

Emerging alternatives to leadership and governance in a digital ecosystem

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Presentation structure

Emerging alternatives to leadership and governance in a digital ecosystem

- Keynote outline
- Digital Leadership (DL)
- VUCA World
- Digital Transformation
- Technology side
- People side
- Models to integrate DL practices
- Final remarks



Keynote outline

Emerging alternatives to leadership and governance in a digital ecosystem

The last decade brings us a quite global, complex and complete digital ecosystem, the so called VUCA world where volatility, uncertainty, complexity and ambiguity is a common setting for any organization. Digital data and information, appliances, information artifacts and any sort of products and applications emerge, more connective due to its digital nature. Even considering different contexts, almost any economic sector, social or work setting was affected by a common digital base. Thus, whatever perspective that we can take on, this digital base made some sort of impact both in the way we work, and organize ourselves. It also alters the ways we interact and support human relationships both as individuals and as organizations.

It is expected that such a digital ecosystem enhances and transforms hard skills related with information and communication technologies and the same with information based skills. Not so clear, the same happens to soft skills and the need to address new challenges in how we deal with human activity. In particular, concerning leadership and governance, there is a need to discuss emerging alternatives in a digital ecosystem.

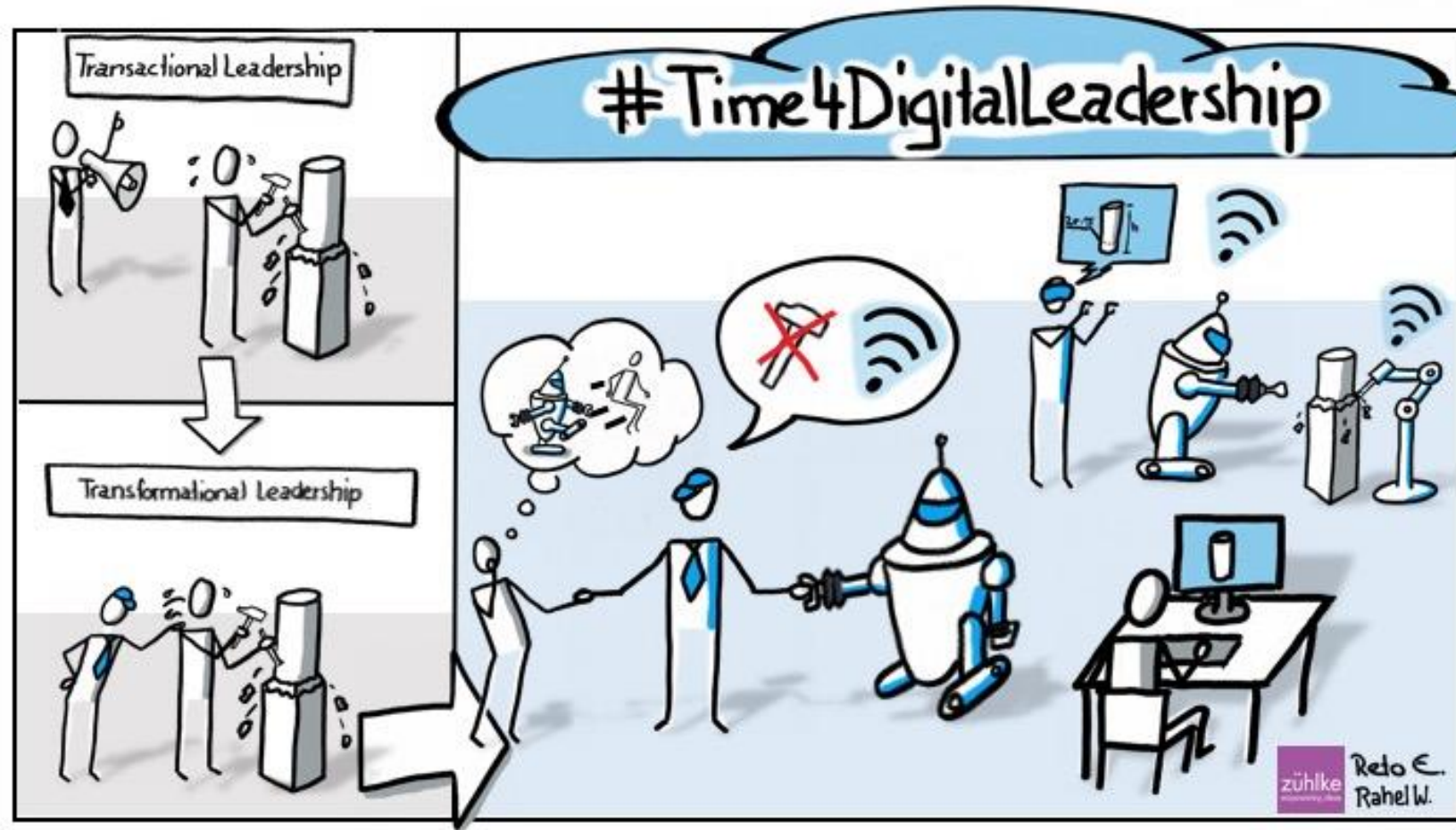
SAME INFORMATION

DIFFERENT COGNITION

Let's start...

Dimensions of Digital Leadership

- Spotting business opportunities through **new technologies**
- Find the path within **change and transformation**
- Keep a strong **social and human** orientation
- Develop communities with a **collaborative culture**



<https://www.zuehlke.com/blog/en/challenges-of-digital-leadership/>

Digital Leadership

- Related with **digital transformation** (DX)
- A digital leader will:
 - Use **data driven** analysis rather than subjective analysis
 - Develop a **vision** rather than an aspiration
 - Develop a **demand based strategy** (client-side) rather than from the offer side
 - Outline **coherent action** rather than ad-hoc performance programs
 - Focus on **outcomes** rather than outputs
- The digital leader will recognize that digital transformation is not about technology but about **strategy, structure, culture, capabilities and understanding** the demand side
- It is about how to use and explore technology to create **competitive advantage** (and not to technology itself)
- Within organizations, digital leadership is the strategic use of the organization's digital assets to achieve business goals
 - Digital leadership can be addressed at both organizational and individual levels. Normally related with the CIO (**Chief Information Officer**)

The context of a VUCA environment



VUCA

Volatility

*“**Volatility has to do with the speed of change.** A tweet from a world leader can set a new wave of change into motion. New markets emerge overnight, or business models appear out of nowhere that put other organizations out of business in a snap of a finger. **The more volatility there is in the world, the faster things change.** The **trust-building** antidote to volatility is for leaders to be reliable and consistent in how they **respond to change.** Freaking out, making rash decisions, or retreating into a shell to resist change will further erode trust in leadership. Steady, thoughtful, and predictable leadership builds trust.”*

<https://leadingwithtrust.com/2019/06/23/4-principles-for-building-trust-in-a-vuca-world/>

VUCA

Uncertainty

*“**Uncertainty is the extent to which we can reasonably predict the future.** With change happening so fast, this is a tremendous challenge for 21st century leaders. The trust-building corollary is to **emphasize what is known and to keep teams focused on things under their control.** Although it sounds counter-intuitive, leaders need to **extend trust in times of uncertainty.** Trust requires **risk.** If there’s no risk, there’s no need for trust (...). **Control** is the opposite of trust, so if leaders resort to controlling behaviors like **micromanaging or withholding information** during times of uncertainty, they’ll further erode trust with their teams and kill their ability to thrive during change.”*

<https://leadingwithtrust.com/2019/06/23/4-principles-for-building-trust-in-a-vuca-world/>

VUCA Complexity

*“Complexity is the number and variety of factors a leader must consider and their relationships with one another. Often, a leader’s challenge is not having enough information to make a decision, but having **too much information**. We are **overwhelmed with data**, and many times it is too vague or inaccurate to breed a **sense of confidence**. When dealing with complexity, a leader builds trust by **leveraging the skills and abilities** of team members. They involve others in **solving problems**, bringing their best and brightest to the table to help figure out these complex issues. Trustworthy leaders **share information liberally** and foster a **culture of transparency**, because they believe that people cannot act responsibly if they don’t have the right information. (..). A good team axiom is **no one of us is as smart as all of us.**”*

<https://leadingwithtrust.com/2019/06/23/4-principles-for-building-trust-in-a-vuca-world/>

VUCA Ambiguity

*“**Ambiguity** refers to the lack of clarity about how to interpret something. Information may be incomplete, the truth may be indiscernible, or the data may be contradictory. Fuzziness, vagueness, and indecisiveness reign in times of ambiguity. To build trust, leaders must **be clear on the vision and purpose of the organization.** (...) When your team has a clear vision of where they’re headed, they can cut through the noise, confusion, and distractions swirling around them. The leader’s job is not just to articulate a clear vision, but also **to equip team members with the necessary mindset and skillset to achieve the vision.**”*

<https://leadingwithtrust.com/2019/06/23/4-principles-for-building-trust-in-a-vuca-world/>

Digital transformation

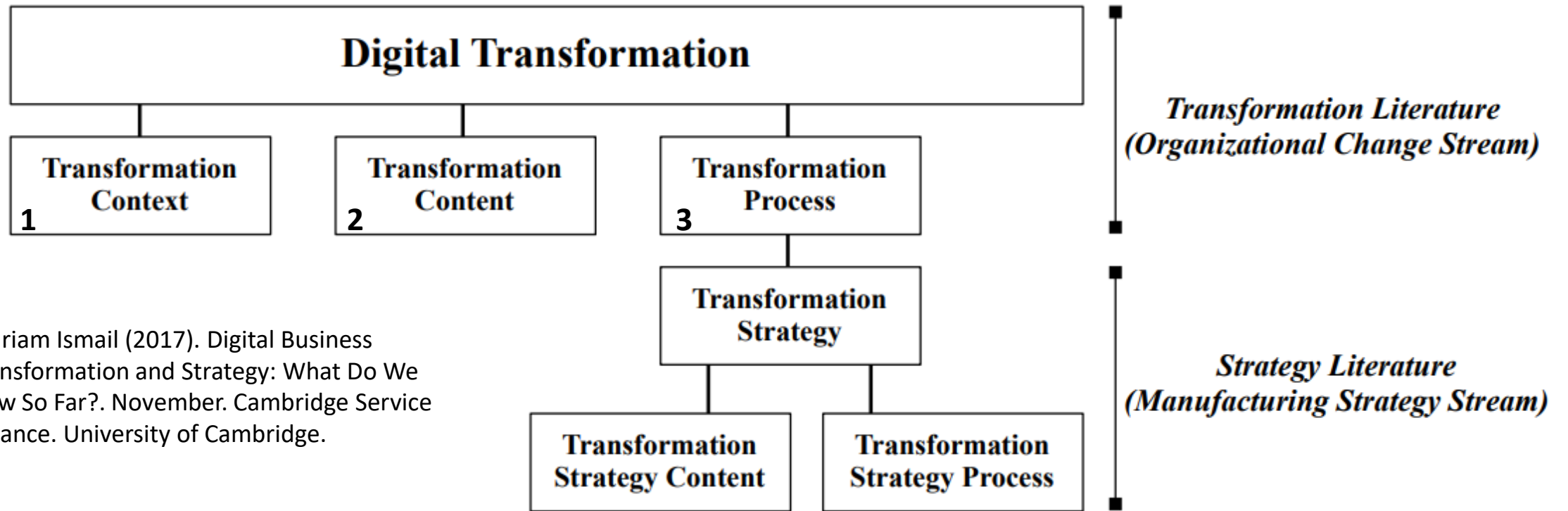
...different perspectives may apply

Yoo, Y., Henfridsson, O. & Lyytinen, K., 2010. Research Commentary - The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research. 35 Information Systems Research, 21(4), pp.724–735.

*“(...) digital transformation is a more complex type of **technology enabled business transformation**, which needs to address the **strategic roles of new digital technologies and capabilities for successful digital innovation in the digital world**” (Yoo et al. 2010).*

*Ismail et al. (2017) define it as the process through which companies **converge multiple new digital technologies**, enhanced with **ubiquitous connectivity**, with the intention of reaching **superior performance and sustained competitive advantage**, by transforming multiple business dimensions, including the business model, the customer experience (comprising digitally enabled **products and services**) and operations (comprising **processes** and decision-making), and simultaneously impacting people (including **skills** talent and **culture**) and networks (including the entire **value system**).”*

Mariam Ismail (2017). Digital Business Transformation and Strategy: What Do We Now So Far?. November. Cambridge Service Alliance. University of Cambridge.



Mariam Ismail (2017). Digital Business Transformation and Strategy: What Do We Now So Far?. November. Cambridge Service Alliance. University of Cambridge.

Questions	Rationale
1: Why do companies digitally transform?	Seeks to understand the context of digital transformation
2: What do we know about the dimensions of digital business transformation?	Seeks to understand the content of digital transformation
3: How do businesses formulate and implement their digital business transformation strategies?	Seeks to understand digital transformation from a strategy lens and explores its content and process

An example from “*real world*”

Information security and cybersecurity issues

- Considering a report from Sophos
 - <https://www.sophos.com/en-us/medialibrary/PDFs/Whitepaper/sophos-exposed-cyberattacks-on-cloud-honeypots-wp.pdf>
- “Contrary to popular belief, **every device is worth hacking when the process is automated.**
It doesn't matter who or where you are, if you own a company big or small, or have technology in the home – every device can be monetized by an enterprising criminal”
- Opportunities for hacking (**honeypots**)
 - Data
 - Money
 - Services

SOPHOS



Exposed: Cyberattacks on
Cloud Honeypots

Matt Boddy, Sophos

Ongoing hacking activity – attempts

Login attempts to honeypots in a 30 day period



Number of attempted SSH brute-force login attempts per honeypot

SOPHOS

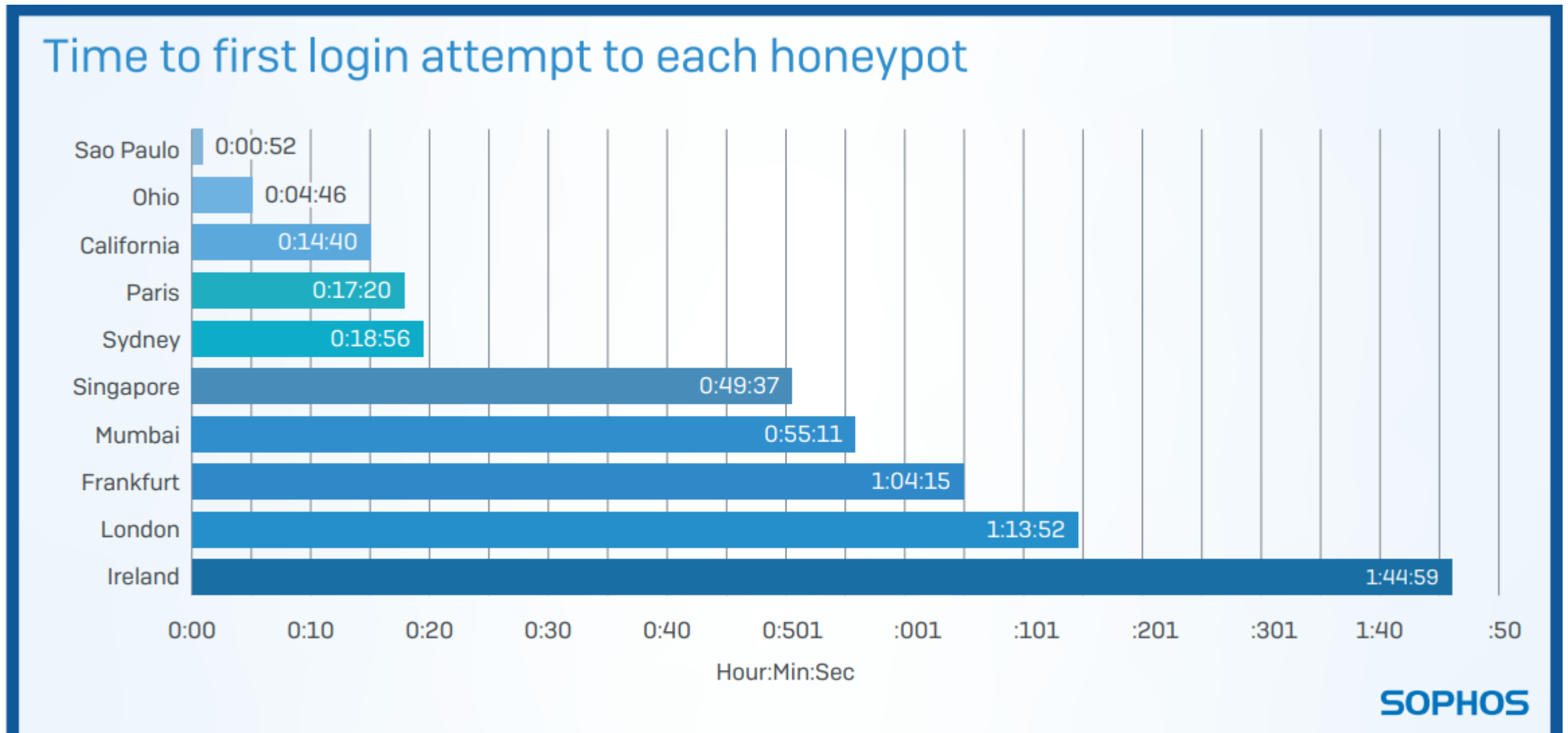
Data range of
data collection

30 days

Jan 17th 2019
00:00:00.000 to
15th Feb 2019
23:59:59.999

Security is a real issue

Time to first login attempt to each honeypot



What honeypots are on risk?

Username and potential associated devices

USERNAME	DEFAULT DEVICE	LOGIN ATTEMPT COUNT
root	Most Linux devices and many IoT devices (can be one and the same) including Seagate, Synology NAS devices	5,211,644
admin	IoT devices including ACTi, Asoni, AVTech, Basler, Brickcom, FLIR, GANZ PixelPro, Geovision, Hikvision, Hunt Electronic, iCatch, JVC, LG, Mobotix, Panasonic, Pixord and Samsung CCTV devices and Seagate, Verbatim and Lacie NAS devices	47,816
user	IoT devices	6,345
ubnt	Ubiquiti Networks' default username	5,469
ubuntu	AWS Ubuntu instance	2,585
nagios	Nagios network monitoring	2,520
pi	Default username on Raspbian	2,217
postgres	PostgreSQL default username	1,748

Note: Aggregated results of login attempts on all honeypots.

After discovery, how to conquer these honeypots?

Passwords and potential associated devices

PASSWORD	DEFAULT DEVICE	LOGIN ATTEMPT COUNT
123456	IoT devices, including ACTi, iCatch and See Max CCTV cameras	15,735
admin	IoT devices including Asoni, AVTech, Basler, Brickcom, Geovision, Hunt Electronic, iCanTek, iCatch, LG, Pixord, Sanyo and Samsung CCTV cameras, and Seagate and Lacie NAS devices	12,605
1234	IoT devices including GANZ PixelPro CCTV camera	9,583
password	IoT devices including Digicom routers and Lacie NAS devices	9,034
12345	IoT devices including Hikvision and Panasonic CCTV cameras	7,145
ubnt	Ubiquiti Networks' default password	6,137
root	IoT devices including devices manufactured by D-max CCTV cameras	5,767
123	IoT devices including YooSee CCTV cameras	5,433
[blank]	The blank password is used on Axis and Vivotek IoT devices as the default password	3,248
raspberry	Raspberry is the default password for Raspbian, the Raspberry Pi distribution of Linux	1,808

Is cybersecurity a technical (IT) problem?

Not anymore...

- It is a critical organizational problem and requires other skills

Digital Leadership

*But
the new
technology
are the
people*

WANTED:
ETHICAL
GOD-FEARING CLEAN & HONEST TRACK RECORD PROVEN INTEGRITY
EFFECTIVE
COMPETENT GOOD TRACK RECORD DECISIVE AND PROACTIVE
EMPOWERING
PARTICIPATIVE AND ENGAGING INSPIRING SOCIALLY JUST
**GOVERNMENT
LEADERS**
(Yes, we believe they exist.)

Harness people

Creativity

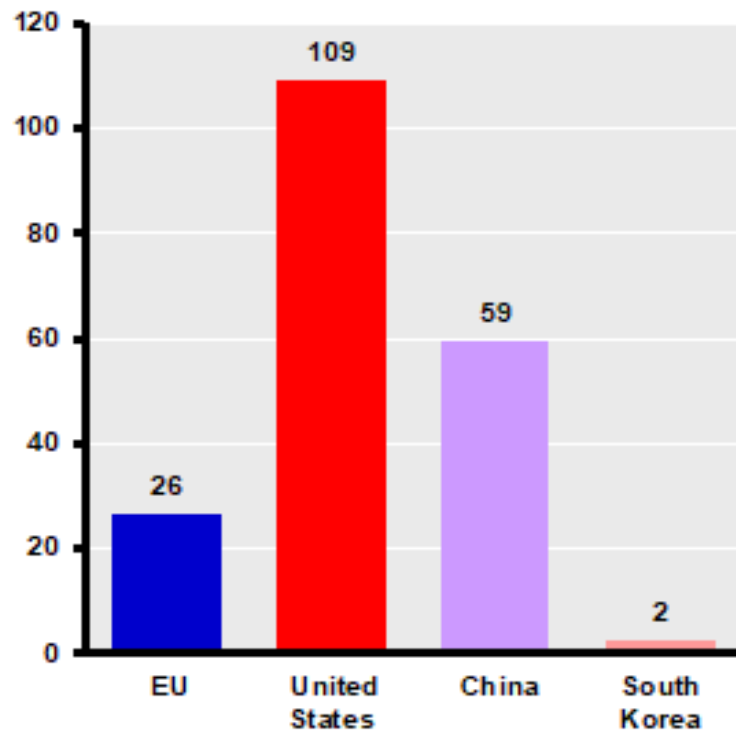
Ideas

Innovation

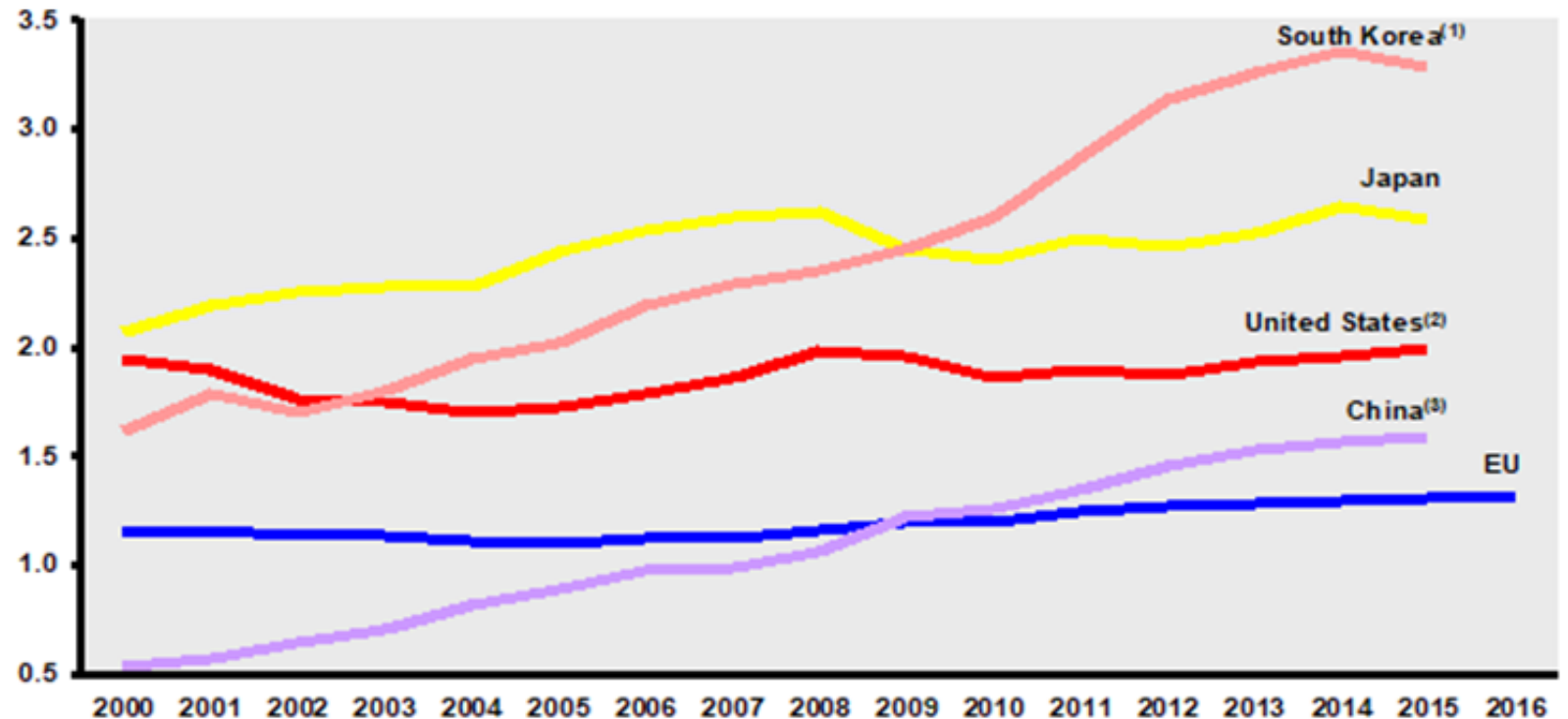
Where do we, Europe, stand for now?

Urge for innovation harnessing peoples' knowledge (client/demand),
not structures (offer/system)

Number of unicorns, December 2017



Evolution of business R&D intensity, 2000-2016



Source: World Economic Forum, https://www.weforum.org/agenda/2019/03/europe-is-no-longer-an-innovation-leader-heres-how-it-can-get-ahead?fbclid=IwAR1n1v5PIQdu9ujT1uphH_h5bnySuhrMSPWs65iE9H26OZXNYMqJQnrNCqE

Solutions? Digital Leadership?

Adopt Cloud Computing
(to support **digital platforms**)

Create a controlled **digital ecosystems** that:

Protect **privacy**
(sensible data)

Reduce **entropy** (filter
relevant information)

Control and monitor
activity (operations)

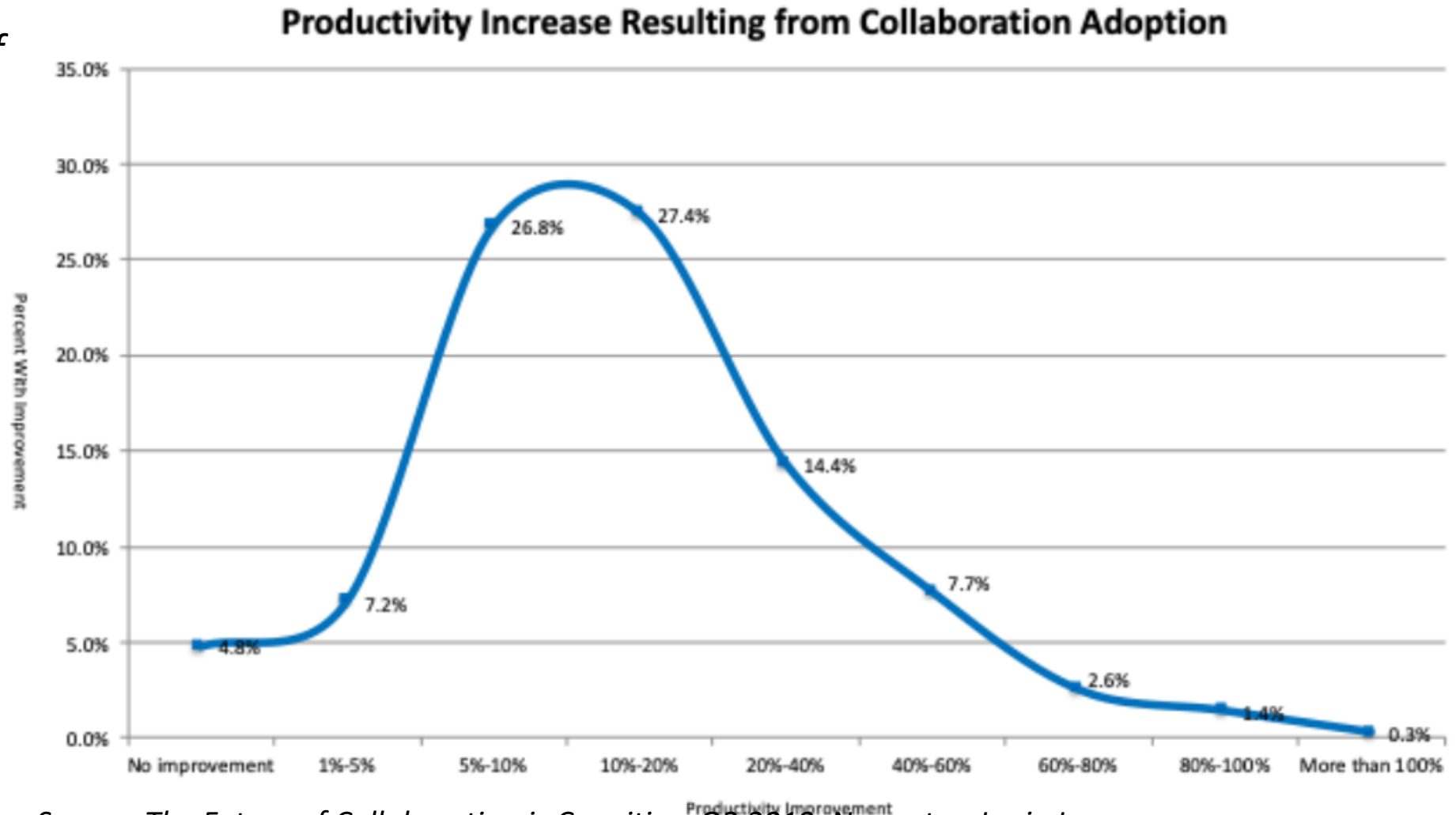
Digital Leadership

Create a digital safe space

Added value, supported on owned
digital platforms

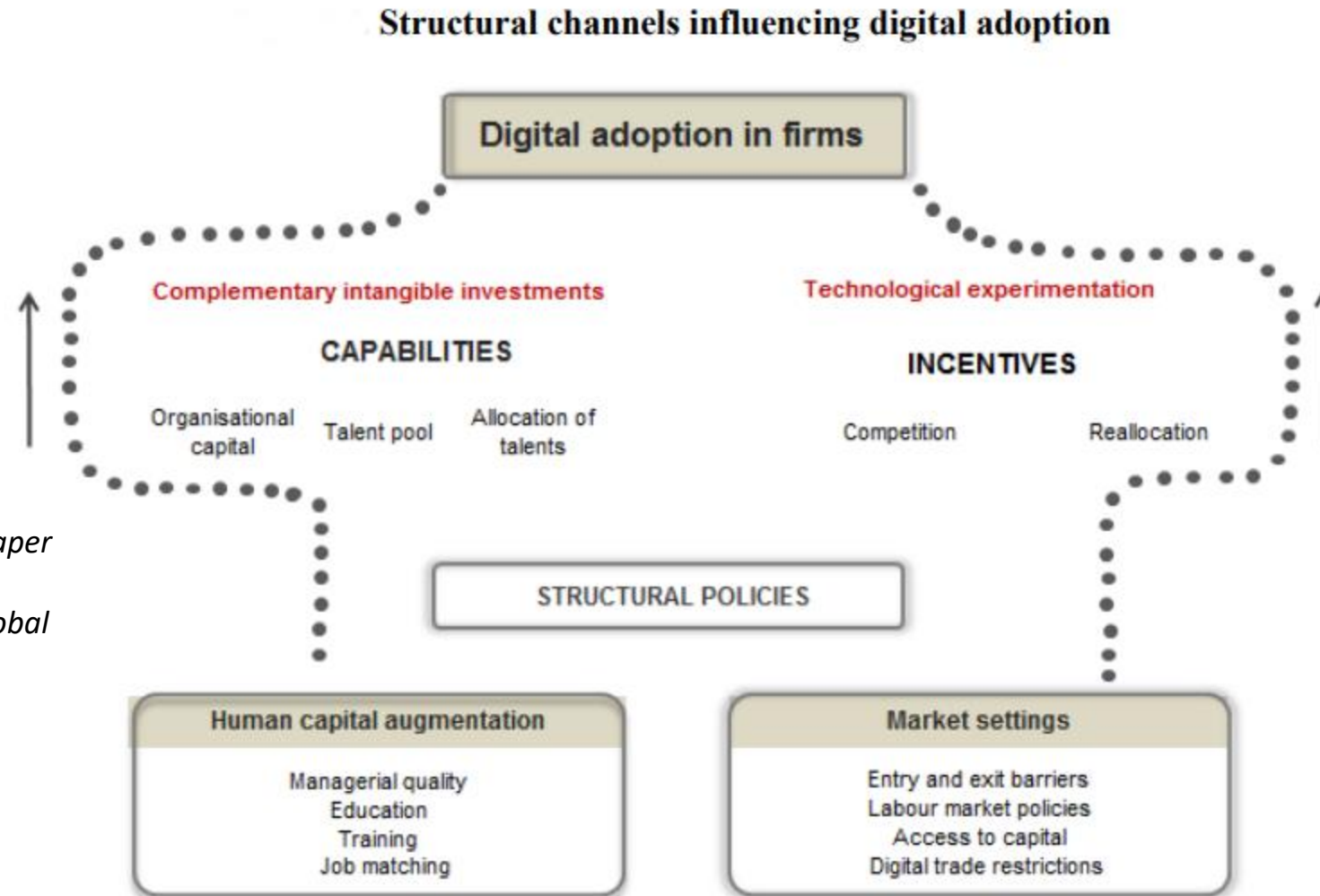
The quest for productivity

*“approximately 20% of research participants are able to **measure quantifiable productivity improvements** associated with their investments in collaboration technologies (...) see a gain of between **5 and 20%.**”*



Source: *The Future of Collaboration is Cognitive*. Q2 2019. Nemertes. Irwin Lazar.

Mixing capabilities and incentives for digital adoption within an organization

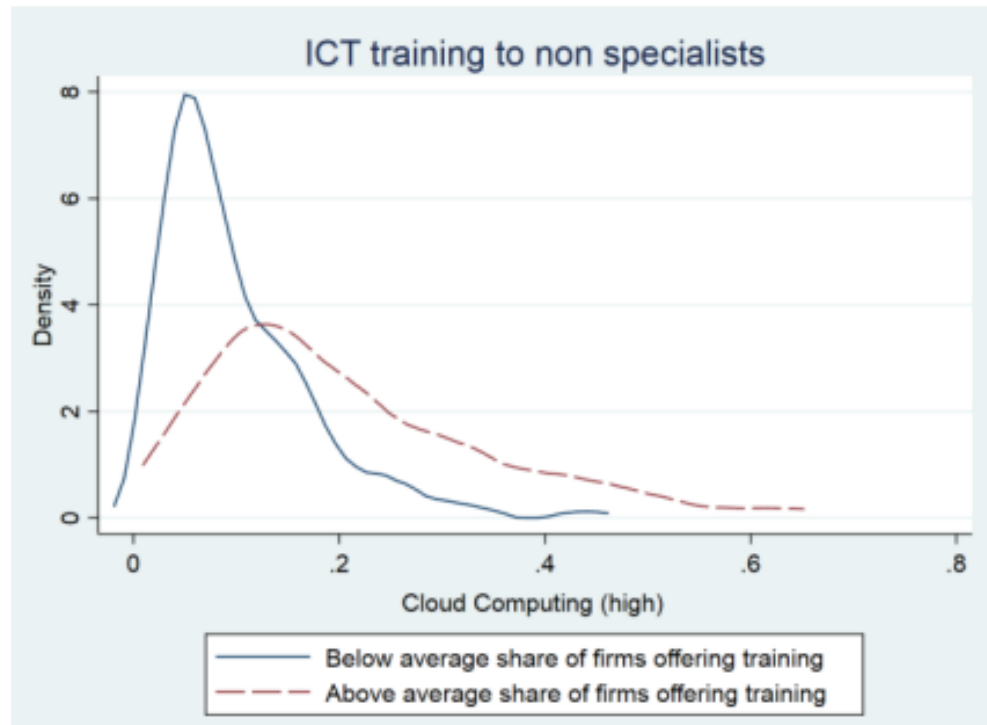


Source: Background paper going digital.
Dan Andrews et al. Global Forum on Productivity. Ottawa, Canada. June 2018

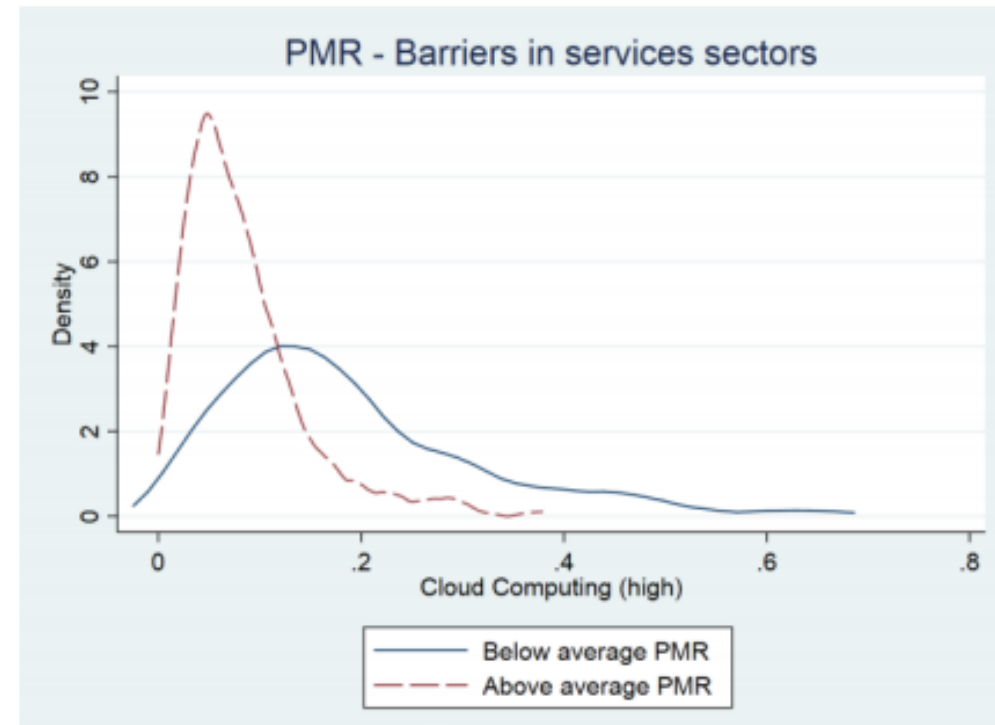
Example: digital adoption for cloud versus computing and ICT training and regulations

Structural policies and the diffusion of complex cloud computing

A. The adoption of complex CC is higher when ICT training is provided to workers



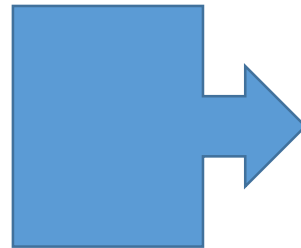
B. The adoption of complex CC is higher when barriers to services sectors are low



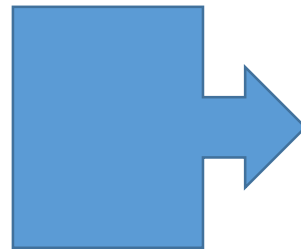
Source:
Background paper going digital.
Dan Andrews et al. Global Forum on Productivity. Ottawa, Canada. June 2018

Reality check...

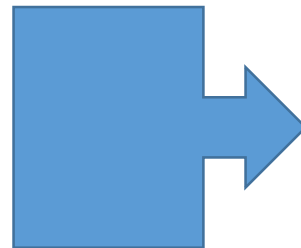
- “traditional” workplaces faces information that fails in:
 - Quantity
 - Frequency
 - Complexity
 - Channels diversity
- Leading to DX that:
 - Access quality / integration
 - Organization issues
 - Lack of digital platforms
- In order to avoid:
 - Lack of skills
 - Undertanding issues
 - Lack of confidence (trust)



Information Overload
Infloglut
Information Excess



Digital environment



Harness Human Resources

A glance on current situation...

“Employees are overwhelmed”

The “average” US worker now spends **25%** of their day reading or answering emails

The average mobile phone user checks their device **150 times a day**.

More than **80%** of all companies rate their business “highly complex” or “complex” for employees.

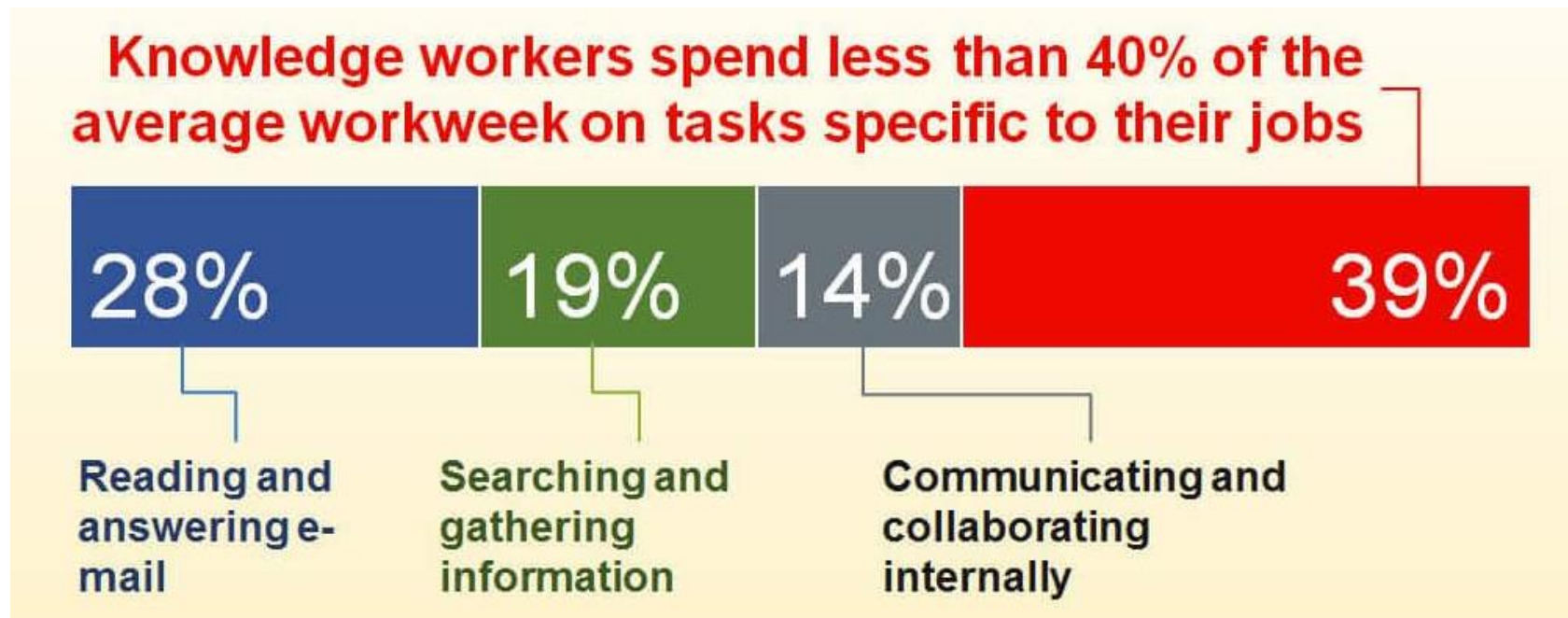
40% of the US population believes it is impossible to succeed at work and have a balanced family life.

Fewer than **16%** of companies have a program to “simplify work” or help employees deal with stress.

The “average” US worker works **47 hours** and **49%** work 50 hours or more per week, with **20%** at 60+ hours per week

The new worker central activity is searching for information

*“[the working] effort is not necessarily making us more productive. In addition to spending as much as 25% of our time doing email (...) and we spend an inordinate amount of time looking for information. Our research shows that in a given week, **employees take less than 25 minutes of time to actually slow down and learn.**”*



<https://joshbersin.com/2017/03/the-disruption-of-digital-learning-ten-things-we-have-learned/>

Allow for learning strategies in the workplace will be a competitive advantage (like **microlearning**)

So the Reality of Learning Today: **24 Minutes A Week**



UNTETHERED

Today's employees find themselves working from several locations and structuring their work in nontraditional ways to accommodate their lifestyles. Companies are finding it difficult to reach these people consistently and even harder to develop them efficiently.



ON-DEMAND

Employees are accessing information—and learning—differently than they did just a few years ago. Most are looking for answers outside of traditional training and development channels. For example:



COLLABORATIVE

Learners are also developing and accessing personal and professional networks to obtain information about their industries and professions.



EMPOWERED

Rapid change in business and organizations means everyone needs to constantly be learning. More and more people are looking for options on their own because they aren't getting what they need from their employers.



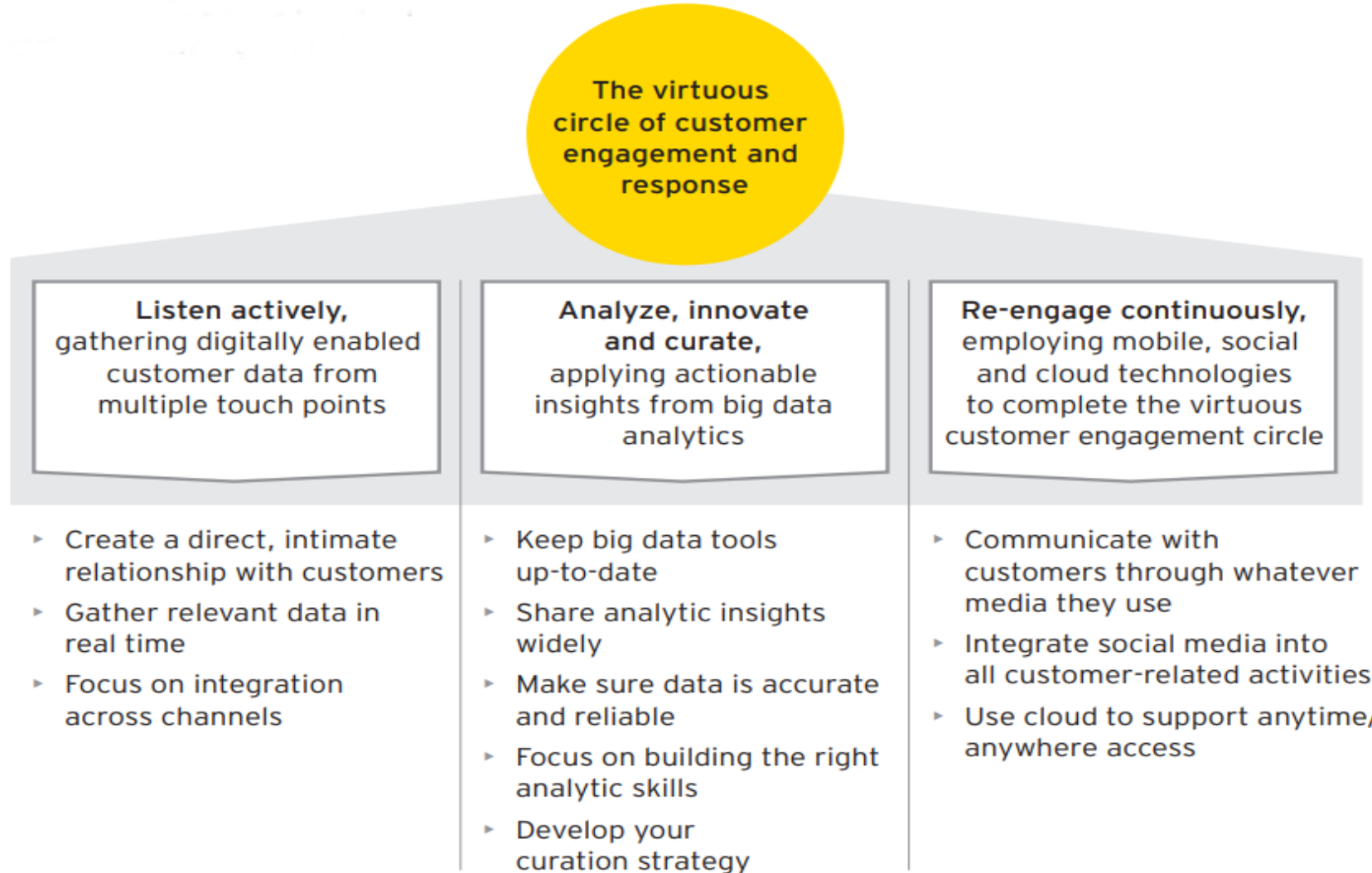
<https://joshbersin.com/2017/03/the-disruption-of-digital-learning-ten-things-we-have-learned/>



*What to do
about it?
Where and how can
change take place?*

The client side

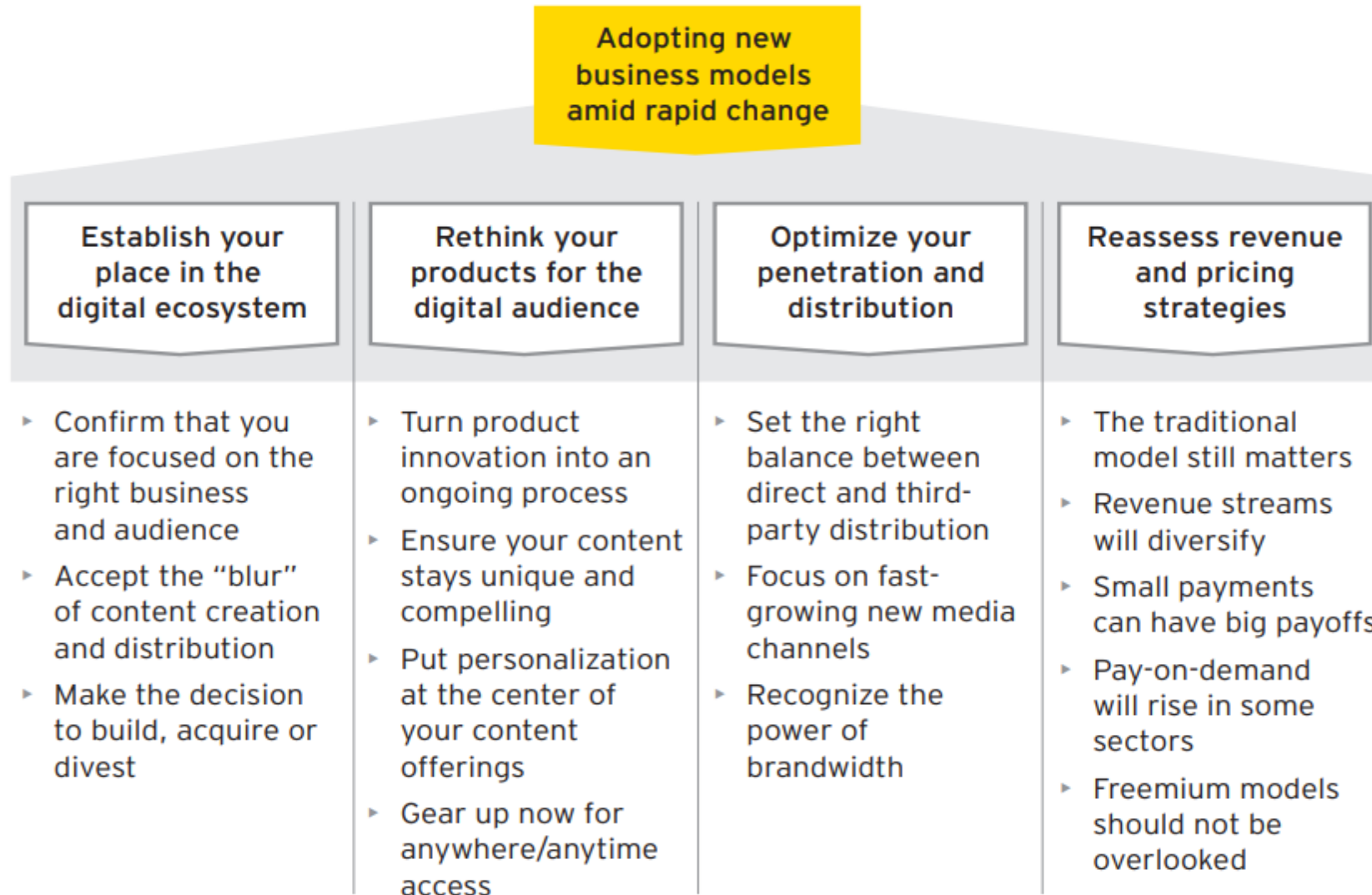
The quest for relationship



Source: *Sustaining digital leadership! Report n.2, 2014.* EY Global Technology Center, [https://www.ey.com/Publication/vwLUAssets/EY-Sustaining-digital-leadership/\\$FILE/EY-Sustaining-digital-leadership.pdf](https://www.ey.com/Publication/vwLUAssets/EY-Sustaining-digital-leadership/$FILE/EY-Sustaining-digital-leadership.pdf)

The offer side

The quest for sustainability



Source: *Sustaining digital leadership! Report n.2, 2014. EY Global Technology Center,*
[https://www.ey.com/Publication/vwLUAssets/EY-Sustaining-digital-leadership/\\$FILE/EY-Sustaining-digital-leadership.pdf](https://www.ey.com/Publication/vwLUAssets/EY-Sustaining-digital-leadership/$FILE/EY-Sustaining-digital-leadership.pdf)

The Chief Digital Officer ...as a digital leadership persona



Embrace digital technology as a core component of strategy rather than as a single-faceted marketing tool.



Establish a chief digital officer—or an alternate digital expert—among senior managers to promote strategic advantages of the technologies.



Attract talent outside the sector by developing a clear value proposition, focusing on non-financial benefits, considering recruits at the beginning or end of their careers and creating partnerships with technology companies or others.



Create alignment around the digital potential among board trustees and senior managers to support long-term investment needs.



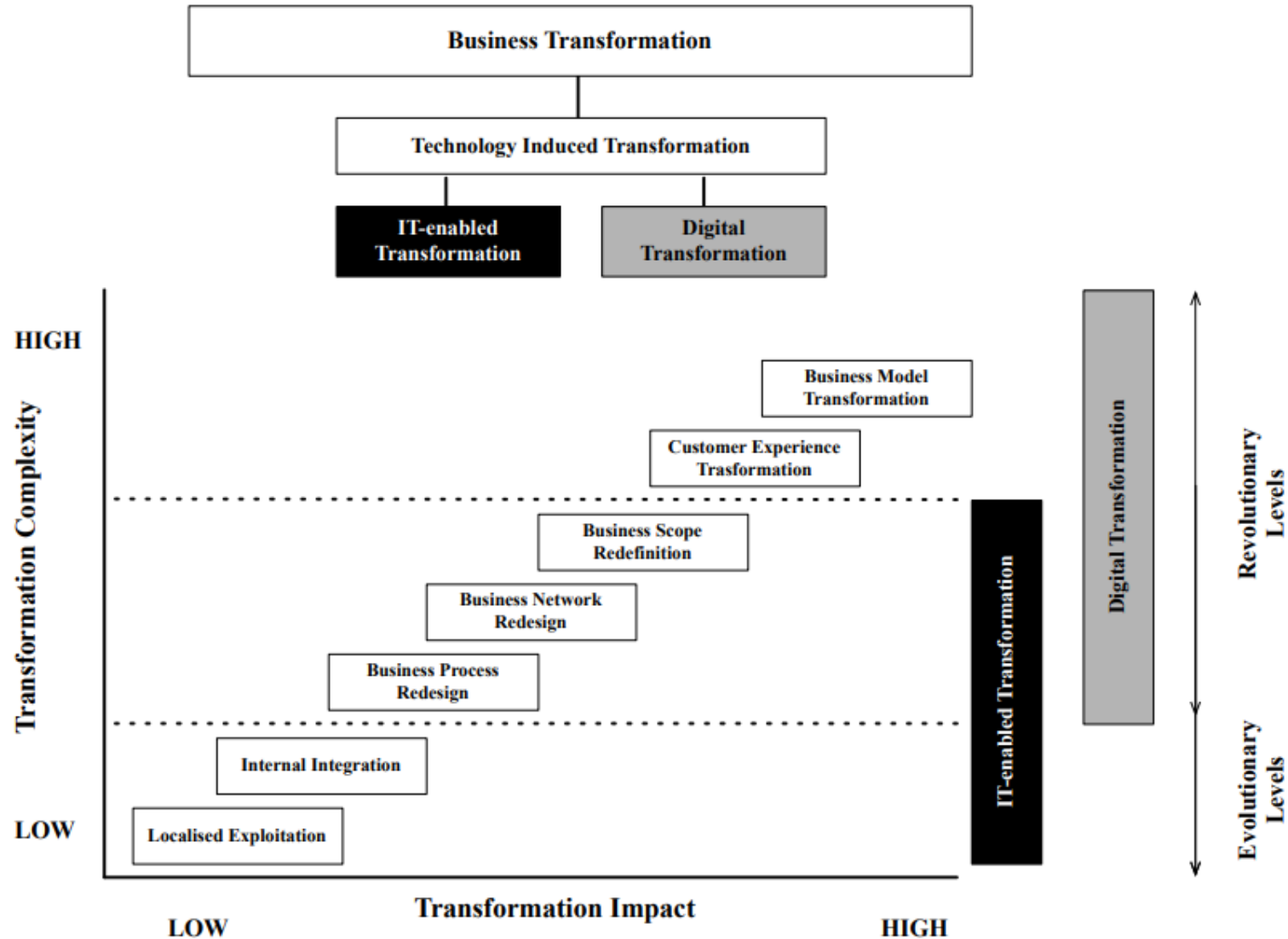
Understand that resource constraints may delay creating a chief digital officer role and explore intermediate steps toward a digital transformation, such as a cross-departmental task force and a clear digital strategy.



Consider that the nature of the chief digital officer role and its strategic focus will evolve over time, as cultural institutions will continue to redefine themselves.

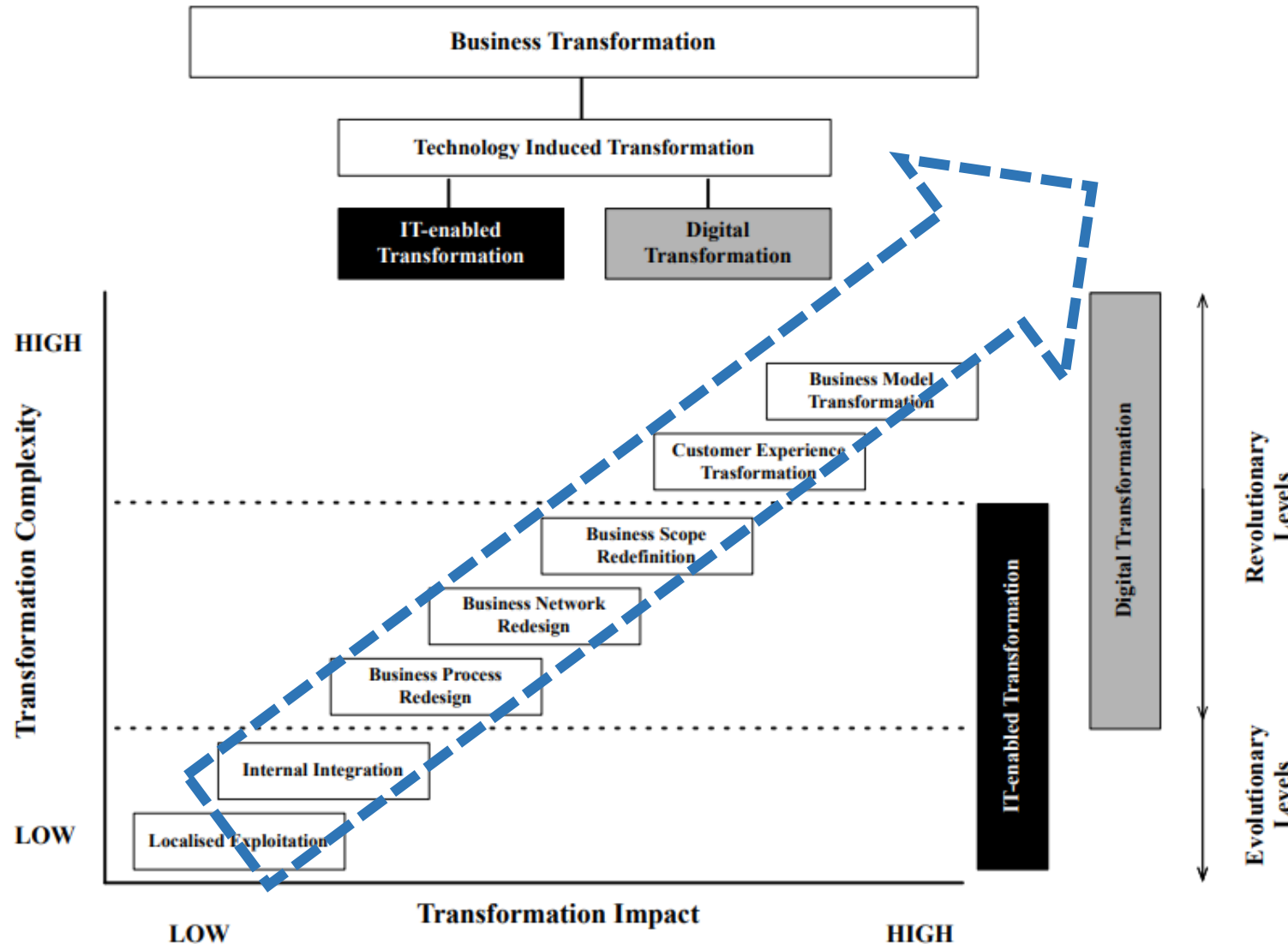
Source: Laurie Nash et al.,
<https://www.russellreynolds.com/insights/through-leadership/the-emergence-of-the-chief-digital-officer-in-cultural-institutions>

Integrating Digital Leadership



Source: Mariam Ismail (2017). Digital Business Transformation and Strategy: What Do We Now So Far?. November. Cambridge Service Alliance. University of Cambridge.

Integrating Digital Leadership

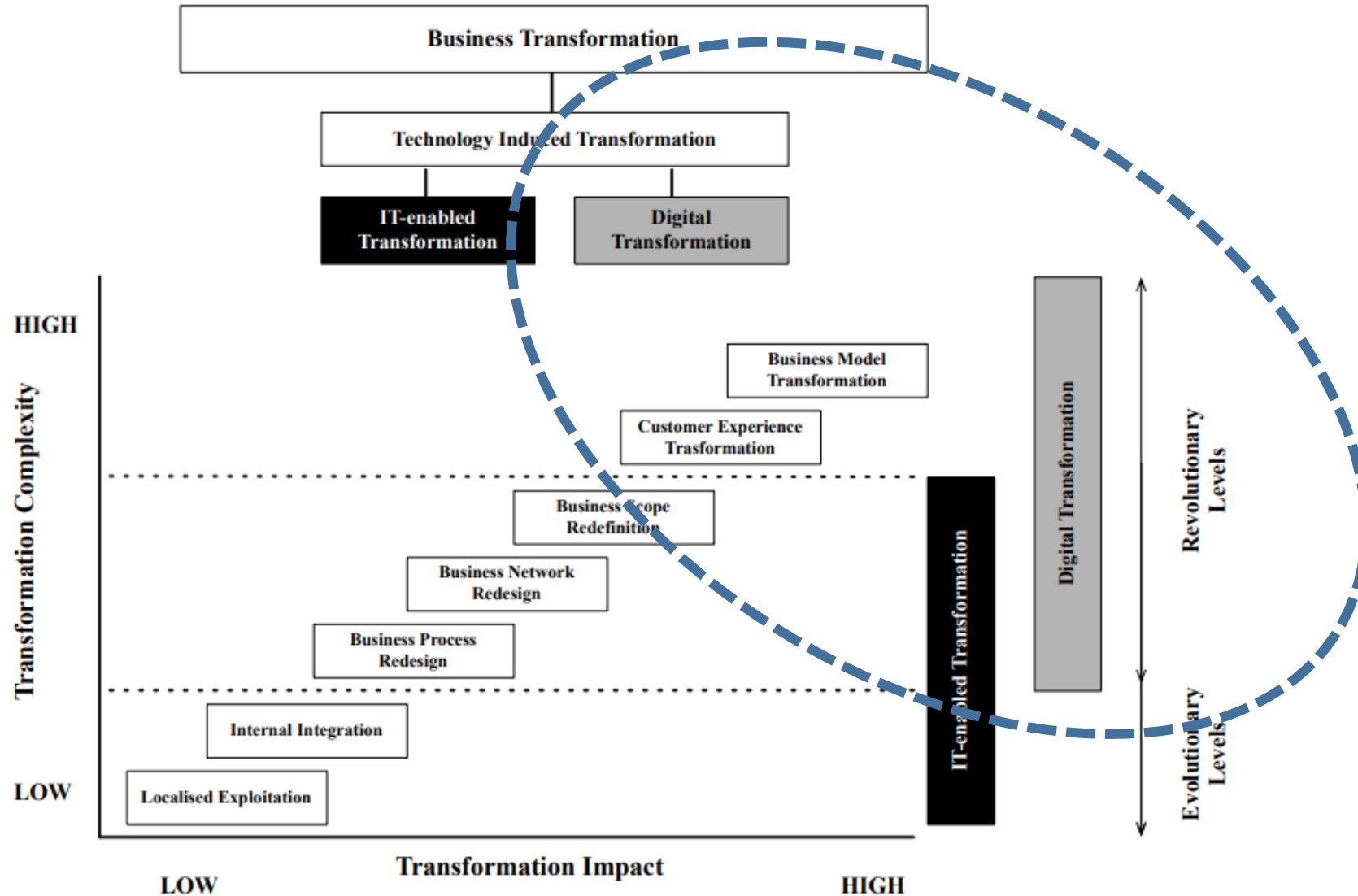


Technical level

(hard skills)
mix of
knowledge

- . -
Tech
&
Management
&
Business

Integrating Digital Leadership



Human level
(soft skills)
mix of will
- . -
Empathie
&
Vision
&
Collaboration

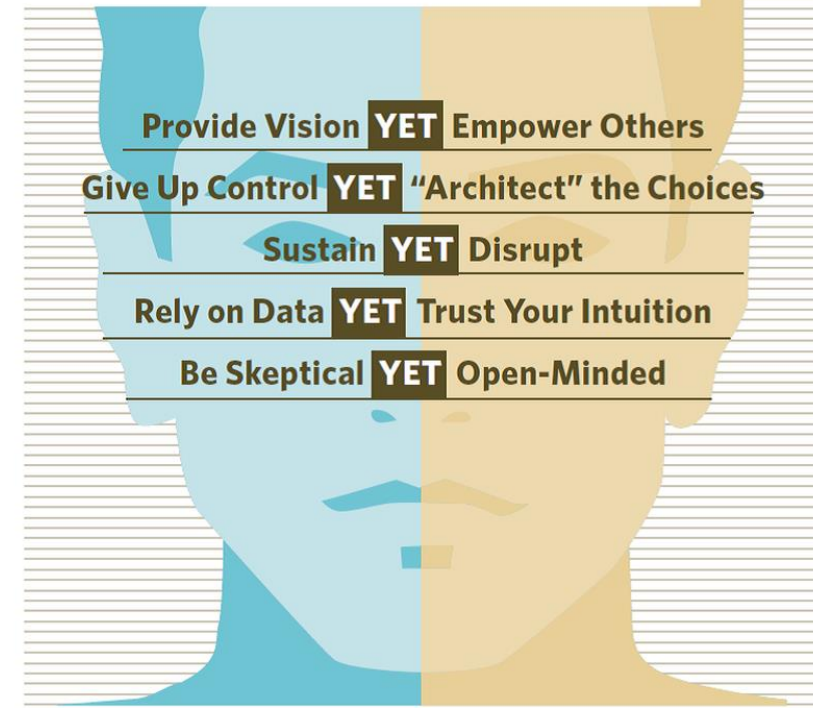
Final remarks

- Be able to **balance** between **technical and social** issues
- Be a **talent promoter** wherever possible
- Be **people oriented**
- Choose **people first**
- Be a **learner**
- Be an **ethics** champion
- Be **client side**, but with results
- Be **sustainable**
- Be **collaborative**
- Be in **compliance**
- Be with **others** (groups and communities)
- Be in **networks** and stay **connected**

Digitally Minded Leadership

EXHIBIT 1

YOUR ABILITY TO BECOME EQUALLY ADEPT AT USING BOTH SIDES OF YOUR LEADERSHIP BRAIN WILL DETERMINE HOW SUCCESSFUL YOU ARE AT DIGITAL TRANSFORMATION.



<https://www.forbes.com/sites/iese/2014/03/11/the-5-keys-to-a-digital-mindset/>

How to achieve all that...

Further research is needed to balance the load...

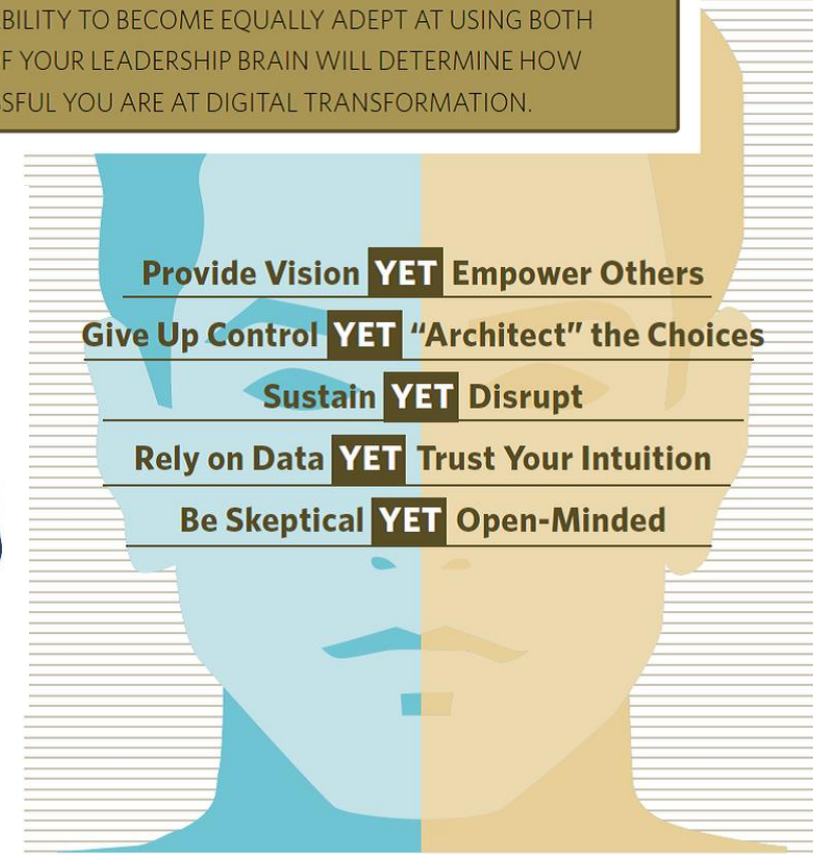
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Biographical note

Luis Borges Gouveia

Holds a Habilitation in Engineering and Industrial Management from the University of Aveiro (2010), a Phd in Computing Science from the University of Lancaster, UK (2002), a Master's degree in Electronic and Computers Engineering, from the University of Porto (1995), and a Diploma in Informatics, Applied Mathematics from University Portucalense (1989).

Full Professor at University Fernando Pessoa (UFP) from January 2017, where he has a position since 1994. He collaborates regularly with higher institutions in Portugal, Brazil, England, Spain, Mexico, Lithuania and Estonia where he is involved with projects or postgraduate supervision.

Currently he is the Coordinator of the Information Science Program, specialty of Systems, Technology and Information Management at UFP, where he has a number of doctoral projects in place. His main research interests are related to the use and exploration of digital based technology and its applications for human activity, such as information systems and knowledge management. This includes topics as digital transformation, cybersecurity, e-government and e-learning where he supervised 15 successful PhD projects.

He is the author of 18 books within its interest areas, where he has a publishing register of 400 entries distributed by journals, book chapters and international conference proceedings.

He was involved as coordinator or technical director in several projects regarding the use and application of information and communication technologies both in the public sector (central and local government and public local administration) and the private sector. Those projects include digital cities and smart cities projects, information systems, e-learning platforms and knowledge management implementations.



Web homepage

<http://homepage.ufp.pt/lmbg/>