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 were 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
Less is more

What skills to deal with information in a digital ecosystem?

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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**

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
“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.”

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.”

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.”

“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.”

“(...) 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**).”


1: Why do companies digitally transform?

Rationale: Seeks to understand the context of digital transformation.

2: What do we know about the dimensions of digital business transformation?

Rationale: Seeks to understand the content of digital transformation.

3: How do businesses formulate and implement their digital business transformation strategies?

Rationale: Seeks to understand digital transformation from a strategy lens and explores its content and process.

An example from “real world”
Information security and cibersecurity issues

• Considering a report from Sophos

• “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
Ongoing hacking activity – attempts

Login attempts to honeypots in a 30 day period

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

Time to first login attempt to each honeypot

<table>
<thead>
<tr>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sao Paulo</td>
<td>0:00:52</td>
</tr>
<tr>
<td>Ohio</td>
<td>0:04:46</td>
</tr>
<tr>
<td>California</td>
<td>0:14:40</td>
</tr>
<tr>
<td>Paris</td>
<td>0:17:20</td>
</tr>
<tr>
<td>Sydney</td>
<td>0:18:56</td>
</tr>
<tr>
<td>Singapore</td>
<td>0:49:37</td>
</tr>
<tr>
<td>Mumbai</td>
<td>0:55:11</td>
</tr>
<tr>
<td>Frankfurt</td>
<td>1:04:15</td>
</tr>
<tr>
<td>London</td>
<td>1:13:52</td>
</tr>
<tr>
<td>Ireland</td>
<td>1:44:59</td>
</tr>
</tbody>
</table>
## What honeypots are on risk?

### Usernames and potential associated devices

<table>
<thead>
<tr>
<th>USERNAME</th>
<th>DEFAULT DEVICE</th>
<th>LOGIN ATTEMPT COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>Most Linux devices and many IoT devices (can be one and the same) including Seagate, Synology NAS devices</td>
<td>5,211,644</td>
</tr>
<tr>
<td>admin</td>
<td>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</td>
<td>47,816</td>
</tr>
<tr>
<td>user</td>
<td>IoT devices</td>
<td>6,345</td>
</tr>
<tr>
<td>ubnt</td>
<td>Ubiquiti Networks’ default username</td>
<td>5,469</td>
</tr>
<tr>
<td>ubuntu</td>
<td>AWS Ubuntu instance</td>
<td>2,585</td>
</tr>
<tr>
<td>nagios</td>
<td>Nagios network monitoring</td>
<td>2,520</td>
</tr>
<tr>
<td>pi</td>
<td>Default username on Raspbian</td>
<td>2,217</td>
</tr>
<tr>
<td>postgres</td>
<td>PostgreSQL default username</td>
<td>1,748</td>
</tr>
</tbody>
</table>

Note: Aggregated results of login attempts on all honeypots.
After discovery, how to conquer these honeypots?

<table>
<thead>
<tr>
<th>PASSWORD</th>
<th>DEFAULT DEVICE</th>
<th>LOGIN ATTEMPT COUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>123456</td>
<td>IoT devices, including ACTi, iCatch and See Max CCTV cameras</td>
<td>15,735</td>
</tr>
<tr>
<td>admin</td>
<td>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</td>
<td>12,605</td>
</tr>
<tr>
<td>1234</td>
<td>IoT devices including GANZ PixelPro CCTV camera</td>
<td>9,583</td>
</tr>
<tr>
<td>password</td>
<td>IoT devices including Digicom routers and LaCie NAS devices</td>
<td>9,034</td>
</tr>
<tr>
<td>12345</td>
<td>IoT devices including Hikvision and Panasonic CCTV cameras</td>
<td>7,145</td>
</tr>
<tr>
<td>ubnt</td>
<td>Ubiquiti Networks’ default password</td>
<td>6,137</td>
</tr>
<tr>
<td>root</td>
<td>IoT devices including devices manufactured by D-max CCTV cameras</td>
<td>5,767</td>
</tr>
<tr>
<td>123</td>
<td>IoT devices including YooSee CCTV cameras</td>
<td>5,433</td>
</tr>
<tr>
<td>[blank]</td>
<td>The blank password is used on Axis and Vievetek IoT devices as the default password</td>
<td>3,248</td>
</tr>
<tr>
<td>raspberry</td>
<td>Raspberry is the default password for Raspbian, the Raspberry Pi distribution of Linux</td>
<td>1,808</td>
</tr>
</tbody>
</table>
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.
Harness people

Creativity

Ideas

Innovation
Where do we, Europe, stand for now?
Urge for innovation harnessing peoples’ knowledge (client/demand), not structures (offer/system)

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=IwAR1n1v5PlQdu9ujT1uphH_h5bnySuhrMSpWs65iE9H26OZXNYMgJQnrNCqE
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
Collaboration issues: take advantage of digital based environments to sense collaboration and turn it more cognitive for people (AI helps on the process)

“(…)) evolved into an omni-channel environment where people collaborate in real-time and non-real-time, across voice, video, and messaging, from anywhere, on virtually any device.”

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%.”

Mixing capabilities and incentives for digital adoption within an organization

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

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
  • Understanding issues
  • Lack of confidence (trust)

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Information Overload

Infoglut

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.

Sources: Deloitte Human Capital Trends 2014 and 2015
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.”

Knowledge workers spend less than 40% of the average workweek on tasks specific to their jobs

- Reading and answering e-mail: 28%
- Searching and gathering information: 19%
- Communicating and collaborating internally: 14%
- Other tasks: 39%

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)

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

The offer side
The quest for sustainability

Adopting new business models amid rapid change

Establish your place in the digital ecosystem
- Confirm that you are focused on the right business and audience
- Accept the “blur” of content creation and distribution
- Make the decision to build, acquire or divest

Rethink your products for the digital audience
- Turn product innovation into an ongoing process
- Ensure your content stays unique and compelling
- Put personalization at the center of your content offerings
- Gear up now for anywhere/anytime access

Optimize your penetration and distribution
- Set the right balance between direct and third-party distribution
- Focus on fast-growing new media channels
- Recognize the power of bandwidth

Reassess revenue and pricing strategies
- The traditional model still matters
- Revenue streams will diversify
- Small payments can have big payoffs
- Pay-on-demand will rise in some sectors
- Freemium models should not be overlooked

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

<table>
<thead>
<tr>
<th>Embrace digital technology as a core component of strategy rather than as a single-faceted marketing tool.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish a chief digital officer—or an alternate digital expert—among senior managers to promote strategic advantages of the technologies.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>Create alignment around the digital potential among board trustees and senior managers to support long-term investment needs.</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

Integrating Digital Leadership

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

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

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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.

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