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# Digital Transformation in Healthcare

## Un-transformational transformations

Sitges, 3 November 2022

Clay Shirky was right....

**Generations do differ,  
but less because people differ  
than because *opportunities* do.**

“Cognitive Surplus” (2010)

# A time of amazing scientific discoveries and breakthroughs

Going forward, scientific development will only accelerate

The set of things that *can* happen is far, far greater than the set of things that *have* happened.

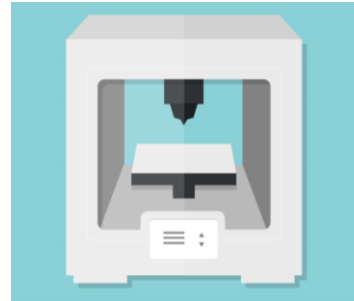
## BIOLOGY



### New discoveries and techniques

- CRISPR-Cas9
- CAR T-cell therapies
- RNA-based therapies
- Immunotherapy

## HARDWARE



### New advanced materials and techniques

- 3D printing
- Biodegradable stents
- Robotics

## SOFTWARE



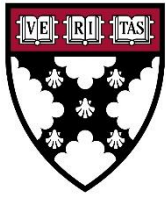
### New digital technologies

- Artificial Intelligence (AI)
- Big Data
- Blockchain
- Quantum computing

# PERSONALIZED MEDICINE

**disrupt**





**Harvard  
Business  
School**

Is disruption  
an **OPPORTUNITY** or a **THREAT**?

**“Almost always,  
disruption is an  
opportunity long before  
it becomes a threat”**

When an entire “industry  
architecture” is transformed, it is not  
only “*who does what*” that changes,  
it is also “*who takes what*”.

Michael G. Jacobides, Associate Professor of Strategic and  
International Management at the London Business School



**TRANSFORMATION is the answer to DISRUPTION**

**TRANSFORMATION  
vs DIGITAL  
TRANSFORMATION**

A critical view of the topic

**DIGITAL  
TRANSFORMATION**

A blueprint to  
accelerating  
transformation from a  
digital point of view

**FOOD FOR  
THOUGHT**

5 ideas to reflect on your  
next management board  
meeting

# **TRANSFORMATION vs DIGITAL TRANSFORMATION**

A critical view of the topic

## **DIGITAL TRANSFORMATION**

A blueprint to  
accelerating  
transformation from a  
digital point of view

## **FOOD FOR THOUGHT**

5 ideas to reflect on your  
next management board  
meeting

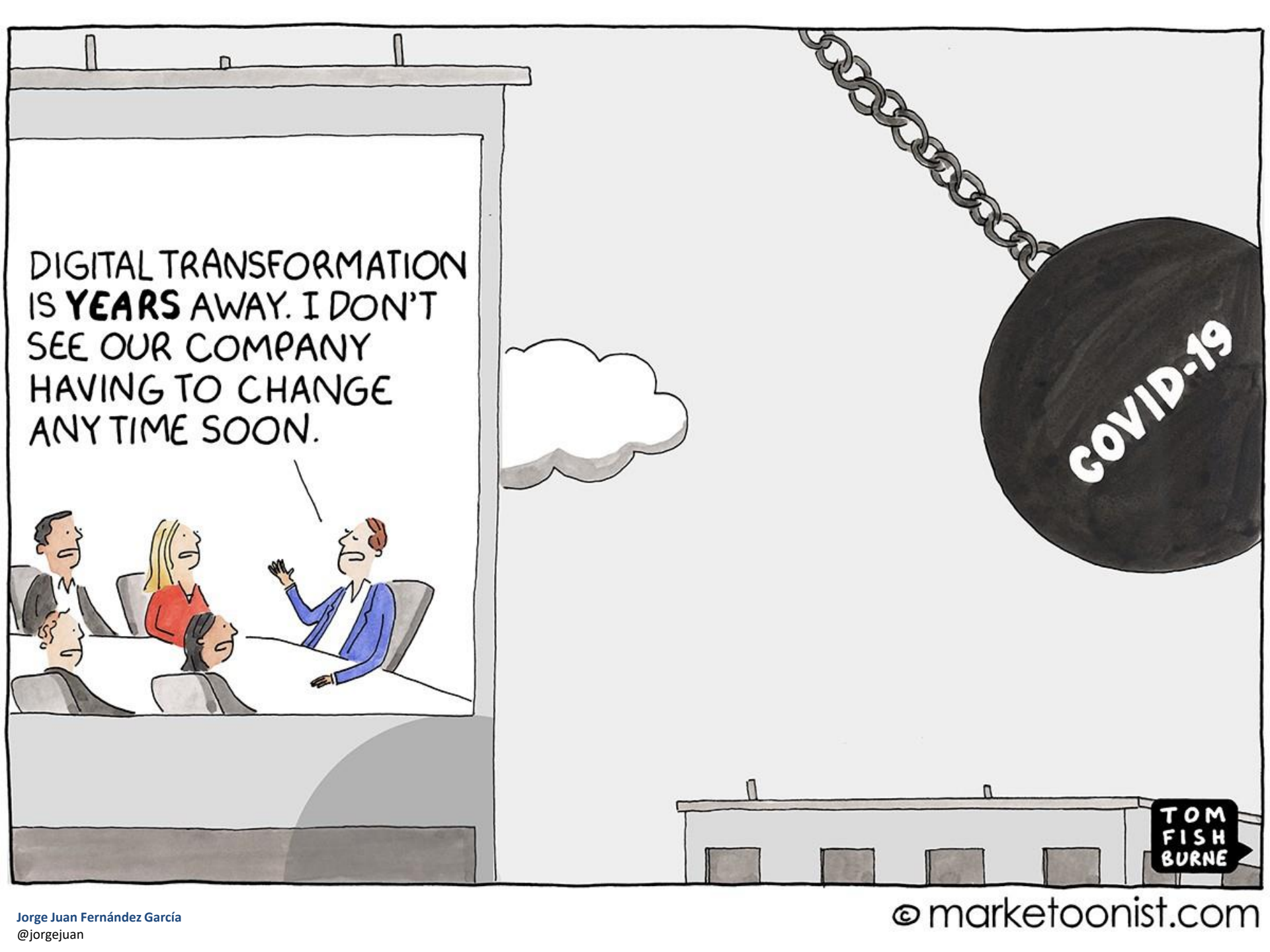
DIGITAL TRANSFORMATION IS **YEARS** AWAY. I DON'T SEE OUR COMPANY HAVING TO CHANGE ANY TIME SOON.

COVID-19

TOM FISH BURNE

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Jorge Juan Fernández García  
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TERMITES will kill you. TORNADOS will transform you.

Lo que te mata son las termitas. Lo que te transforma son los tornados.

## Who led the digital transformation in your company?

**CEO** (Chief Executive Officer)

**CINO** (Chief Innovation Officer)

**CTO** (Chief Technology Officer)

**CSO** (Chief Strategy Officer)

**CIO** (Chief Information Officer)

**COVID-19**

**CDO** (Chief Data Officer)

**Energy crisis**

**CDTO** (Chief Digital Transformation Officer)

**Next crisis (2023-24)**



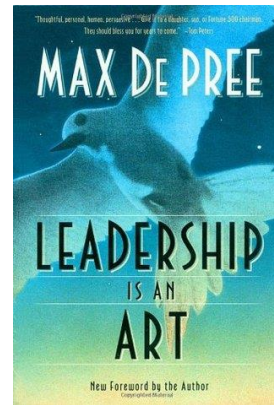
TERMITE

VS



# A starting reflection on TRANSFORMATION

WE CANNOT  
BECOME  
WHAT WE WANT  
BY REMAINING  
WHAT WE ARE  
...



**Max De Pree (1924–2017)**  
CEO of Herman Miller

# DIGITAL TRANSFORMATION

A misunderstanding that is set up for disappointment

1. **WRONG APPROACH**
2. **WRONG PLACE**
3. **WRONG PROFILE**
4. **WRONG EXPECTATIONS**

**In my view, these misunderstandings will only cause un-transformational transformations**

1

## WRONG APPROACH

The ongoing TRANSFORMATION is not only digital  
It should not be Digital Transformation. It should be Transformation.

FROM	TO
Mostly men in the Management Board	Good balance between men and women
Analog	Digital
Hospital centric	Patient centric
Same health care for all	Personalized Medicine
Storing Data	Using data
“I don’t know/care” healthcare	Green healthcare
Hierarchy & Tenurocracy	New ways of working
One leader decides	A larger group makes the important decisions
Know-it-all	Learn-it-all

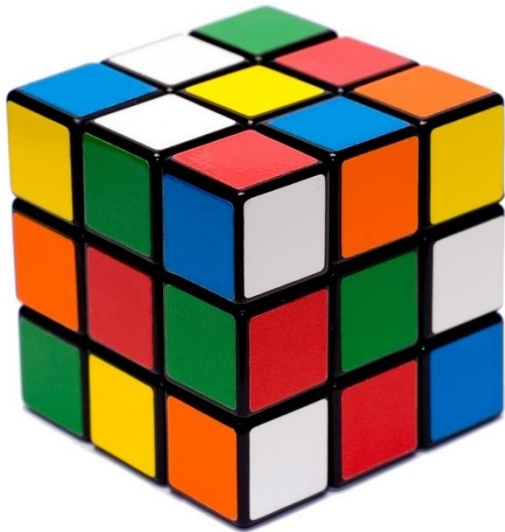
LEADERSHIP  
TRANSITION

GREEN  
TRANSITION

DIGITAL  
TRANSITION

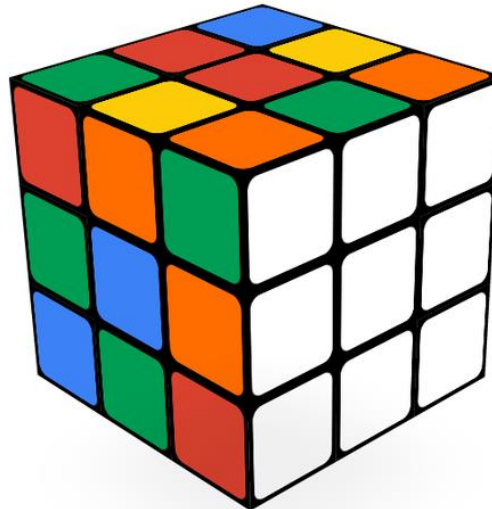
CULTURE  
TRANSITION

NEW WAYS OF  
WORKING &  
TOOLS



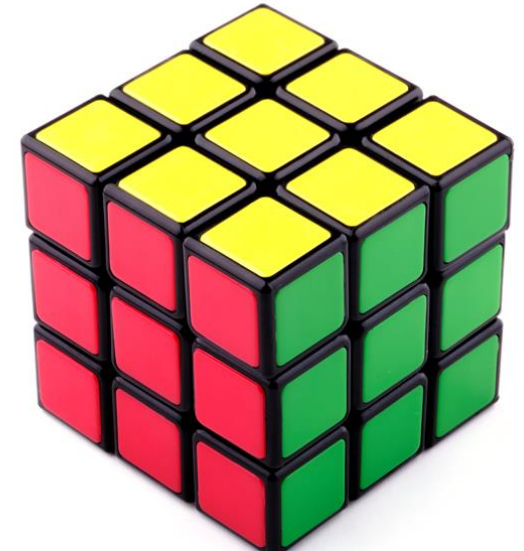
## A digital project

Trendy topic: Blockchain, Metaverse, Digital Twin,...



## Digital transformation

Digitalizing all the services (clinical and non-clinical)



## TRANSFORMATION

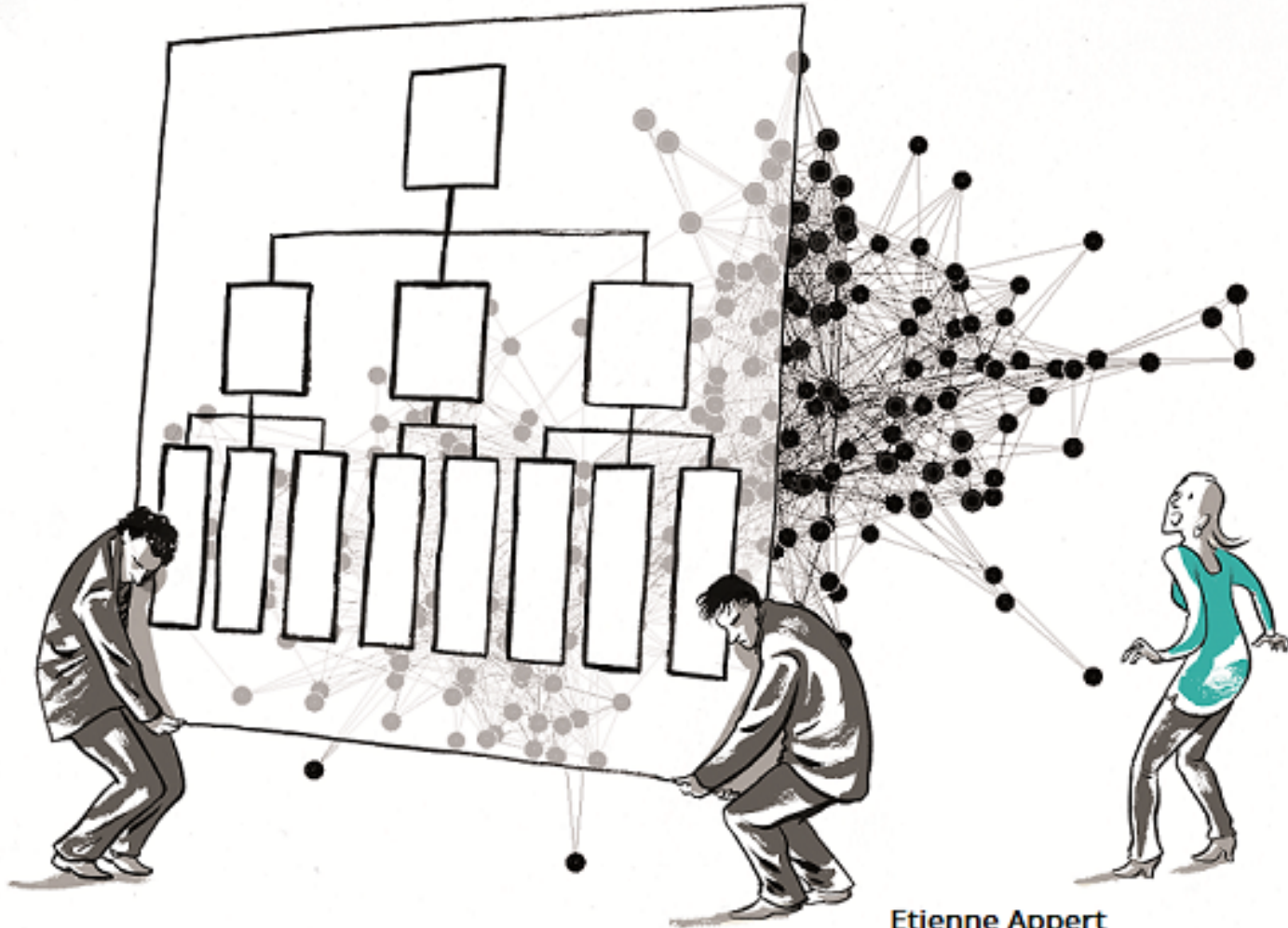
Addressing all the necessary transitions to benefit from the opportunities and avoid disruption

2

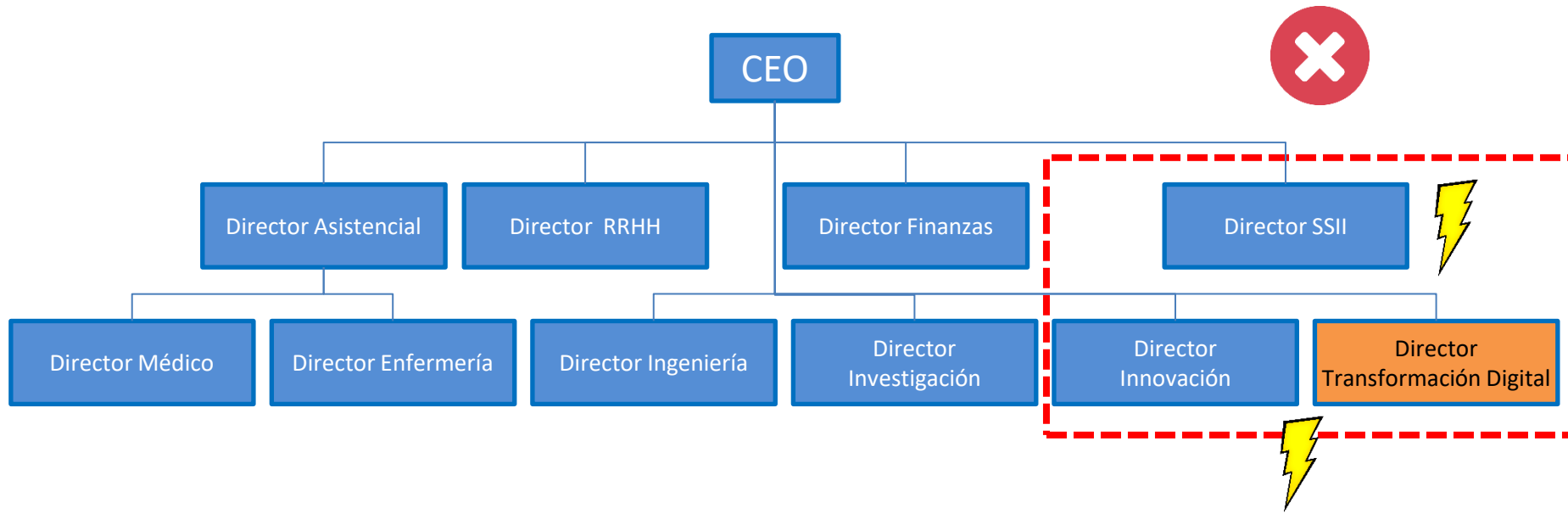
## WRONG PLACE

Strategy, not Technology, drives (Digital) Transformation.

The mismatch between the nature of modern work and the organization of it.



Etienne Appert



### Doing this creates three big problems:

- **Reduces the scope of transformation** (as if only the digital transformation is relevant)
- **Adds complexity** to the org chart (internal confusion in the organization)
- **Creates competition** between Digital Transformation and IT (topics: Digital Strategy; Data; AI; Cybersecurity) and Innovation (funding of projects)

OPINIÓN

# La digitalización no es el objetivo de ninguna empresa seria



**Genís Roca** Empresa, cultura y sociedad digital

26 octubre de 2022 05:30

Sabes que te odian cuando en tu empresa te nombran “responsable de transformación digital”, porque es un encargo tan genérico e indefinido que te hace responsable de cualquier cosa que se pueda mejorar. Por tanto, un encargo imposible. Hubiese estado mucho mejor que te hiciesen responsable de ventas, o responsable de producción, o responsable de lo que sea pero de algo concreto. Si se convocase un congreso nacional de responsables de transformación digital sería una reunión de gente de orígenes muy diferentes. Se mezclaría gente de sistemas, de recursos humanos, de producción, de marketing... y al presentarse todos irían diciendo “¿y tú qué haces?”, por la sencilla razón de que “digitalización” es un genérico que no explica nada.

Utiliza todas las herramientas y soluciones que puedas, también las no digitales, pero sobre todo no te equivoques en la identificación del problema que te está penalizando. Es como estar enfermo y poner el foco en las medicinas antes que en el diagnóstico.



3

## WRONG PROFILE

The best profile are not IT / technology specialists.



McKinsey  
& Company

Technology, Media & Telecommunications

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*McKinsey Quarterly*

# 'Find the smartest technologist in the company and make them CEO'

June 22, 2022 | Interview

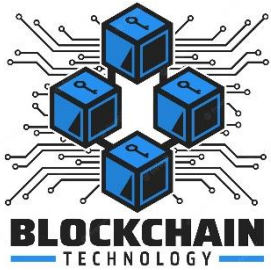


<https://a16z.com/>

<https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/find-the-smartest-technologist-in-the-company-and-make-them-ceo>

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# People talking about DIGITAL TRANSFORMATION they usually talk about TECHNOLOGIES...



Blockchain



Cloud Computing



IoT



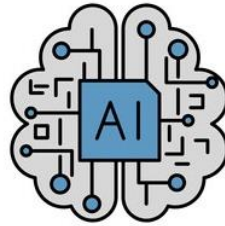
5G



VR / AR



PoC/At-home Diagnostics



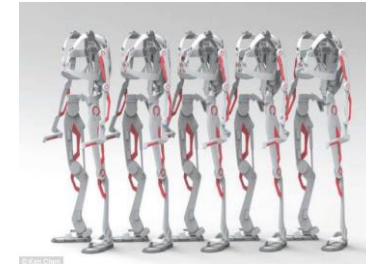
AI / ML / DL



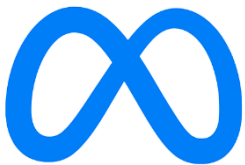
Big Data



Web3



Human augmentation



Metaverse



Sensors



Digital Therapeutics



Drones



Cybersecurity



**Beyond Healthcare**  
Population Health & Systems Transformation  
1,821 subscribers + Subscribe  
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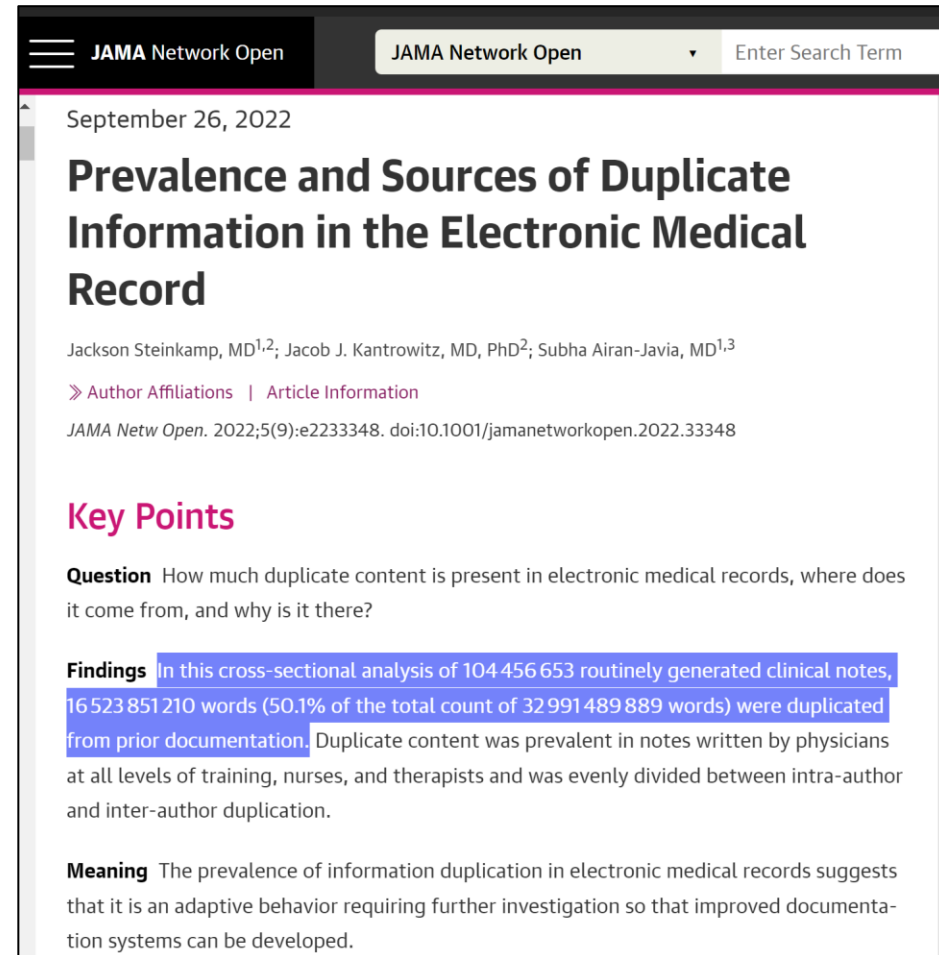
## El Valor de los Datos en Salud

Published on October 27, 2022



El valor de los datos en salud

**César Velasco Muñoz**  
Committed to improve Global Health by fostering innovation. #health #innovation  
20 articles



JAMA Network Open JAMA Network Open Enter Search Term

September 26, 2022

## Prevalence and Sources of Duplicate Information in the Electronic Medical Record

Jackson Steinkamp, MD<sup>1,2</sup>; Jacob J. Kantrowitz, MD, PhD<sup>2</sup>; Subha Airan-Javia, MD<sup>1,3</sup>

» Author Affiliations | Article Information

JAMA Netw Open. 2022;5(9):e2233348. doi:10.1001/jamanetworkopen.2022.33348

### Key Points

**Question** How much duplicate content is present in electronic medical records, where does it come from, and why is it there?

**Findings** In this cross-sectional analysis of 104 456 653 routinely generated clinical notes, 16 523 851 210 words (50.1% of the total count of 32 991 489 889 words) were duplicated from prior documentation. Duplicate content was prevalent in notes written by physicians at all levels of training, nurses, and therapists and was evenly divided between intra-author and inter-author duplication.

**Meaning** The prevalence of information duplication in electronic medical records suggests that it is an adaptive behavior requiring further investigation so that improved documentation systems can be developed.

<https://www.linkedin.com/pulse/el-valor-de-los-datos-en-salud-césar-velasco-muñoz/>

<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2796664>

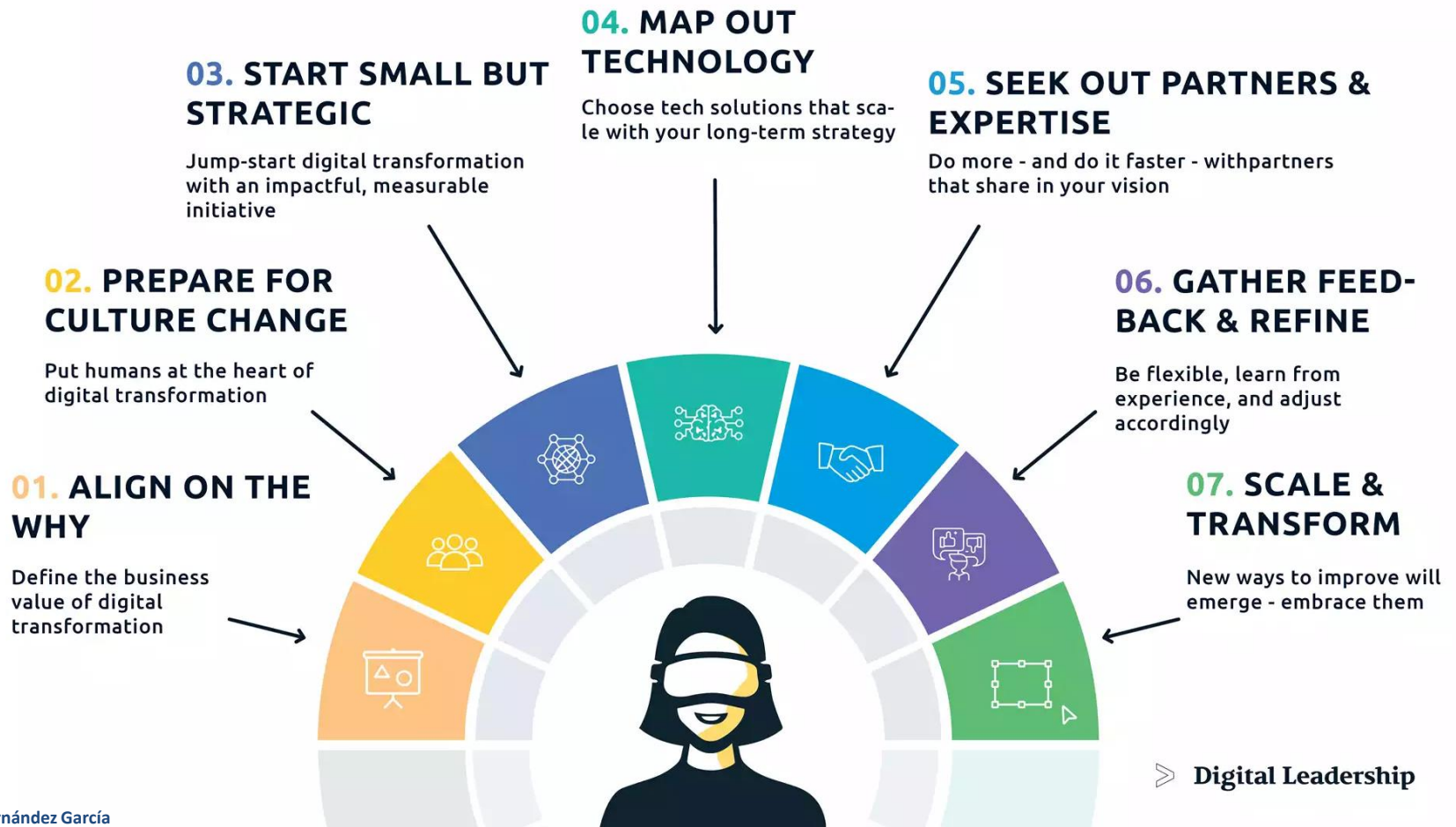
# 3

## WRONG PROFILE BRINGS WRONG APPROACH

If you only (or mostly) talk about technologies, you are the wrong profile to lead a Digital Transformation

### DIGITAL TRANSFORMATION STRATEGY

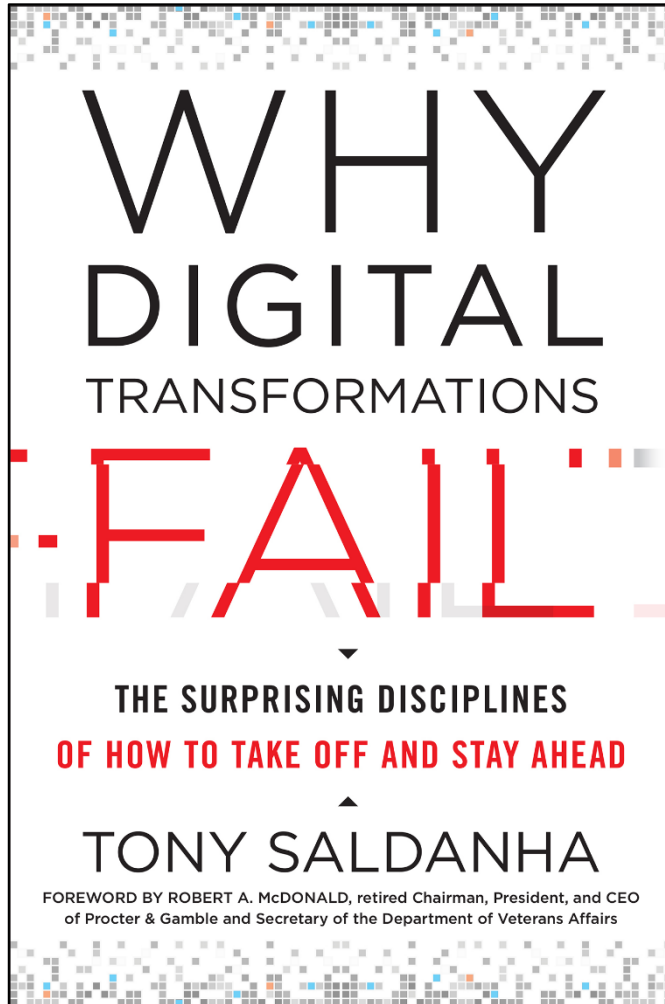
7 Essential Steps to Drive DX Success in the Enterprise



3

## WRONG PROFILE BRINGS WRONG APPROACH

It is more about management than it is about technologies



Tony Saldanha, a globally awarded industry thought-leader who led operations around the world and major digital changes at Procter & Gamble, discovered it's not due to innovation or technological problems. Rather, the devil is in the details: **a lack of clear goals and a disciplined process for achieving them.**

3

## WRONG PROFILE BRINGS WRONG APPROACH

More technology does not mean better

**The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.**  
**- Bill Gates**



**More TECHNOLOGY**  $\neq$

**Better healthcare  
outcomes or overall  
performance**

**More DATA**  $\neq$

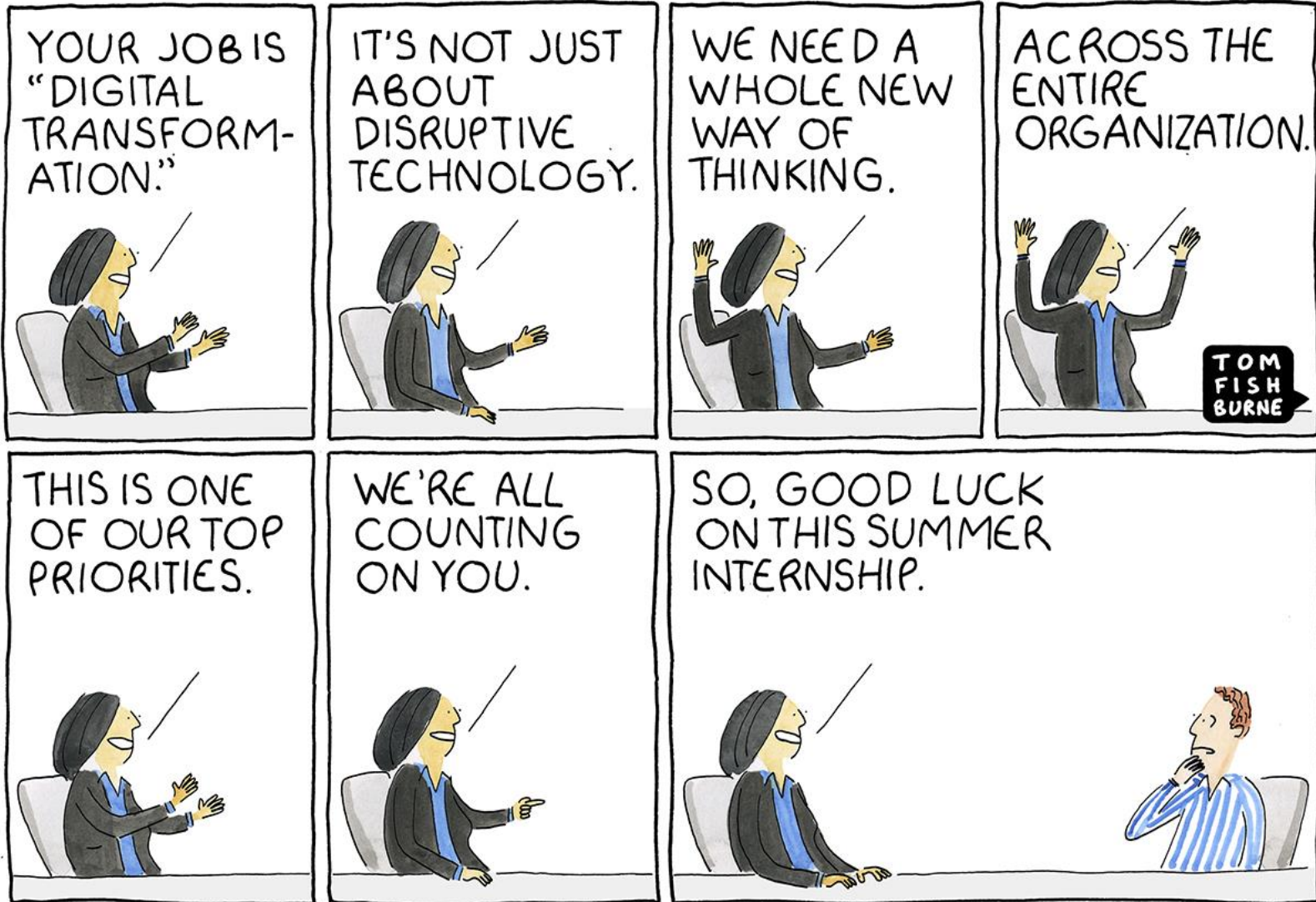
**Better healthcare  
outcomes or overall  
performance**

4

WRONG EXPECTATIONS

Say cheese, Super(s)hero: "You must transform us"

Low budget  
No or little team





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# 5 STAGES OF DIGITAL TRANSFORMATION

WE DON'T  
NEED TO  
CHANGE.



TOM  
FISH  
BURNE

**DENIAL**

WHY IS  
EVERYTHING  
CHANGING?!



**ANGER**

WHAT'S THE  
MINIMUM  
WE HAVE TO  
CHANGE?



**BARGAINING**

WE'LL  
NEVER BE  
ABLE TO  
CHANGE.



**DEPRESSION**

MAYBE IF  
WE JUST  
CHANGE  
OUR CMO.



**ACCEPTANCE**



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# Transformation requires strong drivers.

One will be digital health. We expect digital transformation to change healthcare as it has changed banking and retailing.

## Not all DIGITAL TECHNOLOGIES are equal

### Structuring technologies

New computers  
(fixed vs laptops)

Cloud

Cybersecurity

Data governance

5G

### POC or R&D technologies

Metaverse

Digital Twin

Blockchain / Web3

AI (multimodal)

### Value technologies

AI (unimodal)

Any already proven  
software solution



**What is YOUR GOAL?**

What do you want to have more units of?

Doing digital projects,  
**NOT** doing digital  
transformation

## VALUE TECHNOLOGIES

**Talent**

- New mindsets
- Training is needed

**Processess**

- Process redesign

**Culture &  
Organization**

- New ways of  
working & tools

## STRUCTURING TECHNOLOGIES

Cloud  
Computing

Cyber  
security

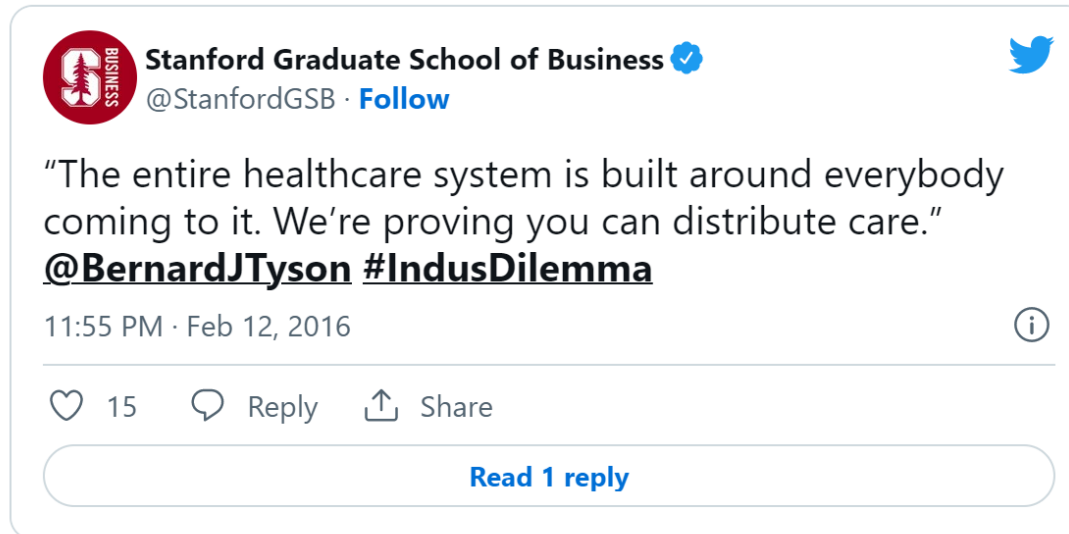
5G

Data  
governance

## WHAT IS YOUR GOAL?

What is your **VISION** for how the hospital should operate in **2040**?

Whereas Kaiser started as a hospital, it is no longer only a physical place — they are seeking to drive the notion that healthcare can be delivered anywhere at anytime in a way that creates a better experience for patients — and new technologies are a critical part in making that happen. And not all of those technologies will be developed internally — many will come from the outside.



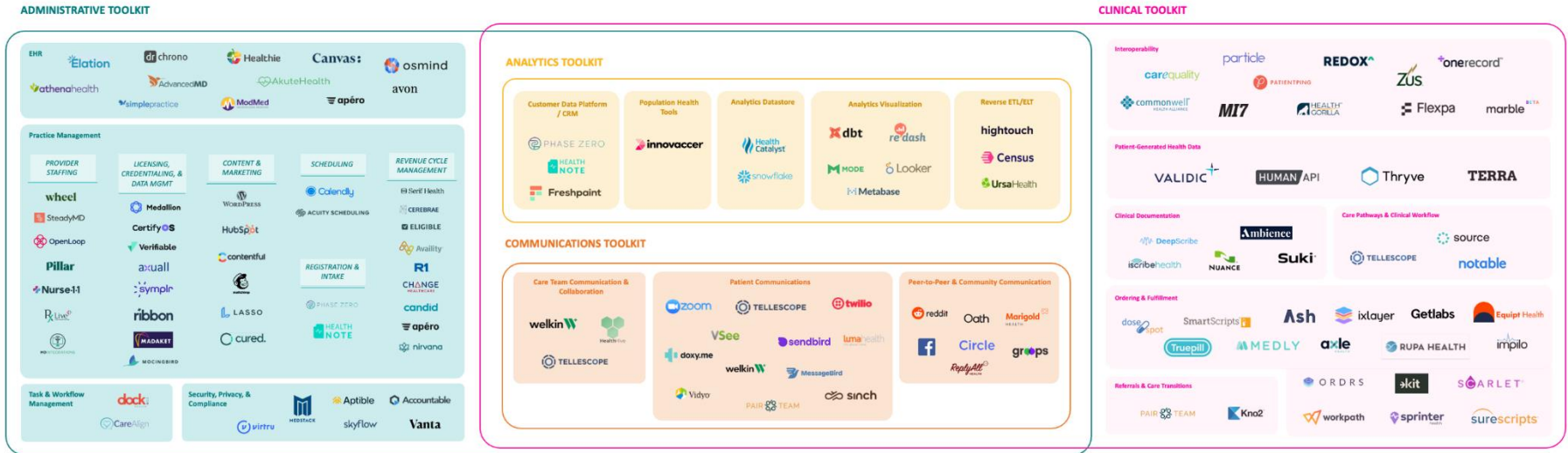
**Bernard Tyson** (1959 – 2019)  
Kaiser Permanente  
Chairman and CEO

# THE DIGITAL HEALTH TECH STACK

TRANSFORMATION should address all 4 “building blocks”.  
How are you making important Build vs Buy decisions?



## The Digital Health Tech Stack



**TRANSFORMATION  
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# INSIGHT #1

## Define the *from* – *tos*

**Start with your (unique) Winning Aspiration**

**What to  
change?**

**What to  
change to?**

**How to  
cause the  
change?**

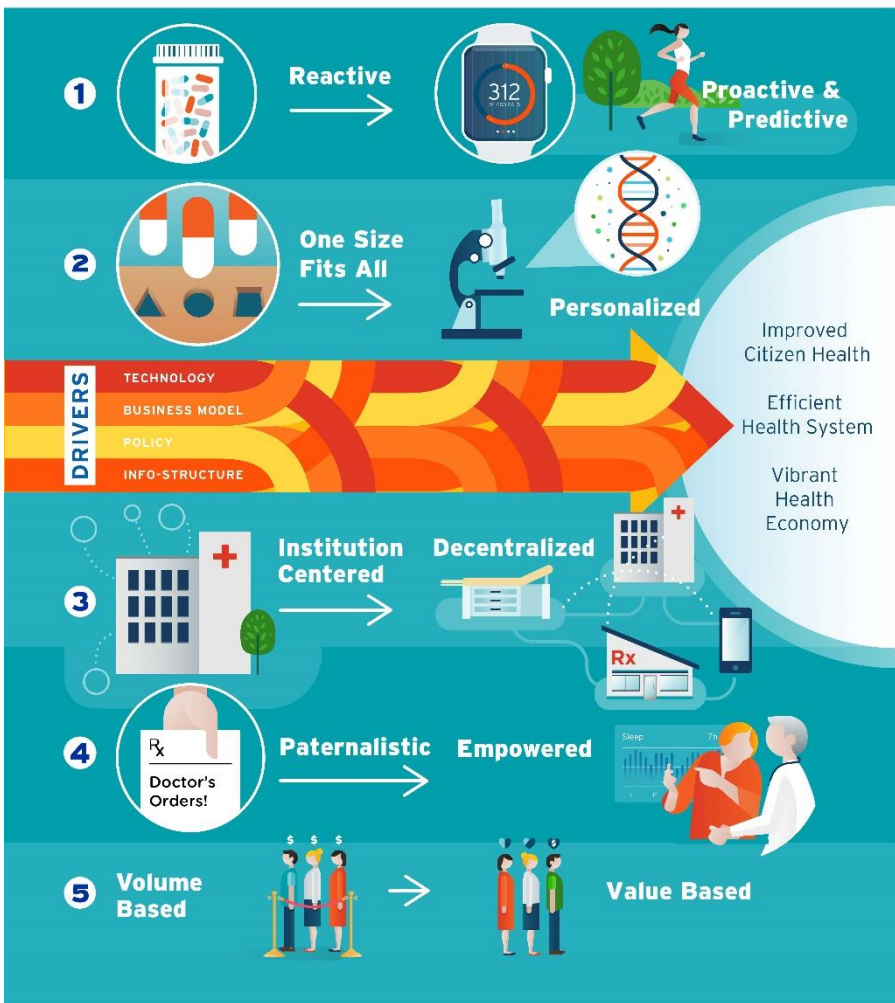
How to avoid replacing one set of problems with another set of problems?







MaRS Market Insights



**Table 2** The differences between traditional and modern healthcare following the digital health transformation

Traditional medicine	Modern medicine
Point-of-care is the clinic or lab	Point-of-care is the patient
Based on populations	Based on the individual
Hierarchy	Partnership
Prescriptions and orders	Collaboration
Data owned by institutions	Data owned and shared by the patient
Individual experience dominates	Limitless data analyses
Physicians as authority	Physicians as guides
Ivory tower	Social media
Expensive	Costs driven down by Moore's law

**Table 1.** Transition from Current Care to the Future State

	Current State	Future State
Health care systems	Revolving around academic medical centers (AMCs) and large hospitals	Academic health systems that focus on the community and the continuum of care
	Siloed large academic medical centers in a spoke-and-hub model	Integrated delivery networks
		Care pushed out to home — both acute (hospital at home) as well as chronic care management
	Most surgery performed at AMCs	Surgery performed at community surgical centers
	Most care within hospital walls	Hospitals will provide most care remotely rather than on site
	Focus on cure (and maybe rehabilitation)	Focus on prediction and prevention
Payment systems	Pay per specific transaction (fee-for-service)	Pay by quality / outcomes
		Bundle services around an episode (bundled payment)
		Payment per population (such as accountable care organizations)
Sustainability of health services	Managed care; early attempts at value-based payments	Emphasis on prevention of disease
		Precision medicine
		Increasing role of artificial intelligence in decision-making
Care providers	Physician-driven care	Increasing role specialization
		Focus on multidisciplinary clinical teams
		Diminishing focus on physicians
Partnerships in health care	Provider organizations, health insurance, pharma, and med tech industry	Nonmedical tech giants (e.g., Google, Apple, Amazon, Microsoft)
		Education and social care providers
		Retail corporations and pharmacy chains (e.g., Walmart, CVS, Walgreens)
		Service provider industry (e.g., Uber, healthy food chains)

Source: The authors.

# WHAT TO CHANGE TO?

Set the goals that clearly define “success” for your organization – and map out how to get there.

FROM	TO
<b>Leadership transition: Management Board</b>	<ul style="list-style-type: none"><li>• Balance men-women (50%, with +/-5%)</li><li>• 20% of MB members younger than 50 years old</li><li>• New decision making principles (co-creation and alignment)</li></ul>
<b>Green transition: The power of Zero</b>	<ul style="list-style-type: none"><li>• Zero-emission</li><li>• Zero-waste</li></ul>
<b>Digital transition</b>	<ul style="list-style-type: none"><li>• Data: From “data” to “real-time data” (where exactly?)</li><li>• 50% of patients connected to our Digital Ecosystem</li></ul>
<b>Organizational transition: New ways of working &amp; tools</b>	<ul style="list-style-type: none"><li>• From hospital-centric to patient centric: 10% of our activity happening at home</li><li>• New ways of working (progressive organizations)</li><li>• Eliminating bureaucracy</li></ul>
<b>Culture transition</b>	<ul style="list-style-type: none"><li>• From “Know-it-all” to “Learn-it-all” (à la Microsoft)</li></ul>

# INSIGHT #2: Stop inventing titles (CxxO)

New positions in the org chart will NOT solve the problem

**CTO** (Chief Technology Officer)

**CIO** (Chief Information Officer)

**CDO** (Chief Data Officer)

**CDTO** (Chief Digital Transformation Officer)

**CDDO** (Chief Clinical Digital Officer)

**CINO** (Chief Innovation Officer)

**CSO** (Chief Strategy Officer)

**Medical Director - Digital Hospital**

**CTO** (Chief Transformation Officer)

**CSTO** (Chief Strategy & Transformation Officer)

**CPTO** (Chief People & Transformation Officer)

**CDIO** (Chief Digital and Information Officer)



# Who owns the Transformation Agenda in your organization?

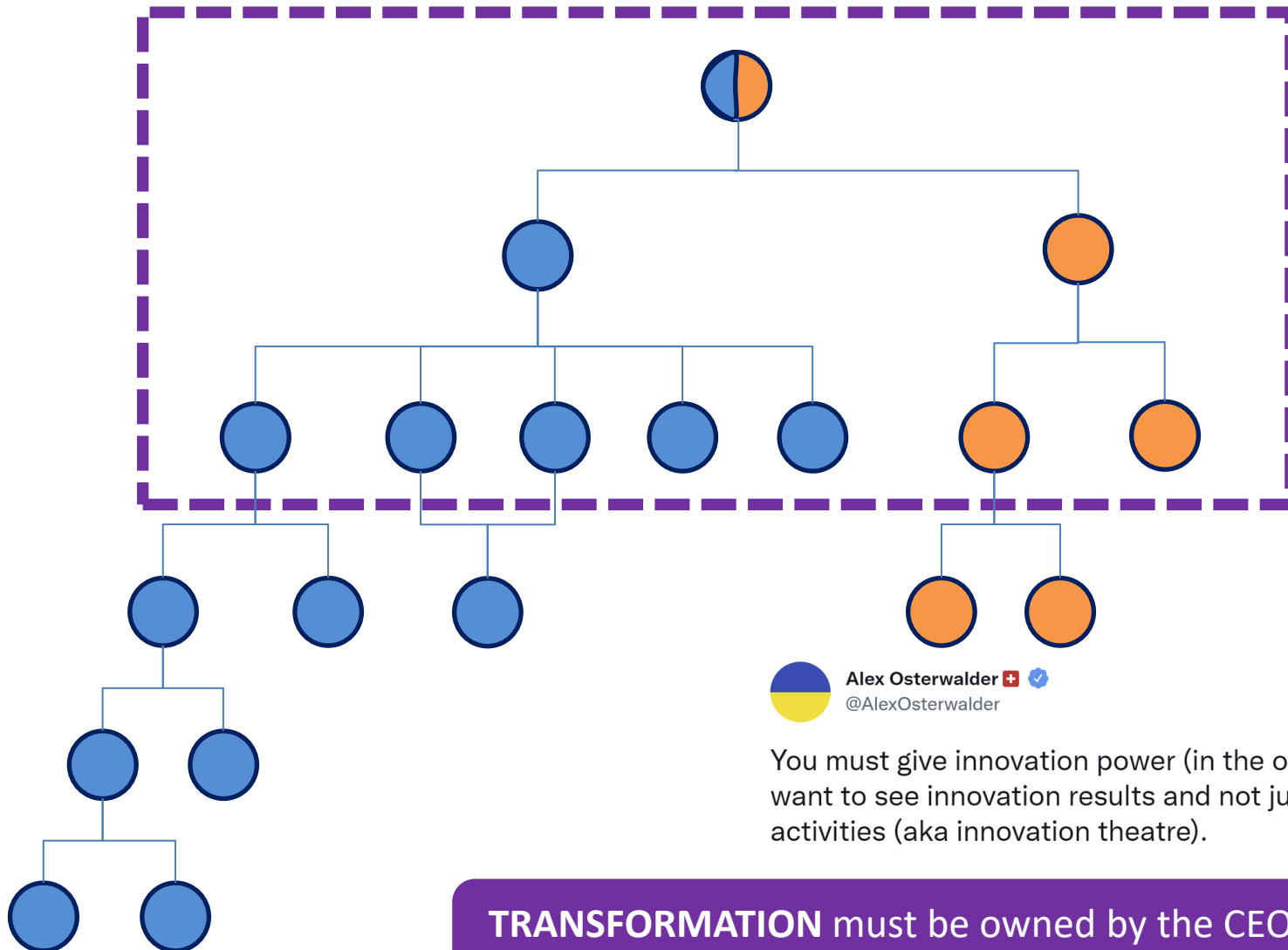
**Make the Management Board  
the owner of the Transformation**

**Create your very own Transformation Agenda  
(including topics beyond Digital)**



**Exploit** , **Explore** and **Transform** under one roof

Management Board



You must give innovation power (in the org chart) if you want to see innovation results and not just innovation activities (aka innovation theatre).

**TRANSFORMATION** must be owned by the CEO and the full Management Board (the Agenda of Transformation)

# INSIGHT #3

## STRATEGY should be your driver, not Technology

### Digital success isn't mostly or mainly about technology



**First Who, Then What**—get the right people on the bus  
Put the right people in the right places (ensuring the right mix of digital expertise and organizational experience on teams)



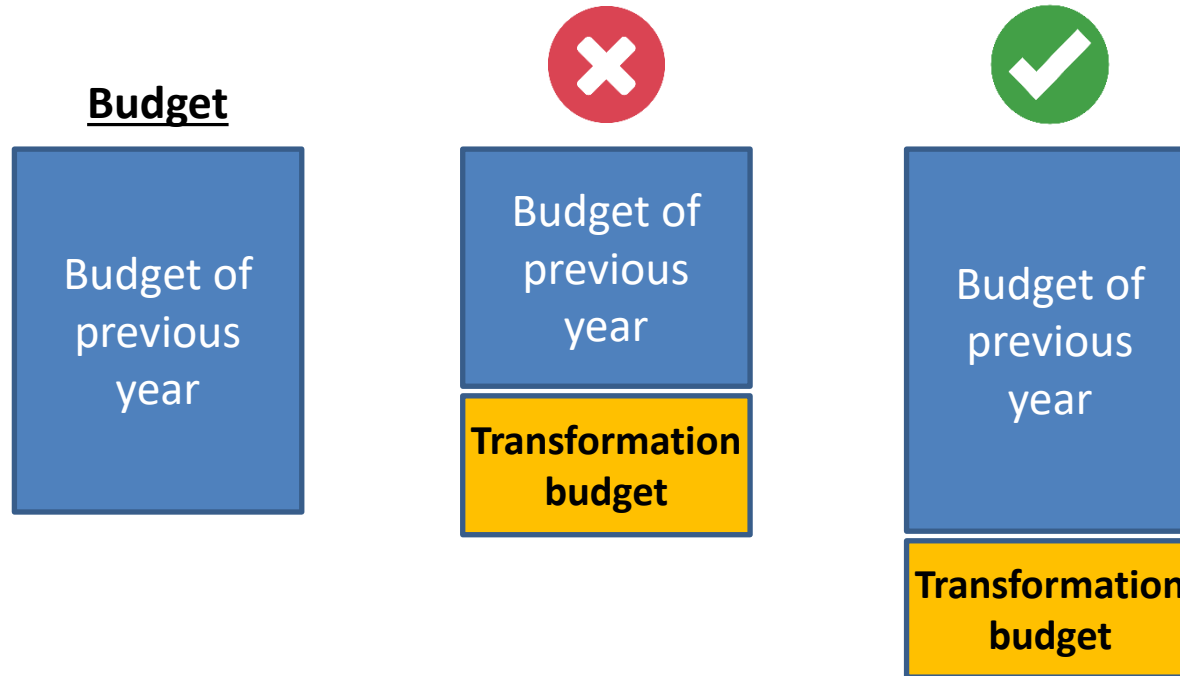
Get **visible commitment** from the ownership, the CEO and executive team and **buy-in** from the key stakeholders.



Set the goals that clearly **define “success” for your organization** – and map out how to get there.

# INSIGHT #4

Find money, don't cut it from other areas



## Growth greases the skids of transformation.

- If your dominant mode is the **reallocation of existing resources**, you will create immediate enemies of every group from whom you take resources.
- If instead you **grow the top line**, you can put all the new resources behind the transformation and slowly scale back the things that don't fit.

- *Roger Martin*

# INSIGHT #5

## Work on the right type of initiatives/projects

Work on Structural and Value initiatives, not POC or R&D initiatives.

### Structuring technologies



New computers  
(fixed vs laptops)



Cloud



Cybersecurity



Data governance

5G

### POC or R&D technologies

Metaverse

Digital Twin

Blockchain / Web3

AI (multimodal)

### Value technologies

AI (unimodal)

Any already proven  
software solution



**MUST**

**AVOID**

This is for your "Explore"  
people, your Innovation team

**MUST**  
(with your  
strategic focus)



# DIGITAL TRANSFORMATION: Transformation is more about Out-In than In-Out (in terms of digital technologies)

A

## From IN-OUT to OUT-IN

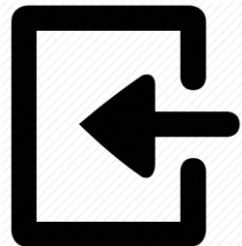
IN - OUT

Developing innovations internally



OUT - IN

Adopting proven innovations, coming from the outside



B



**EXNOVATE** = get rid of all the stuff that drains your energy.

- Exnovation is at the end of the innovation life-cycle where it “discards” or even purges existing practices to allow the organization to adopt different and fresh thinking to any new innovation activities.

**UNDIFFUSE** = abandoning established clinical practices.

- De-adopting Ineffective or Harmful Clinical Practices.
- “On the Undiffusion of Established Practices”

# KEY TAKEAWAYS: Five Transformation Myths Busted

## Myth 1:

The only transformation that is relevant is the digital transformation

Technology is the lever, but the right conversation is not about specific technologies.

## Truth 1:

## Myth 2:

Technology drives digital transformation

Strategy, not technology, drives digital transformation.

## Truth 2:

## Myth 3:

Transformation only requires knowledge of technologies

It is mostly about processes and culture. A technologist will not do.

## Truth 3:

## Myth 4:

There is a super(s)hero out there who will be able to transform us.

Transformation is a company effort. Alignment of multiple cross-functional teams is needed.

## Truth 4:

## Myth 5:

Transformation can be done in 1 or 2 years (if we work hard...).

Transformation will take 15 to 20 years to accomplish. Long-term roadmaps are needed.  
*"Impatience with actions, patience with results."*

## Truth 5:

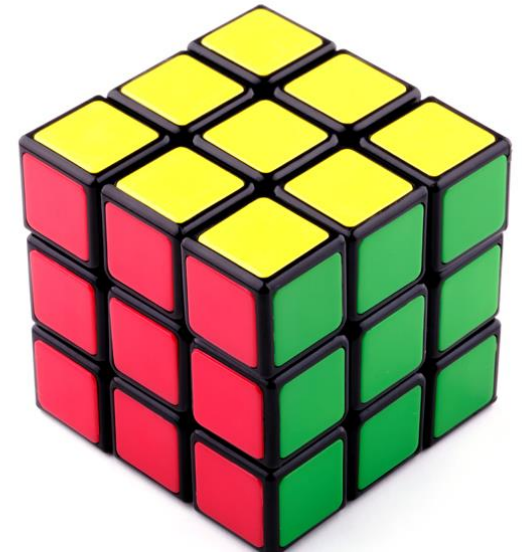
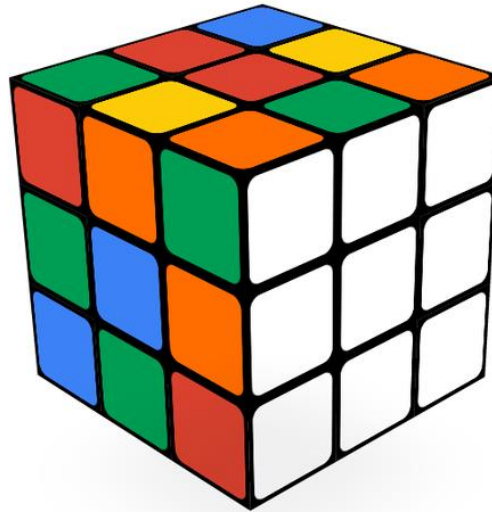
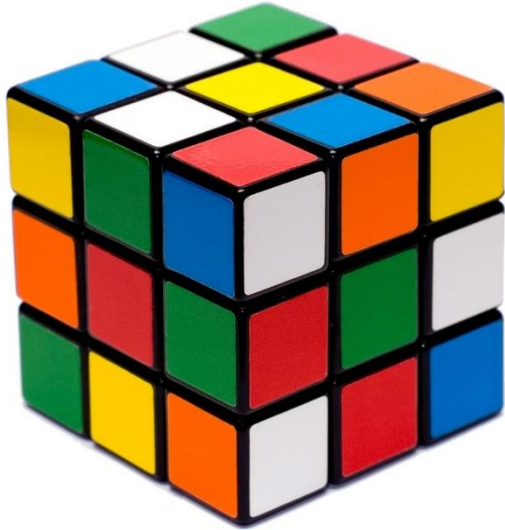






We're caught in between *the structures of the future*, which are still self-assembling, and *the structures of the past*, which are being disassembled.

Beth Comstock (former VP General Electric)



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