with Internet use: In 2013, the Internet and all new technologies consumed about 10% of the world's production of electricity;
- A gap between SMEs and large companies regarding the acquisition or the development of ICT;
- An increase in world trade of ICT goods and services;
- Faster growth in the ICT services than in the manufacture of ICT goods;
- Convergence of service and manufacturing in the ICT sectors;
- Birth and growth of digital companies, which result in new business models that challenge the regulatory environments;
- The emergence of a collaborative economy which contributes to the creation of new consumption patterns, favoring exchanges and sharing of goods and services;
- Improving the performance of telecommunication networks through the deployment of optical fiber and 4G networks;
- Questionings related to governance (routing Requirements or local content, data storage, network neutrality, acceptance Universal multilingual domain names, etc.).

All these trends are crucial because they can form the basis of a set of useful key performance indicators in the digital economy.

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

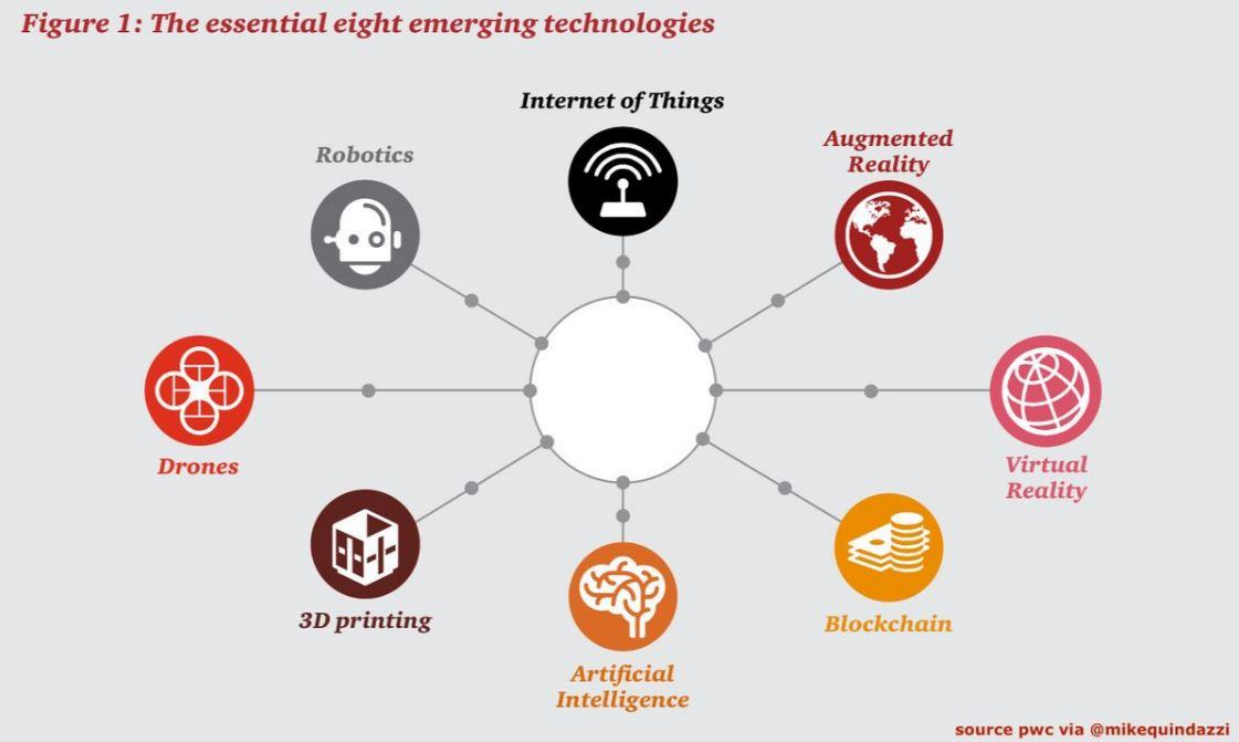
Roadmap to the Digital Economy in Cameroon

- Seven Categories
  - Research and Innovation
  - Entrepreneurship & Startups
  - Digital Business Transformation
  - ICT Sector
  - Workforce
  - Digital Infrastructures
  - Governance

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Innovation Areas

- Innovation Areas
  - Biotechnology
  - Artificial Intelligence
  - Global-Scale Technology
  - Policy, Strategy, and Vision
  - Cybersecurity
  - Quantum Computing
  - And multiple emerging-technology spotlights



Components of the Digital Economy Development

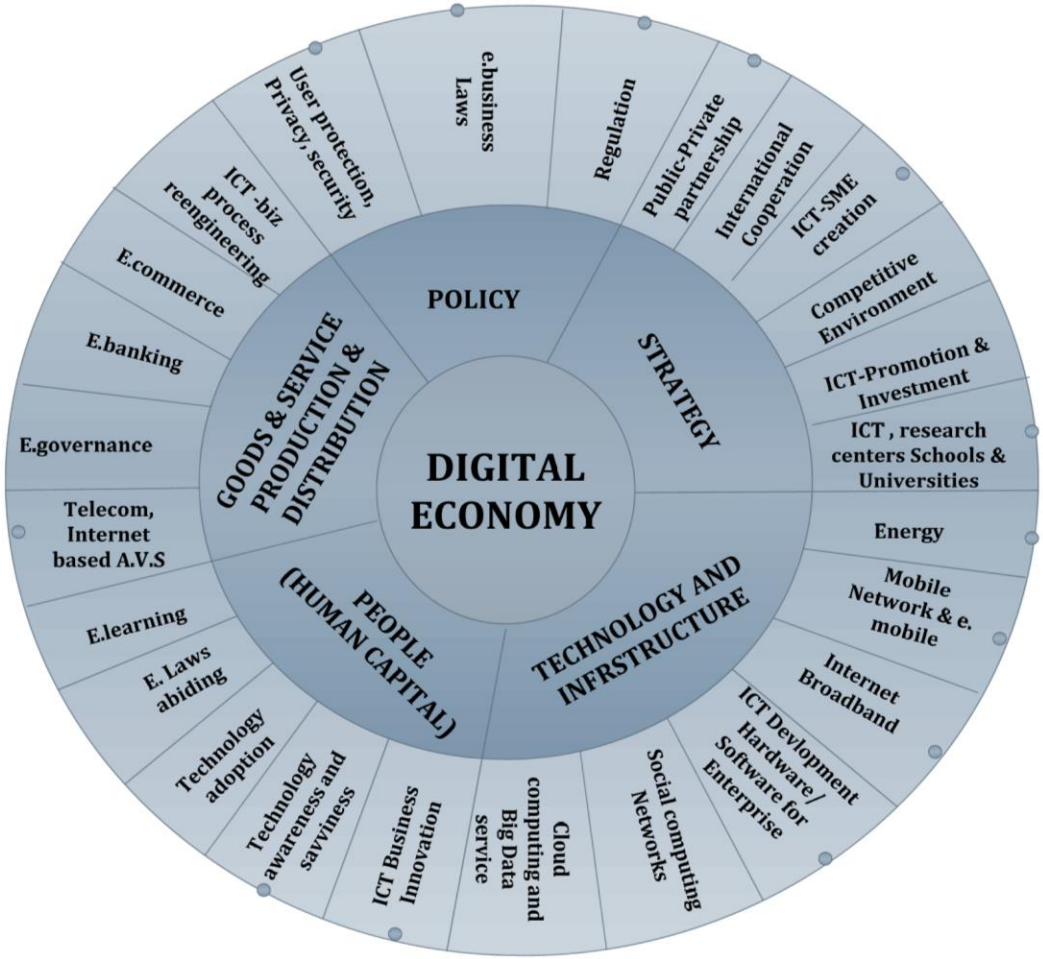


Figure 3 Major Components of Digital Economy Development

Source: Etoundi, R. A., et al. (2016). Development of the Digital Economy in Cameroon: Challenges and Perspectives.

Additional Resources

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Additional Resources

- Antonopoulos, A. M. (2018). Mastering Bitcoin: Programming the Open Blockchain, second edition. Sebastopol, CA: O'Reilly Media, Inc.
- Antonopoulos, A. M. and Wood, G. (2019). Mastering Ethereum: Building Smart Contract sand DApps. Sebastopol, CA: O'Reilly Media, Inc.
- Axios. (2020). May Meeker's COVID-19 Trends Report. Retrieved from https://www.axios.com/mary-meeker-coronavirus-trends-report-0690fc96-294f-47e6-9c57-573f829a6d7c.html on June 27, 2020.
- Bahga, A. and Madisetti, V. (2017). Blockchain Applications: A Hands-On Approach. Published by Arshdeep Bahga and Vijay Madisetti. www.blockchain-book.com .
- Bambara, J. J. and Allen P. R. (2018). Blockchain: A Practical Guide to Developing Business, Law, and Technology Solutions. New York, NY: McGraw-Hill Education.
- Bashir, I. (2018). Mastering Blockchain, second edition. Birmingham, UK: Packt Publishing Ltd.
- **Bharadwaj, H. (2018). New Realities: VR, AR, MR, and the Future of Design. Retrieved from https://www.toptal.com/designers/product-design/vr-ar-mr-the-future-of-design on July 17, 2020.**
- Blockchain Training Alliance. (2019). Global Blockchain Terms, version 2.0. Retrieved from https://cdn.shopify.com/s/files/1/2137/1081/files/BTA_Global_Blockchain_Terms.pdf?2499 on August 14, 2019
- Casey, M. J. and Vigna, P. (2018). The Truth Machine: The Blockchain Reference and the Future of Everything. New York, NY: St. Martin's Press.
- Caughey, M. (2013). Bitcoin Step by Step, second edition. Amazon Digital Services.

Additional Resources

- CB Insights. (2018) Memes That Kill: The Future of Information Warfare. Retrieved on May 10, 2018 from https://app.cbinsights.com/research/future-of-information-warfare/ .
- Champagne, P. (2014). The Book of Satoshi: The Collected Writings of Bitcoin Creator Satoshi Nakamoto. Published by E53 Publishing, LLC.
- Chopra-McGowan, A. and Reddy, S. B. (2020). What Would It Take to Reskill Entire Industries? Retrieved from https://hbr.org/2020/07/what-would-it-take-to-reskill-entire-industries on July 14, 2020.
- Dannen, C. (2017). Introducing Ethereum and Solidity: Foundations of Crytocurrency and Blockchain Programming for Beginners. New York, NY: Apress
- De Filippi, P. and Wright, A. (2018). Blockchain and the Law: the Rule of Code. Cambridge, MA: President and Fellows of Harvard College.
- De Havilland, P. (2018). Greedy, Prodigal, and Suicidal — Hosho to Save Smart Contracts From Three Deadly Sins. An article published at Bitsonline.com on September 3, 2018. Retrieved from https://bitsonline.com/greedy-prodigal-suicidal-hosho-smart-contracts/ on February 27, 2019.
- Dhillon, V., Metcalf, D., and Hooper, M. (2017). Blockchain Enabled Applications: Understand the Blockchain Ecosystem and How to Nake It Work for You. New York, NY: Apress.
- Drescher, D. (2017). Blockchain Basics. Frankfort am Main, Germany: Apress.
- Eddison, L. (2017). Ethereum: A Deep Dive into Ethereum. Published by Leonard Eddison.
- Etwaru, R. (2017). Blockchain Trust Companies. Indianapolis, IN: Dog Ear Publishing.
- Ferry, T. (2019). To Blockchain or not to Blockchain. An article published at Medium.com on June 8, 2018. Retrieved on January 13, 2019 from https://medium.com/causys/to-blockchain-or-not-to-blockchain-aed05bf08150 .

Additional Resources

- Infante, R. (2019) Building Ethereum DApps. Shelter Island, NY: Manning Publications.
- Laurence, T. (2017). Blockchain for Dummies. Hoboken, NJ: John Wiley & Sons, Inc.
- Lee, T. B. (2013). 12 questions about Bitcoin you were too embarrassed to ask. Retrieved from http://www.washingtonpost.com/blogs/the-switch/wp/2013/11/19/12-questions-you-were-too-embarrassed-to-ask-about-bitcoin/ on November 19, 2013.
- Lombana-Bermudez, A., et al. (2020) "Youth and the Digital Economy: Exploring Youth Practices, Motivations, Skills, Pathways, and Value Creation," Youth and Media, Berkman Klein Center for Internet & Society Published by the Harvard Library for Scholarly Communication. Retrieved from https://dash.harvard.edu/handle/1/42669835 on July 11, 2020.
- Ma, M. (2017). Blockchain Design Sprint: An Agile Innovation Workbook to Implement an Agile Design Sprint for your Blockchain Business. Published by Future Lab www.futurelabconsulting.com.
- MANRS. (2017). Mutually Agreed Norms for Routing Security (MANRS) Implementation Guide, version 1.0 Retrieved on April 14, 2020 from https://www.manrs.org/isps/guide/.
- Moore, G. E. (1965). Cramming More Components onto Integrated Circuits. Published in Electronics Magazine, April 1965. Retrieved from http://www.billslater.com/moore's_law_1965.pdf on July 17, 2020.
- Nakamoto. S. (2008). Bitcoin: A Peer-to-Peer Electronic Cash System. Retrieved from https://bitcoin.org/bitcoin.pdf on November 1, 2013.
- Navarro, M. (2020). What Would It Take to Reskill Entire Industries? Retrieved from https://blog.iammarketingmedia.com/what-would-it-take-to-reskill-entire-industries/ on July 14, 2020.
- Nguyen, J. (2019). Blockchain still vulnerable to hacks despite security hype, but here are some solutions. Retrieved from https://e27.co/blockchain-still-vulnerable-to-hacks-despite-security-hype-but-here-are-some-solutions-20190212/ on February 13, 2019.

Additional Resources

- O'Ham, T. (2018). Singapore Research Team Codifies 3 new Ethereum VM Vulnerabilities. An article published at Bitsonline.com on February 21, 2018. Retrieved from https://bitsonline.com/singapore-research-ethereum/ on February 27, 2019.
- Orcutt, M. (2019). Once Hailed as Unhackable, Blockchains Are now Getting Hacked. An article in MIT Review. Published February 19, 2019. Retrieved from https://www.technologyreview.com/s/612974/once-hailed-as-unhackable-blockchains-are-now-getting-hacked/ on February 24, 2019.
- Popper, N. (2013). Into the Bitcoin Mines, Retrieved from http://dealbook.nytimes.com/2013/12/21/into-the-bitcoin-mines/?hp&_r=0 on December 21, 2013.
- Prusty, N. (2017). Building Blockchain Projects: Building Decentralized Blockchain Applications with Ethereum and Solidity. Birmingham, UK: Pact Publishing.
- Ramone, A. D. (2019). How to Secure a Blockchain: 3 Things Business Leaders Know. An article published at Techrepublic.com on April 18, 2019. Retrieved from https://www.techrepublic.com/article/how-to-secure-a-blockchain-3-things-business-leaders-need-to-know/ on April 23, 2019.
- Randall, I. (2020). Global internet outages reach a record high during the coronavirus lockdown as broadband operators tinker with networks to meet increased demand from people working from home. Published April 29, 2020 at Daily Mail UK. Retrieved from https://www.dailymail.co.uk/sciencetech/article-8269245/Global-internet-outages-reach-record-high-coronavirus-lockdown.html on April 30, 2020.

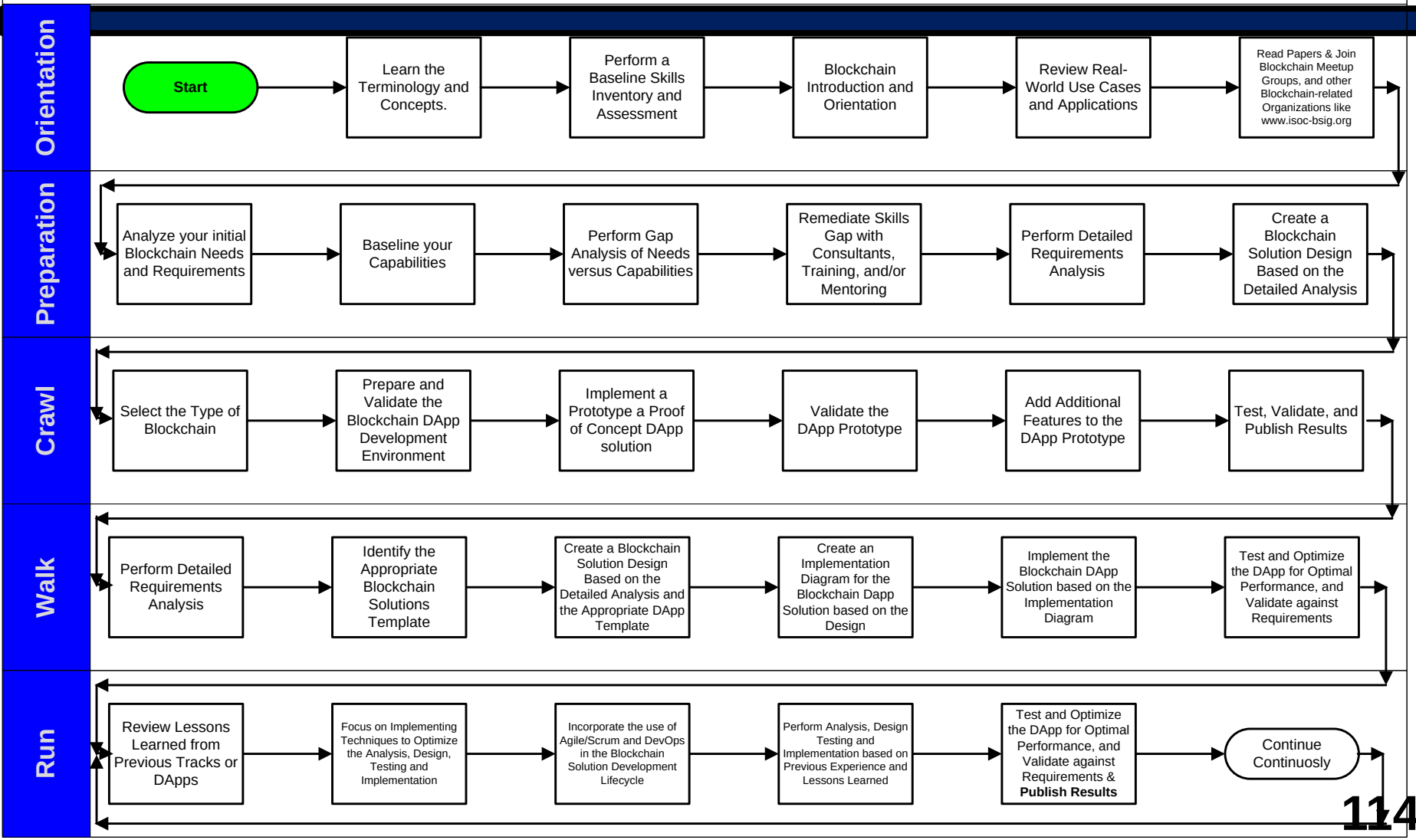
Additional Resources

- SCGNEWS. (2014). The IRS Just Declared War on Bitcoin - Retroactively. Retrieved from http://scgnews.com/the-irs-just-declared-war-on-bitcoin-retroactively on March 27, 2014.
- Schudel, G. and Smith, D.J. (2008). Router Security Strategies: Securing IP Traffic Planes. Indianapolis, IN: Cisco Press.
- Slater, W. F. (2002). The Internet Outage and Attacks of October 2002. Retrieved from http://www.billslater.com/writing/2002_1107__Internet_Outage_and_Attacks_in_october_2002_by_William_Slater.pdf on May 1, 2020.
- Slater, W. F. (2020). A Proposal to Improve MANRS Global Secure Internet Routing Policy Management Using Blockchain Technology. Write as the the Chapter Initiative Projecct Requirement for the ISOC Course on Mutually Assured Norms for Routing Security (MANRS). Retrieved from http://www.billslater.com/manrs/ISOC_MANRS_Chapter%20_Initiative_Project_William_Slater_2020_0606_v01.1_.pdf on June 26, 2020.
- Slater, W. F. (2020). Leadership in Digital Uncertainty: New Strategy to Cope with the New Normal. Retrieved from http://www.billslater.com/cameroon_2020.pdf on July 17, 2020.
- Slater, W. F. (2019). Introduction to Blockchain for Executives, Managers, & Decision Maker. Retrieved from http://www.billslater.com/writing/IIT_Blockchain_Introduction_January%202019_v01.1.3_from_William_Favre_Slater_III_.pdf on July 17, 2020.

Additional Resources

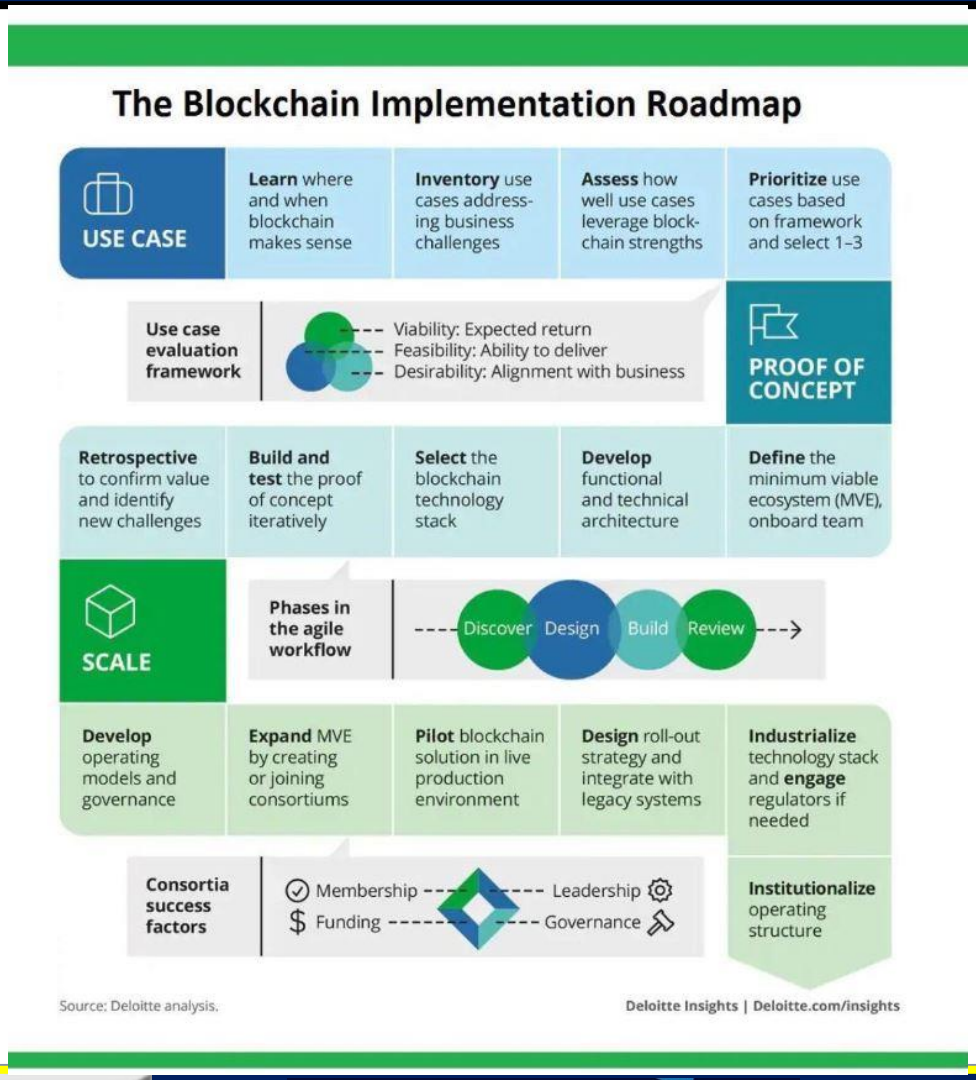
- Slater, W. F. (2019). How to "Blockchain" Your IT Organization. Retrieved from http://www.authorstream.com/Presentation/billslater-3536040-roadmap-blockchain-organization-square/ on July 17, 2020.
- Slater, W. F. (2015). Telework: Risks, Challenges, Perils, and Successes. Retrieved from http://www.billslater.com/writing/teleworking2015_slater.pdf on July 17, 2020.
- Smith, B. (2019). The Evolution of Cryptocurrency in Terrorism. Retrieved from Blockchain Training Alliance. (2019). Global Blockchain Terms, version 2.0. Retrieved on August 14, 2019 from https://www.bellingcat.com/news/2019/08/09/the-evolution-of-bitcoin-in-terrorist-financing/ on August 10, 2019.
- Xu, X., Weber, I, and Stables, M. (2019). Architecture for Blockchain Applications. Nature, Switzerland: Springer Publications.
- Zenko, M. (2017). Bitcoins for Bombs – a Blog published at the Council on Foreign Relations on August 17, 2017. Retrieved from https://www.cfr.org/blog/bitcoin-bombs on February 13, 2019.

Roadmap to "Blockchain" Your IT Organization: How to Help Your IT Staff Go from Square One to Competence & Dominance in Blockchain Technologies



Slater Technologies
Internet Society Blockchain SIG
Internet Society Cameroon Chapter

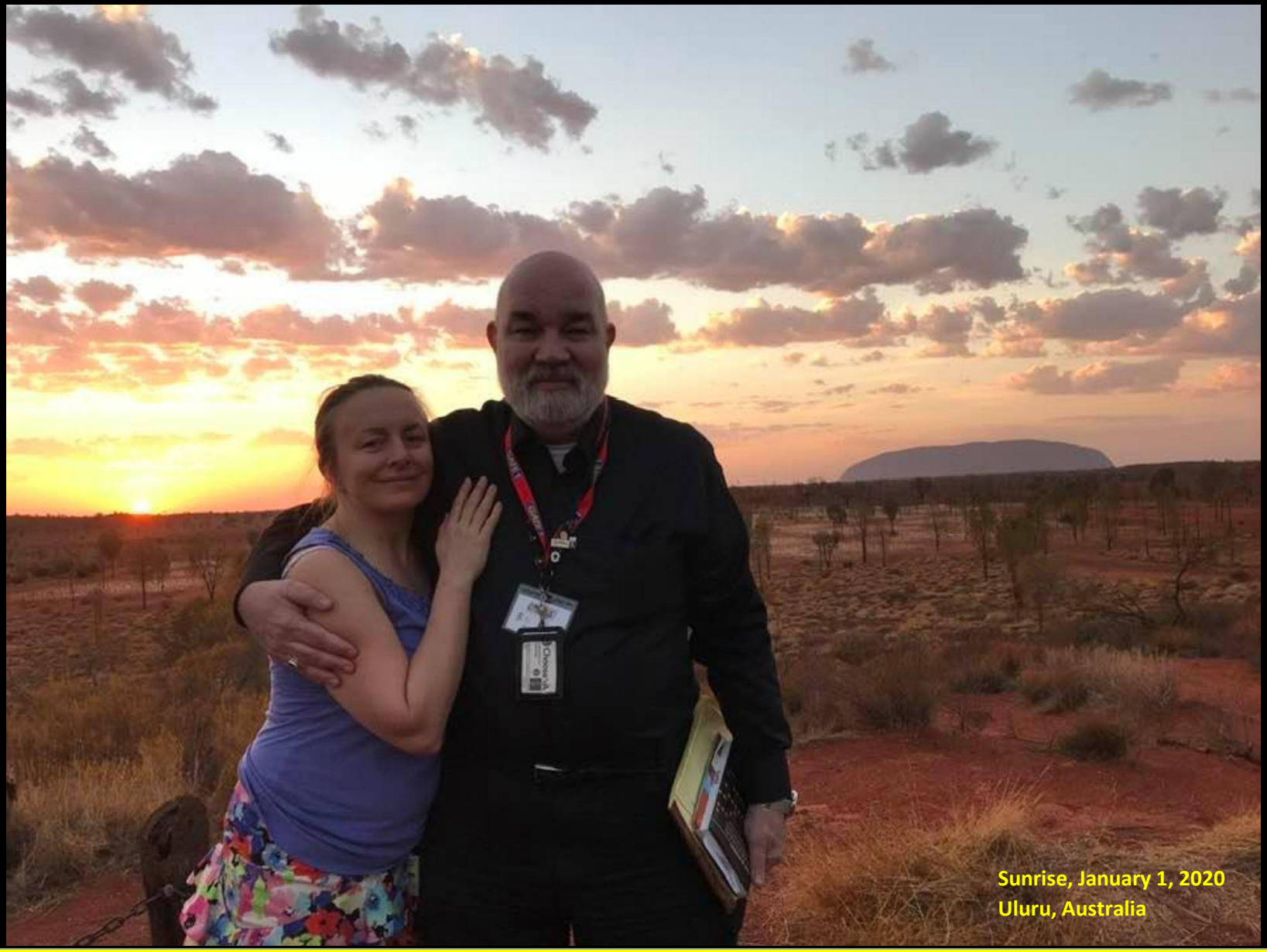
Blockchain Implementation Roadmap



Dedication

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.

Dedicated with Love and Everlasting Devotion to My Lovely Bride, Joanna Roguska, Who Is the Incarnate Holy Angel Who Our Lord God Miraculously Placed in My Life in 2000 to Rescue, Love, Inspire and Guard Me on a Daily Basis from then to Eternity.



Sunrise, January 1, 2020
Uluru, Australia

Copyright © 2019 Information Systems Audit and Control Association, Inc. All rights reserved.