### Learning & Development in Times of Digital Transformation: Facilitating a Culture of Change and Innovation

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Abstract—The digital transformation is the very heart of the Fourth Industrial Revolution, which is about to change our understanding of doing business, of learning & development in a fundamental way – and with unrivaled speed. However, many companies and individuals hesitate to acknowledge the depth and impact of current developments. We suggest to distinguish four reasons: the striking impact of advanced digitization is not yet fully recognized (1); there is a lack of imagination and strategy, coupled with increasing unpredictability (2); a lack of agility and insufficient encouragement towards innovation (3); and a lack of pertinent competencies and insufficient innovation culture (4). New roles and action areas for Learning & Development (L&D) professionals enable possibilities to overcome these innovation barriers: change agent & consultant; designer of an enriched learning portfolio of products and services; shaper of innovation culture. Also facilitating a learning friendly culture by using different pillars is a way to generate innovation and to secure the existence of organizations in times of digital transformation.

**Keywords**—Change Management, Digital Transformation, Innovation Culture and Management, Learning & Development

# 1 Digital Transformation: Pressure to Change and its Challenge for Organizations

The world is constantly changing – but now at an unprecedented speed, leading to extensive and fundamental transformations. According to Nolan Bushnell, engineer, entrepreneur, founder of Atari and important venture capitalist (VC), companies today

"have to radically revolutionize themselves every few years just to stay relevant" [1]. Technology and the Internet have changed the business landscape forever. And there is much more to come: we are at the beginning of a revolution that is fundamentally changing the way we live and work, the so-called Fourth Industrial Revolution.

For Klaus Schwab, founder and executive chairman of the World Economic Forum, there are three reasons why today's transformations represent not merely a prolongation of the Third Industrial Revolution, but rather the arrival of a distinct Fourth one: velocity, scope, and systems impact. Today, enterprises must change constantly, and in an agile manner. Moreover, the changes are disrupting almost every industry, and their breadth and depth herald the transformation of entire systems of production, management, and governance [2].

This fundamental revolution shakes the foundations of our understanding of society and business. "The key building blocks are already in place for digital technologies to be as important and transformational to society and the economy as the steam engine" [3].

Self-driving cars, extremely efficient decision-support systems, sophisticated translation programs, 3D printing, advanced semantic image analysis, and a variety of useful robots have appeared in the past few years. Many things we have long known as Science Fiction are now becoming reality almost simultaneously. Artificial Intelligence (AI), respectively Cognitive Computing is driving many of these innovations. The cloud and all sorts of platforms have revolutionized how to set up and run a business. Innovative ideas can be realized in days, and the corresponding business set up almost "overnight". The necessary infrastructure, processes, transaction mechanisms and payment schemes are all in place as services - thanks to the cloud. The new kid on the block can come "out of the blue", from anywhere - it does not have to be a well-known competitor in your industry. "A few years ago, you could see the competition coming. Not anymore. Digital invaders can come from anywhere, anytime, before you even know they've arrived" [4]. In IBM's 2015 Global C-suite Study, 54% of 5247 C-level executives from 21 industries in 70 countries responded that they expect more competition from other industries. This number increased by 26% compared with the 2013 results. In contrast, only 29% of all CxOs expect more competition from within the same industry (39% in 2013) [4].

We live in a "platform economy": Uber, Airbnb, Facebook and Alibaba are well-known examples. Even five years ago, one could not have imagined that the world's largest taxi service company will own no vehicles or that the world's largest accommodation company owns no real estate. Alibaba as the world's largest retailer carries no inventory, and Facebook as the world's largest media company creates its own content! It is symptomatic that digital disruptors act as intermediaries by creating digital platforms that exploit on existing infrastructure, products, services, and content. This strategy enables a significantly faster growth rate than more traditional business models based on physical goods do. The widely known examples above show that the impact of digitization is already tremendous, but "the digital disruption of existing business models is still in its early days and will continue to threaten both new businesses and established enterprises" [5]. For existing businesses, these developments create the imperative to innovate.

Another significant innovation driver is the changing behavior of customers. Their expectations towards businesses, products and services rapidly increase. Nowadays, clients are better informed and increasingly expect individualized products and services as well as a unique customer experience. Businesses have to rethink what customers value most, and create operating models that take advantage of the latest technology for competitive differentiation. Sorofman states that 89% of companies expect to compete mostly on the basis of customer experience. Experience design is therefore in high demand [6].

Digitization transforms, and disrupts, businesses on various levels, be it in terms of new products, new services, or completely new business models that redefine and dissolve boundaries of existing industries. "The challenge for companies is how fast and how far to go on the path to digital transformation" [7, p. 1].

#### 1.1 Many businesses hesitate or fail to act or react

Despite the rapidly changing business landscape and the resulting innovation pressure, many companies still hesitate to act. A 2016 survey of the Swiss-based Global Center for Digital Business Transformation, conducted with nearly 1000 business leaders around the world in twelve industries, showed that in about 45% of the companies the digital disruption is not a matter of board-level attention (on average across industries) [8]. In the same study, the respondents assume that half of today's top ten incumbents (in terms of market share) in each industry will be squeezed out of the market by digital disruption in the next five years. Still, one third of the study participants are taking a "wait and see" approach in hope of emulating successful competitors, whereas only a quarter describe their approach to digital disruption as proactively willing to transform themselves in order to compete.

Reasons for this hesitation or reluctance to act are rather sophisticated and many-faceted, sometimes based on single details and sometimes firmly anchored in the corporate culture. Based on our own experiences with various clients from many branches, we propose to distinguish the following reasons for this hesitation, which may exist by themselves or in combinations.

## 1.2 The dramatically extensive impact of advanced digitization is not yet fully recognized

First, the truly all-embracing impact of digitization and its concomitant shifts have not yet been recognized by many leaders, despite well-known examples of digital "invaders", such as Airbnb or Uber, that impressively demonstrate both the speed and impact of an all new way of doing business. A company producing a highly specialized range of physical niche products with long-standing business relations might hardly perceive the potential threat posed by disruptive competitors. Current conditions, such as a steady flow of orders and high revenue, block the view and prevent leaders from fully recognizing the all-changing impact of digitization. Moreover, it may be difficult to even imagine the digital counterparts of physical products and services that are still regarded as being unique and unrivaled.

### 1.3 Lack of imagination and strategy, coupled with increasing unpredictability

Thanks to digitization, a potential danger can turn into a real threat to existence almost overnight without an aggressor's big investments or lengthy processes [9]. Trends and competition appear increasingly unpredictable: At the time of a market analysis, competition simply might not yet exist. As a result, businesses no longer seem to have a real strategic influence on their course of action, which can have a paralyzing effect: "It's really hard to predict the rapidly evolving technology environment; you don't know what you don't know but you're still trying to stay ahead of it" (Ian Cunningham, COO, Tangerine Bank, quoted in [4, p. 6]). Many enterprises still try to relocate themselves in the digital landscape considering the same traditional borders, and not realizing that trade branches and business models have fundamentally changed. Some companies have not yet developed an overall strategy to address the state of the world, which can be described using the trendy managerial acronym VUCA, which stands for volatility, uncertainty, complexity, ambiguity [10]. Although it is said that it is impossible to fully prepare for the VUCA world [10], distinguishing and addressing all of those four elements could help clarify the initial situation in order to establish a versatile strategy and tackle the unpredictability - something many companies fail to develop and execute.

The proactive approach of BMW is an interesting example to illustrate how an agile handling of digitization and its effects can be realized if all hurdles are overcome. Because BMW creates its own internal disruptions by redefining parts of its core businesses, it prevents external digital disruptors from pushing BMW into a reactive mode. The company extended its market segments to a three-layered system. On a physical level, there (still) is the traditional car selling. In digital spheres, BMW enters competition through a joint venture called "DriveNow" ("ReachNow" in Seattle [11]), a carsharing service in several cities across Europe and North America. On the "digital marketplace" level, BMW is about to launch a social car-sharing (known as "ridesharing") service rivalling Uber [12]. All three levels can co-exist, there is no hierarchy.

#### 1.4 Lack of agility and insufficient encouragement towards innovation

There are not only new players in the game, the whole game is a different one: just because you are used to play cards, you cannot play chess. Handling such a fundamental change requires lots of imagination. Assume a company's leaders fully recognize the current development and can even imagine a vision to react to it. This is true for many enterprises that want to tackle the emerging shift and are determined to be a part of it. However, the company's culture, organization and structure might not be built to be flexible and agile. To tackle possible disruptors, it might be necessary to trigger an internal transformation first that changes the inner core, the corporate DNA with its norms and values. True change needs true authenticity – not just a new makeup. Leveraging an innovation lab or creating an internal position to promote innovation can be an effective starting point: Innovation labs may help to establish the agile innovative power of a start-up culture [13], but may sometimes serve more as an

alibi ("but we are doing something"), than as a first step towards a true redefinition of how a company sees itself and its field of business. Furthermore, external innovation labs might strengthen the development of two separated cultures instead of influencing core norms and values. This happens if there are hardly any exchange processes between the lab and the original part of the company, which may lead to a "Not invented here" (NIH) syndrome [14].

#### 1.5 Lack of pertinent competencies (skills, knowledge, attitude)

Even with a clear vision that takes the tremendous development of digitization into account and an agile approach to realize and encourage innovation, some companies still struggle to tackle the challenges of digitization. If leaders and employees do not have the right competencies, the necessary new processes cannot be executed. With competencies, we refer to a set of skills, knowledge and attitude [15]. An organizational transformation cannot succeed without competent individuals who truly understand the meaning and complexity of digitization.

#### 1.6 Insufficient innovation culture

Listed below are some of the typical barriers and challenges encountered in implementing a strong culture of innovation [16]:

- Uncertainty of managers and employees: What exactly does innovation mean for our organization? Do we share a common understanding?
- Absence of an explicit and motivating mission: Often it is only a blurry appeal from top management to be more innovative. That provides little guidance.
- Insufficient enablement or capability of Learning & Development (L&D) professionals to serve as innovation designers.
- Lack of willingness to take risks and to regard mistakes as an opportunity for learning.
- A management style that is not conducive to innovation: freedom of innovation, recognition, participation and empowerment.
- Insufficient exchange of knowledge within the organization and with customers.

Companies increasingly realize that they have to reinvent themselves and that they have to embark on that journey right now. But the big question is often the how: Where to start? How to stay competitive amid constant turbulence and disruption [17]?

#### 2 New Roles and Action Areas for L&D Professionals

Another important ingredient in addressing the above problem is, in our opinion, the following question: How can an organization, in times of disruptive and continuous change, remain willing to learn and open for change and development? The pervasive trend to digitization does not grant much time to prepare; it is a challenge that needs to be analyzed, addressed and tackled on the go.

How can L&D professionals shape and support change as a "normal mode of operation"?

Moreover, one should also question whether in this context the established notions, competencies and classical training of change management are still current and applicable: "The change processes of today are being addressed using the models and assumptions of yesterday" [17]. The notion still seems to prevail that change processes still obey the traditional sequence of "melting/planning", change, consolidation, and emergence of new routines. However, organizations typically see continuous change processes, and little or no phase of consolidation. In contrast, they often experience many parallel change processes.

In the following, we would like to show how L&D professionals can generate value for their organization in individually addressing and handling the challenges discussed in Section I.

**Challenges**: The gravity of developments is not yet fully recognized; there is a lack of agility and an insufficient commitment to innovation, and there is a lack of imagination and strategy coupled with increasing unpredictability.

Role and priority of L&D professionals: Act as Change Agent & Consultant

We advance the view that the role of L&D professionals should be that of Change Agents and Consultants for their organization to inject stimuli for changes in the organizational structure that allow the organization to deal with changes and to foster innovation. Hereby interesting concepts are Holacracy [18], Innovation Labs, and Acceleration [17, 19]. All these concepts share the aim to create new processes and roles in organizations by means of new structures that empower individuals through more participation and proactivity, thus fostering agility, innovation, and individual as well as organizational learning processes.

In addition to critically assessing suitable existing organizational structures, L&D professionals should also aim to introduce new forms of work and methods that support organizations in their drive to become agile and increase their development potential. Examples are Design Thinking, Scrum frameworks, and virtual tools to enable networked work in a team. Ideally, the L&D teams will themselves experiment with such agile and new organizational structures to increase their credibility and authenticity as consultants.

Challenge: Lack of pertinent competencies (skills, knowledge, attitude).

Role & priority of L&D professionals: **Designer of an enriched learning portfolio** of products and services

An expanded product and service portfolio of L&D professionals [20] serves as a fundamental starting point for successfully developing competencies in organizations (Figure 1).

L&D professionals should critically assess the content and learning tools (methodology) of any existing change management trainings and offerings to determine whether they are topical and correctly reflect the organization: Is more modern or different knowledge needed for mastering the continual and deep-reaching change processes in an organization? Is the digital transformation an explicit part of the development of competencies? Which skills are needed, and how can they be developed most efficiently, both methodically and didactically?

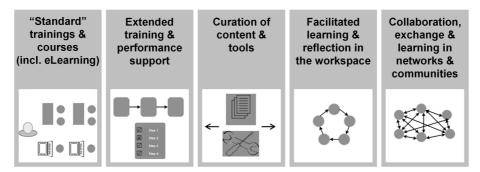


Fig. 1. Product and service portfolio of L&D managers [20]

Challenge: Insufficient culture of innovation

Role & priority of L&D professionals: Shaper of such a culture

To shape a culture of innovation is probably the role L&D professionals are least familiar with. Given that their competencies are more in the areas of planning, execution and evaluation of learning concepts, shaping culture seems to be a job where creativity is not immediately needed for a start. However, in view of the challenges mentioned above that arise in our era of digital transformation and continual change processes, the enablement of a culture of innovation appears to be an important sphere of activity, with considerable creative potential for L&D professionals.

Already today various examples exist of how a learning framework that promotes innovation could look. One field of activity for learning professionals is the shaping and creation of learning spaces that promote both learning and innovation [21]. It is interesting that not only internal L&D professionals exploit this possibility, but also external vendors use this instrument and offer such learning and innovation spaces (for a fee). Deloitte, for example, offers its customers an exemplary tool with its "greenhouses" in various locations [22].

The new role of shapers of culture, combined with the traditional roles of change agent and consultant, a vision of the future emerges for L&D professionals that has a much stronger focus on the framework for creating learning and innovation opportunities (see also the notion of platforms/marketplace sketched in Section 1). Framework here refers to the enablement and active shaping of a culture of innovation: a culture of innovation can be regarded as the breeding ground in which notions, values and norms can evolve that promote innovation so that not only manager but also employees feel encouraged as well as empowered to pursue innovation as a fundamental driver in their activities [16].

#### **3** Facilitating a Culture of Innovation

In an organization, the capability to innovate, and a viable culture of learning are closely connected [23–25]. Learning is a prerequisite for the performance of the organization and for innovation [26]. Learning professionals can shape this culture by various means and thus generate a framework that is conducive to innovation [27].

Various areas exist in which their efforts can be brought to fruition: processes, values, behaviors, recognition and climate [24, 28]. Subsequently, we provide the example of IBM Research – Zurich to illustrate these areas that can be shaped by L&D professionals and to highlight the versatile implementation of innovation:

The 10 pillars of the innovation culture at IBM Research – Zurich

- 1. **Grand Challenges** (*recognition*, *processes*,): For grand challenges it is unclear whether they can be solved. They are set to unleash the creative energies of the organization. A prominent example is known as "Watson", the cognitive computing system that competed and won against the two world champions in the quiz show "Jeopardy!" in 2011.
- 2. **Innovation Jams** (*processes*): According to the notion of "the power of the crowd", members of the organization have the opportunity to add strategic topics to the agenda. It is also possible to put up the values of the organization for a grassroots evaluation.
- 3. "Grounded Dreamers" (resources, values): One key aim of the hiring process is to identify, and hire, people who, on the one hand, are visionaries, with their "head in the clouds", but on the other hand are firmly rooted in the ground. The ideal candidate is able to move between those two worlds and transform this tension into creative energy.
- 4. **IBM Fellows** (*behavior*, *recognition*): IBM Fellow is the highest grade of recognition of technical eminence, and entails considerable freedom in setting one's own research agenda.
- 5. **"Skunkworks" projects** (*resources*): Employees are given time to work on a project that is not yet considered to be of strategic relevance to IBM, but has potential to become an essential future asset.
- 6. **Global Technology Outlook** (*processes*): The GTO is IBM's annual pulse-taking on emerging trends in the 3- to 10-year time frame in the company, the industry and in society. It is a mixed bottom-up / top-down process. All experts can participate. The ideas are presented to the management board, and are crucial for the development of the company's overall strategy.
- 7. **Learning how to listen** (*resources*, *climate*): In order to know what is really going on in the company, active listening is key. Here IBM pursues, among others, the concept of Ed Schein (active listening & humble inquiry) [29].
- 8. **Agile approach** (*processes*): Agility today does not only refer to a development method, but signifies more and more the state of mind in the organization. It is about an experimental and iterative approach "start small measure everything (feedback) fail fast / fail well & succeed big!"
- Treasure wild ducks (values): Maverick thinkers are respected, valued and wanted.
- 10. **IBM ThinkLabs** (processes, behavior) Continuous exchange with the external world about innovation challenges and the creation of innovation eco-systems.

#### 4 Conclusion & Outlook

The digital transformation and hereby mandatory change processes pose a multitude of challenges for organizations. L&D professionals can, and must, actively shape these processes and provide guidance to the organization tackling these changes. Respectively, their role and areas of responsibility expand. In addition to their core competencies of designing, teaching and evaluating learning formats, they will increasingly be called upon to perform the following:

- Be able to act in a professional manner in an environment of digital disruption.
- Support the organization as change agent and consultant in times of continuous transformation.
- Actively help shape a culture that is conducive to broad and constant learning, radical change and fundamental innovation.

Especially the role of culture designers promises to hold a large innovation potential. We have used the example of the innovation culture at IBM Research – Zurich lab to illustrate the manifold ways and areas in which innovation can be introduced as a core value and used as permanent excitation to remain in a constant change process.

Extrapolating from the developments sketched here, additional interesting questions arise for research and practice: Which are the key competencies that will enable L&D professionals to support organizations in better managing emerging roles and tasks in the future? What is the role of managers in the era of digital transformation? How will they interact/collaborate with L&D professionals? In view of the rapid rate of change, will the "learn how to learn" eventually become more important than the content itself?

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