

Learning in the Digital Age (DAL) - A Capgemini Point of View

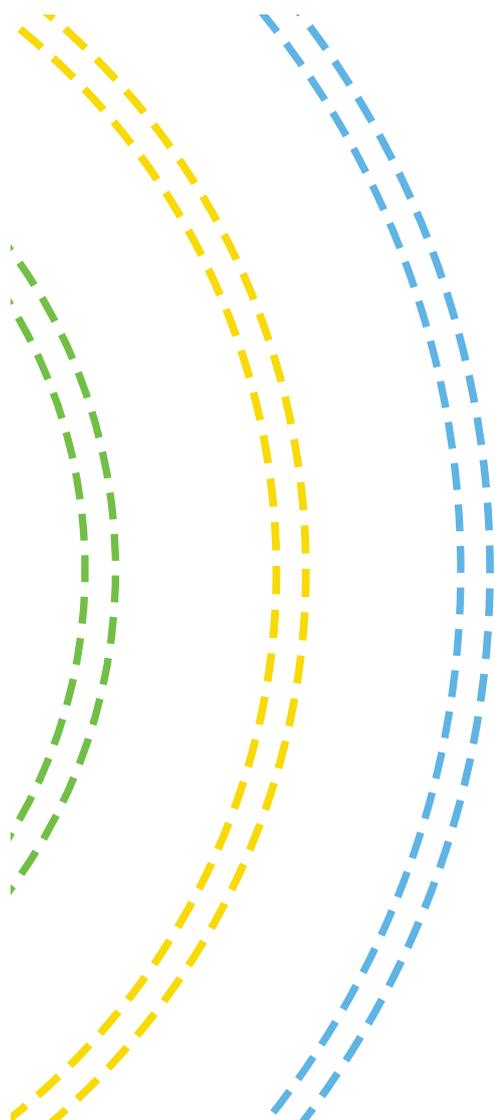


People matter, results count.

A Capgemini Point of View

This point of view defines “what” is learning in the digital age. It is based on business and academic literature, industry best practices, and current trends in the fields of business, technology, neuroscience, higher education and workplace learning. This paper has been developed by Capgemini to support discussions among learning and HR professionals. It will be iterated based on the outcomes of these debates. It also integrates the results of pilot programs which Capgemini University and members of the EFMD Special Interest Group on Digital Age Learning are currently implementing. This paper only focuses on what is learning in the digital age. It will be complemented with a Digital Age Learning Framework which will recommend “how” learning in the digital age can be implemented.

The document first lays out the context of learning in the digital age, analyzing the learning-related impacts that the digital age has on society, businesses, the individuals and the digital age learner. It then looks at the evolution of learning theories within that context. Finally, it defines learning in the digital age with its set of characteristics.



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LEARNING IN THE DIGITAL AGE

The digital age

We live in the **information age** (a.k.a. the **digital age**), a period in human history characterized by the shift from industrial production to one based on information and computerization. In a commercialized society, the information industry is able to allow individuals to explore their personalized needs, therefore simplifying the procedure of making decisions for transactions and significantly lowering costs for both the producers and buyers. This is referred to as the knowledge economy.

The evolution of digital technologies has changed the way individuals interact with businesses and with each other. The modernization of information and communication processes has become a driving force of social evolution.

1. Impact on society: The explosive growth of technology in every aspect of society has led to unprecedented access to (free) information, people, and ideas. Accessibility is an important factor for democratizing information. Information is the power of a progressive society; without availability of information, people cannot interact with the world around them. The **democratisation of information has resulted in a shift in the distribution of power** between governments and citizens, retailers and consumers, managers and employees, teachers and students.

At the same time, we're inundated with information. There is **too much information for anyone to handle**. As the availability of information increases, our capacity to process and retain that information decreases. A paradoxical situation arises: although there is an abundance of information available, it is often difficult to obtain useful, relevant information when it is needed. For example, the dilemma for managers is that on the one hand, they receive too much information, while on the other hand, they don't get enough of the right information (Katzer & Fletcher, 1996).

In addition, we face the challenge of **obsolescence of information**. Gonzalez (2004) describes the challenges of rapidly diminishing knowledge life: "One of the most persuasive factors is the shrinking half-life of knowledge. The "half-life of knowledge" is the time span from when knowledge is gained to when it becomes obsolete. Half of what is known today was not known 10 years ago. To combat the shrinking half-life of knowledge, organizations have been forced to develop new methods of deploying instruction".

“The information age is the age of the empowered customer. Fuelled by the widespread adoption of cloud, social, and mobile technologies, customers now have [...] raised expectations of personalized information and services on demand at anytime, anywhere — and often for free.”

2. Impact on businesses: The information age is the age of the **empowered customer**. Fuelled by the widespread adoption of cloud, social, and mobile technologies, customers now have access to more information, more choices, and more opportunities to broadcast their opinions than ever before. They have raised expectations of personalised information and services on demand at anytime, anywhere — and often for free. Brands have to work even harder to get noticed.

This is compounded by dis-intermediation, which has been observed in many industries. Dis-intermediation is the process of reducing the number of intermediaries between the end consumer and the provider. It is giving the user or the consumer direct access to services and information that otherwise would require a mediator, such as a salesperson, a librarian, or a lawyer. **The empowered consumer now can make intelligent choices about the right product for the right situation** with all of the relevant data, just in time.

The result is a revolutionary shift in the balance of power between companies and their customers. The Internet has given customers the power to choose services that exactly fit their needs and share their experiences immediately, at the touch of a button. **The consumer, rather than the brand, controls the interaction**. "The [brand] loyalties that existed in the past are no longer there" (Kristin Darby, 2014).

The "information age" has spawned a new breed of companies devising business models unheard of previously. The new and emerging technologies are driving firms to reconfigure their organisation and market strategy on short notice, and to increase their agility in responding to new client demands. Companies are therefore required to **quickly adapt** to a continuously changing market in order **to survive and remain relevant**.

If successful, these **digital age corporations** not only have an edge over their competition, but are also able to **regain power over their consumers**. Indeed, when we consider Amazon or Google, they, in many respect, better understand their customers than the consumers do themselves! This gives them enormous power because they understand the habits, tastes and buying patterns of potential clients. They can anticipate new needs and approach clients with those differentiated products and services. The Amazon dash button, which consumers can push every time they run out of specific grocery items, and which ensures replacement is delivered at the doorstep within 24 hours, is an excellent example of how an organization re-balanced the power between the consumer and the service-provider, through digitalization and customer experience focus.

Sustainable competitive advantage no longer arises exclusively from position, scale, and first-order capabilities in producing or delivering an offering. Increasingly, it stems from the organizational capabilities that foster rapid adaptation. In addition to being really good at doing some particular thing, companies **must be really good at learning how to do new things**. Peter Senge (2006), a strong advocate of learning organizations, argues that “the ability to learn faster than your competitors may be the only sustainable competitive advantage.”

3. Impact on the individual living in the digital age:

Individuals living in this modern era face significant changes happening around them. What is expected of them is evolving and the way they interact with their environment is changing.

The digital age has disrupted society and the workplace in significant ways. While companies are challenged to remain competitive by continuously adapting to an evolving market, **individuals must also adapt their skills to remain relevant** in the job market. People are expected to continually acquire and develop new knowledge and skills. This is either demanded by current employers, or by the job-market itself.

Several studies have shown that individuals in the digital era go through multiple career changes in their lifetime (Fippingger, 2013). In 2012, an average worker in the US stays with the same employer 4.4 years according to the Bureau of Labor statistics. Millennials expect to change jobs every 3 years (Meister, 2012).

“The individual worker is going to become more and more responsible for managing his or her own career, risks and economic security.”
Friedman (2005)

The digital era requires individuals to be lifelong learners:

Friedman (2005) points out “the individual worker is going to become more and more responsible for managing his or her own career, risks and economic security”. This means that individuals living in the digital era have to continuously assess the relevance of their current skills, and identify ways to improve or complement them. Therefore, one key skill required for individuals today is to **learn how to continuously learn**. In today’s world, every individual must become a Digital Learner to survive and strive.

But learning how to continuously learn is not enough. According to Resnick (2012), the proliferation of technologies has heightened the **importance of creative problem solving** in all aspects of our lives. In recent years we have observed a new entrepreneurial spirit, the creation of innovative products and services, and increased productivity through innovation. He states that “the importance of creative citizenry is greater than ever before.”. Mitra (2015) not only stresses the importance of creativity today, but also the ability for individuals to make **connections across domains**, which can drive innovation.

The digital age learner

The first skills that digital age learners must have are **digital literacy** (Brown, 2001) and **digital fluency** (Resnick, 2002).

Brown (2001) emphasizes the shift that has happened in the last century when defining literacy. Literacy in the past was solely text based. Over time, text became complemented by images, and later by screens. Today, digital students have developed an ability to “communicate and express [themselves] with images (still and moving), sound, and other media, [which] is a crucial aspect of the new literacy.” He also insists: “information navigation is perhaps the key component of literacy in the digital age”. Today, students use “triangulation” – double-checking the accuracy of a fact or a finding using multiple sources - to manage the vast amount of information available and verify its validity. This digital literacy skill is complex and is a necessary skill for digital learners to become more autonomous and empowered in this digital-era.

Resnick (2002) prefers to refer to digital fluency as: “the aptitude to effectively [...] interpret information, discover meaning, design content, construct knowledge, and communicate ideas in a digitally connected world”. Resnick compares digital fluency to foreign language fluency, where you must not only know the language, but you must be able “to use that language to construct and express complex ideas in compelling arguments and stories”. As a parallel, digital fluency happens when the learner is not only able to use new tools or concepts, but when the learner is able to create new “things” with what has been learned.

Brown also asserts that learning in this digital era is evolving **from an authority-based model to a discovery and experiential-based model**. Today young learners discover new things every day, as they search the web and explore new resources. Then, they decide whether they want to further study a topic through experiments. Brown argues that young learners working with digital media seem to focus more on the **concrete and tangible**, suggesting a form of “bricolage” or mash-up as a learning approach: This has to do with “one’s abilities to find something (perhaps a tool, some open source code, images, music or text) that can be used or transformed to build something new”. Finally, Brown asserts that digital learners are inclined to try new things which are **action oriented and just in time**, where from reading the user manual or attending a course, is not as important as **learning with and from each other**. It is part of their discovery and experiential approach to learning.

Brown concludes that, in the digital age, **“learning becomes situated in action; it becomes as much social as cognitive. It’s concrete rather than abstract, and it becomes intertwined with judgment and exploration.”**

Bersin (2015) has performed a study to define the **“modern learner”**. In summary they find that “today’s employees are overwhelmed, distracted, and impatient. Flexibility in where and how they learn is increasingly important. They want to learn from their peers and managers, as much as from experts. And they’re taking more control over their own development.”

Overwhelmed	1% of a typical workweek is all that employees have to focus on training and development. 41% of time workers spend on things that offer little personal satisfaction and do not help them get work done.
Distracted	People unlock their smartphones up to 9 time per hour. Workers now get interrupted as frequently as every 5 minutes, often by work application and collaboration tools.
Impatient	2/3 of knowledge workers actually complain that they don’t have time to do their jobs. Most learners will not watch videos longer than 4 minutes. Online designers now have between 5 to 10 seconds to grab someone’s attention before they click away.
Untethered	Today’s employees find themselves working from several locations and structure their work in non-traditional ways to accommodate their lifestyles. Companies are finding it difficult to reach these people consistently and even harder to develop them efficiently. 37% of the global workforce is expected to be “mobile” by the end of 2015. 30% of full-time employees do most of their work somewhere other than the employer’s location. 20% of workforce is comprised of temps, contractors and freelancers.
On-demand	Employees are accessing information-and learning- differently than they did a few years ago. Most are looking for answers outside of traditional training and development channels. People are increasingly using their smartphones to find just in time answers to unexpected problems. To learn what they need for their jobs, 70% employees use search engines, and 50-60% use online courses.
Collaborative	Learners are also developing and accessing personal and professional networks to obtain information about their industries and professions. 80% of workforce learning happens via on-the-job interactions with peers, teammates and managers. Learners are asking other people and sharing what they know more and more. As an example, at Google, 55% of training courses are delivered by an ecosystem of 2,000+ peer learners.
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. The half-life of many professional skills range from 2.5 to 5 years. 38% of workers say that they have opportunities for learning and growth at their workplace. 62% of IT professionals report having paid on their own for their training.

Source: Bersin by Deloitte (2015)



THE SCIENCE OF EDUCATION: CURRENT STATE

From behaviorism to connectivism

“Connectivism attempts to approach learning in a social world that has over-abundance of information and that is hyper-connected.”

Learning theories provide useful guidance for learning professionals when designing, building and delivering learning solutions.

Connectivism is a learning theory promoted by Stephen Downes and George Siemens (2005). Hailed as a learning theory for the digital age, it seeks to explain learning in a rapidly changing digital world, where it has moved into an informal, networked, technology-enabled arena. This theory captures the essence of modern learning in the digital age, particularly aligned with the trends and observations stated in the previous sections of this paper.

Several learning theories existed before connectivism. Behaviorism, cognitivism, and constructivism were the theories that were recognized by the field of adult education in the past (Ertmer & Newby, 2013).

Behaviorism emerged in the early 1900s supported by the work performed by Pavlov (1927) and Skinner (1938). This learning theory essentially considers that behaviors could be molded over time. Learning happens through external stimuli, positive reinforcement and repetition. Obtaining a reward (positive reinforcement) was the way to signify to the learner that the desired behavior was performed. This was especially effective for rote memory exercises.

Cognitivism became a dominant learning theory in the early 1960s. It asserts that learning happens within the brain of individuals. When learning new things, learners create their own mental constructs and “schemas” based on already existing knowledge. Cognitivism focuses on how learners acquire new knowledge, organize it in relation to other concepts, and retrieve it. This learning approach allows learners to apply problem solving strategies to their real-life problems.

Socio-cultural models of learning are nowadays most commonly accepted. Both constructivism and connectivism fall under this category.

Constructivism asserts that people construct their own knowledge through experiencing real-life situations, in a social environment and reflecting on them. This learning approach relies on task driven learning which are executed in context. This approach seems the most appropriate for “advanced knowledge acquisition”, while the first stages of learning acquisition (in a more structured knowledge domain) may use a more behaviorist or cognitivist approach (Ertmer & Newby, 2013).

All of these learning theories, however, were developed prior to the vast emergence and adoption of modern digital technologies. Over the last 30 years, access to technology has been significantly democratized. It has changed the way we live, the way we communicate, the way we interact each other and with our environment, and ultimately, it has changed the way we learn.

Connectivism attempts to approach learning in a social world that has over-abundance of information and that is hyper-connected.

The primary principle of connectivism is that **we derive our competence from forming connections**. Karen Stephenson (2004) states:

“Experience has long been considered the best teacher of knowledge. Since we cannot experience everything, other people’s experiences, and hence other people, become the surrogate for knowledge. ‘I store my knowledge in my friends’ is an axiom for collecting knowledge through collecting people.”

Siemens (2005) lists the following principles to describe connectivism:

- “Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.

- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting/just-in-time reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.”

Connectivism asserts that the essential purpose of education and teaching is not for learners to store knowledge, but rather to **have them become motivated continuous learners**.

Connectivism might not effectively support all types of learning and at any age, but it is a promising approach for adult-learners within corporate and higher-education environments.

The emergence of neuroscience findings that affect the field of education

Merriam-Webster (2016) defines neuroscience as “a branch of the life sciences that deals with the anatomy, physiology, biochemistry, or molecular biology of nerves and nervous tissue and especially with their relation to behaviour and learning”. We see a clear link between the objectives of neuroscience and the field of education. Neuroscience has significantly progressed in recent years, thanks to new and powerful neuro-technologies. Scientists can better observe the brain and the nervous system than ever before. Disabled individuals have more means to overcome their handicaps than ever before.

In the past five years, the fields of neuroscience and education have come closer than ever. Several neuroscience findings are being applied to the field of education to improve the way people learn. **Neuroscience can help learners learn better, and learning professionals deliver better learning.**

For example, there is now evidence that lack of sleep can negatively impact memorization, quantitative and logical abilities (Medina, 2014). On the other hand, sleep promotes the establishment of connections between what has been recently learned and already “memorized” concepts. It has been demonstrated that repetition is good for memorization, and that structuring a learning process where the learner “retrieves” new knowledge three times over a period of time delivers optimum memorization (Andreatta, 2015). It is now also proven that physical exercise and movement has a positive effect on the brain and cognitive abilities: “to improve your thinking skills, move!” (Medina, 2014). There is

also evidence that we learn best when we stimulate multiple senses simultaneously. Music can be an effective means of cognitive ability recovery for stroke patients... and the list goes on.

The **integration of findings between the fields of neuroscience and education is promising**, but is still in its infancy. In order to accelerate this phenomenon, Uta Frith (2011) promotes the establishment of a common language between these two fields. Learning practitioners can then more easily benefit from the latest neuroscience findings, and both learning professionals and neuroscientists can evaluate together how learning can be improved. Frith argues that the application of neuroscience to learning can revolutionize the field of education by taking a rigorous scientific approach on understanding how the brain learns. Ultimately, this will improve learning effectiveness.

Tokuhama-Espinosa (2011) goes a step further and even argues that the fields of neuroscience, psychology, and education must work closer together. They can all benefit from each other. She calls this new discipline the “**Mind, Brain and Education**” (MBE) science.

As learning professionals, we must embrace these new scientific discoveries and integrate them on our practice. We anticipate that, as digitalization impacts all fields of study and accelerates the pace of discoveries, learning professionals will (also) have to stay abreast of an increasing number insights that will improve the field of learning.



LEARNING IN THE DIGITAL AGE – A Definition

Given the context described above, we have identified 6 characteristics that define learning in the digital age:



Learning is engaging through an exceptional and relevant learning experience



Learning is empowering, personalized and self-directed



Learning is ubiquitous, just-in-time, on-demand and in context



Learning is a balanced blend of social, experiential, informal and formal approaches



Learning is hyper-connected through analytics everywhere



Learning is continuous based on inquiry, exploring and doing

Learning is engaging through an exceptional and relevant learning experience

Similar to the principles applied by organizations to become more customer-centric and focus on the **customer experience**, companies also have to provide their workers with an attractive **employee experience**. This generates the employee engagement necessary for a more productive and lasting relationship between the employer and the employee.

Companies are judged on their ability to offer the most stimulating context for workers to develop their skills and reach their fullest potential. In research conducted by PWC in 2011, young professionals were asked about which factors most influenced their decision to accept their current job. The number one answer was; the opportunity for personal development (65%). The offer of personal development opportunities is one of the most important characteristics determining how well an organization attracts and retains professionals. The **employee learning experience** is a major component of the overall employee experience.

The same way marketing and product engineering departments have focused on eliminating “frictions” for their consumers, the employee learning experience must become “friction-less” as well. Just as Uber has made paying for your ride painless and seamless, companies need to ensure that they seamlessly support and enable the performance and development of their employees.

Throughout their learning journey, we need to help learners navigate seamlessly through content and generate personal meaning and relevance from it so they can apply their learning in the real world. The act of learning should also become an attractive “**object of desire**” to ensure intrinsic gratification, motivation for learning, and active engagement (Technovision, 2015).

Learner engagement needs to become a design principle that is weaved throughout the entire learning experience. In order to make an engaging learner experience, one must become **learner-centric**, designing learning through the learner's eyes. Approaches like **design-thinking** must be applied when designing those experiences. Auricchio and Kaganer (2015) argue that to support this, learning professionals must make a shift “from instructional design to learning experience design”.

In order to have engaged learners the **learning must also be meaningful and relevant**, for the learner and the organization. In aiming for full engagement, it is essential that learners perceive activities as being meaningful for themselves and their organization. Research has shown that if learners do

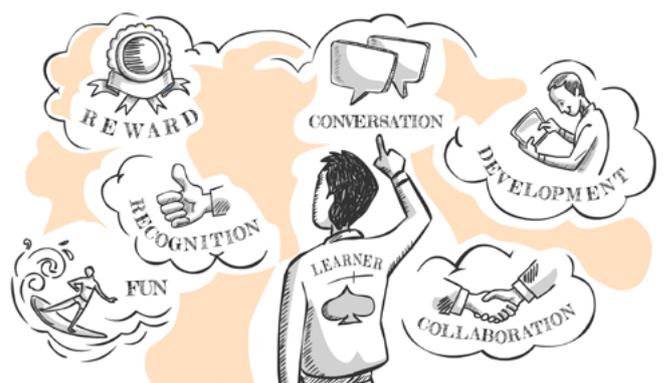
not consider a learning activity worthy of their time and effort, they might not engage in a satisfactory way, or may even disengage entirely in response (Fredricks, Blumenfeld, & Paris, 2004). To ensure that activities are personally meaningful, we need to help our learners **connect with what is relevant to them**, such as, their **activity or work context, network of peers, or personal learning goals**.

Learning must also require an effort from the learner, and **needs to be challenging**, within limits. To strengthen a learner's confidence and sense of competence (gratification) in learning activities, the assigned activities should be only slightly beyond learners' current levels of proficiency. Ultimately, researchers have found that successfully performing a challenging activity can positively impact subsequent engagement (Schunk & Mullen, 2012).

Some organizations combine this approach with a carefully designed “**safe-failure**” experiments at the beginning of a learning journey to make the learner realize that there is a real challenge. As long as this experiment is performed in a constructive manner, it can be an effective way to engage learners.

Game mechanics and simulations, also called gamification, may also be a way to ensure sustained engagement and attention from learners in a contextualized, yet competitive, environment (TechnoVision, 2015).

Engaging employees while they are developing themselves is important, both for the learner, and for the organization. The more the learner is engaged, the more gratifying the experience, and the more effective and self-rewarding the learning journey will be.



Learning is empowering, personalized and self-directed

Developments in digital technology have enabled **learners to choose what, how and when they learn. Empowered learners** have now direct and free access to a network of peers and experts, to knowledge and assets available online. This has dramatically changed the relationship between organization's learning departments and the modern learners.

A recent survey rated the importance of 10 different ways of learning in the workplace. It rated the value and usefulness for each channel. It revealed that 'web searching for resources' came second only to 'knowledge sharing within the team'. 'Company training/E-learning' was rated tenth or least important (Hart, 2015). **Learners** want to search for their own means of development. Learners want to be and **are in control**.

Learners are also taking their development journey into their own hands rather than trusting a "one-size fits all" curriculum. They seek learning that is **personalized** and fits their individual preferences and needs: they want a "**one-size fits one**" learning experience.

They expect to play a leading role in deciding what, when and how they learn. A culture of **self-directed learning** is emerging. Individuals are directing themselves towards which learning to take, or which micro-credentials to get. They are forging skills that will either help them resolve problem immediately or improve their immediate relevance on the market, as opposed to following a long pre-defined curriculum, which may, or may not, help them today or tomorrow.

Nowadays, learners are also empowered because they can become teachers and **share their own knowledge and experience** through easy-to-use social digital tools.



Learning is ubiquitous, just-in-time, on-demand and in context

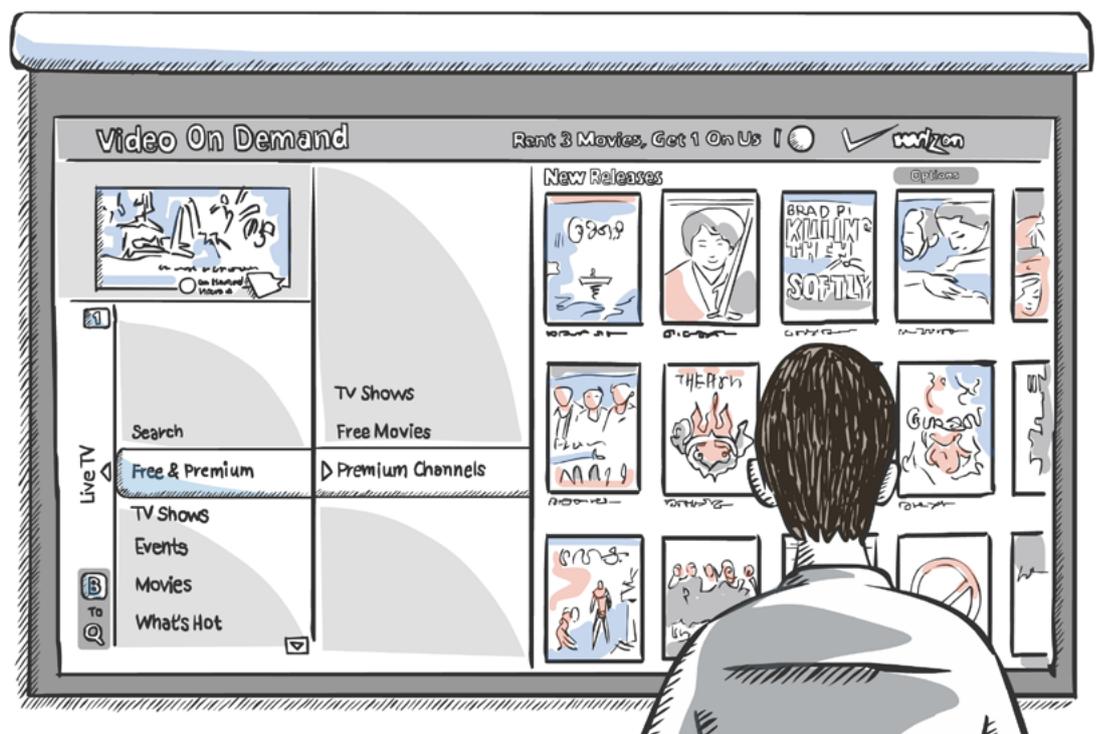
In a recent study, Bersin (2015) found that more than 70% of employees are now using web searches to find **just-in-time immediate answers to their unexpected problems**.

Digital learners want to learn at the time of need when they encounter a specific skill or knowledge gap that prevents them from completing a task or from achieving a desired **tangible result**. Some of us will recognise the example of going onto YouTube to find a solution to a specific problem we are dealing with.

Gottfredson & Mosher (2012) advocate complementing formal learning (classroom and virtual) with **on-demand** “performance support” mechanisms that fit as much as possible in the **“natural workflow of the organization”**. This ultimately leads to a more effective transfer of the learning into individual performance.

In other words, rather than only focusing on teaching knowledge and theories, learning should also directly support the activities that the employees perform on-the-job, in the real world. Individuals should be able to access this learning **within their own context** (location and activity), **when they need it**.

There is no question that a major shift is taking place from instructor-centric curricula towards learner-centric searches for relevant learning resources as needed. The shift has sometimes been characterised as changing from **“push” to “pull”**. This also means that “untethered” (Bersin, 2015) workers need access to learning resources from any location, whether they are traveling, working from the office, or at home. Learning now needs to be ubiquitous and no longer restricted to the employer’s office locations.



Learning is a balanced blend of social, experiential, informal and formal approaches

As previously demonstrated, we cannot restrict learning to its **formal** classroom dimension and organizations need to embrace **informal ways of learning**. Learning happens all the time in numerous contexts and modes, supported by technologies that enable learners to **easily access internal and external information** and **interact with networks** of experts.

Depending on the type of organization and the skills its workers require, the need for social, informal and formal learning may vary. Head et al. (2015) observed that the more an organization requires problem solving skills the more its engineers and scientists are taking advantage of informal and social learning. However, when a high level of (technical) expertise is required, formal face-to-face interventions were more common.

McCall, Lombardo and Morrison first studied this phenomenon in 1988 and suggested a 70:20:10 model for learning, recognizing that 70% of learning happens on the job and is experience based, 20% happens while interacting with others (social, coaching, mentoring, etc.) and 10% happens in a formal learning environment. Another study by the US Bureau of Labor Statistics in 1998 suggests that people learn 70% of their job informally (Kajewski & Madsen, 2012). Regardless of the exact percentages, there is general consensus that learning nowadays happens in three ways (Nadin, 2014). Some call that model the “70:20:10” model (McCall, 2010), others refer to it as the “Experience/Exposure/Education” model (EFMD 2014; Ullrich, 2010):

Experiential Learning (a.k.a. “70” or “Experience”): learning happening through performing day-to-day tasks, practicing on-the-job, and through challenging assignments.

Social Learning (a.k.a. “20” or “Exposure”): learning happening with and through others, in the form of coaching and mentoring, leveraging networks of contacts, and collaborative exploration and actions.

Formal Learning (a.k.a. “10” or “Education”): learning happening through structured programs and courses.

Informal learning is also a term often used to describe the new ways of learning. Informal learning is often referred to as anything that is not formal learning. In our discussion, Informal learning includes experiential and social learning (Nadin, 2014).

Many companies (Google, Citibank, etc) have adopted the above model, developing a holistic approach to learning that

acknowledges the multiplicity of ways their employees learn. They've been keen to support their workers in a consistent manner throughout their careers and across the organization. They have therefore driven alignment across HR, learning and business to ensure impactful personal development.

Close-up on social learning

Social learning mechanisms include reaching out to **networks of experts and peers, on-the-job shadowing, coaching and mentoring**, and **project-based collaboration**.

Numerous studies have shown that social learning boosts the adoption, appropriation and effective application of learning. **Social learning accelerates the speed to competence** of learners by leveraging the latest knowledge and expertise from peers and also via feedback and validation from colleagues.

Social learning gives learners access to expertise, as well as allowing **learners to share their own knowledge and experience**. When new content needs to be produced continuously at speed, social learning becomes a powerful tool that leverages the power of networks, Colleagues can then review and build on each other's work and this new user-generated content can be available for others.

To support social learning, organizations need to create and leverage internal and external networks of experts to curate valuable content for specific communities and create a culture of sharing and collaboration by recognizing and rewarding (in personal development and performance assessment) the influence and contribution made by experts to the community. This recognition should **focus on the quality** of the contributions, **rather than the quantity** (LinkedIn, 2016). Finally, organizations need to provide learners and communities of experts with the right tooling to enable such interactions and aggregation of content to take place.



Learning is hyper-connected through analytics everywhere

Today, learners can easily **find learning resources online** and interact with others via digital technologies as part of the learning process. When learning resources are insufficient, learners can **engage with online communities** to exchange experiences and access opinions from across the organization or from across the world.

In her research on “**multi-channel** self-organized learning and research environments”, Ivanova (2008) states that new tools and services such as “blogs, microblogs, wikis, podcasts, social bookmarking, start pages, mash-ups, resource sharing, RSS and social media enable and encourage informal conversations, collaborative content generation, and the sharing of information, giving learners access to a vast array of ideas and representations of knowledge”.

As discussed earlier with the emergence of connectivism, learning through connections is integral to “learning in the digital age”. This is where **boundaries between the worlds of knowledge management and learning are becoming blurred**. This is driven by the need for a learner-centric simplified experience. Learners do not care whether it is knowledge management or learning, they care about easily finding the right resources (people or information) to help them learn.

Therefore, organizations need to implement a learning environment that facilitates access to this myriad of channels and sources. This allows empowered learners to configure

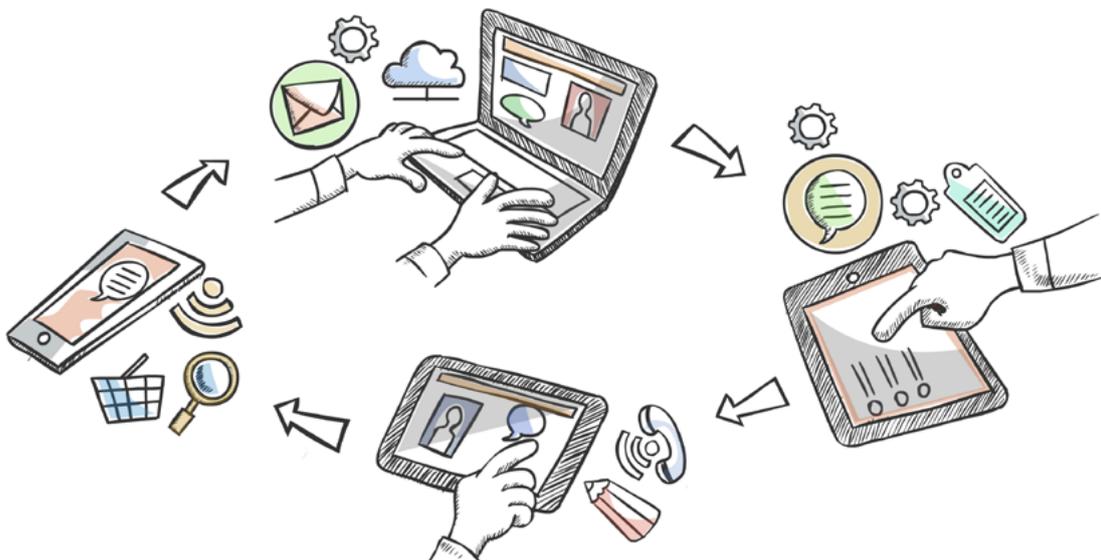
their own learning path using **multiple channels and modalities** that fit their needs, styles and preferences.

Additionally, **analytics** technologies can provide **great support throughout the learner’s journey**. In the retail industry data and analytics are heavily leveraged to better understand customers and thus better target products and offers. The insights available through analytics enable retailers to predict consumer behaviours and needs, and identify preferred modes of interactions and consumption.

In a learning context, **analytics can be leveraged by organizations** to gain insights on learners, monitor and improve the quality of learning solutions and accurately assess skill gaps in the workforce to establish new learning development priorities for the organization.

In addition, **analytics can help learners** personalise their journey. They can find out about their own skill gaps and matching learning activities. Learners can find learning resources that are specific to the problem at hand. Sometimes, analytics can even recommend a learning path and resources based on the learner’s past learning behaviours.

Today, organizations have to leverage the **power of analytics** to provide insights on learners, and their development needs, better target learning to meet these needs, and monitor the effectiveness of the learning activities delivered.



Learning is continuous based on inquiry, exploring and doing

As previously discussed, it is critical for individuals living in the digital age to take ownership of their own development and to continuously learn.

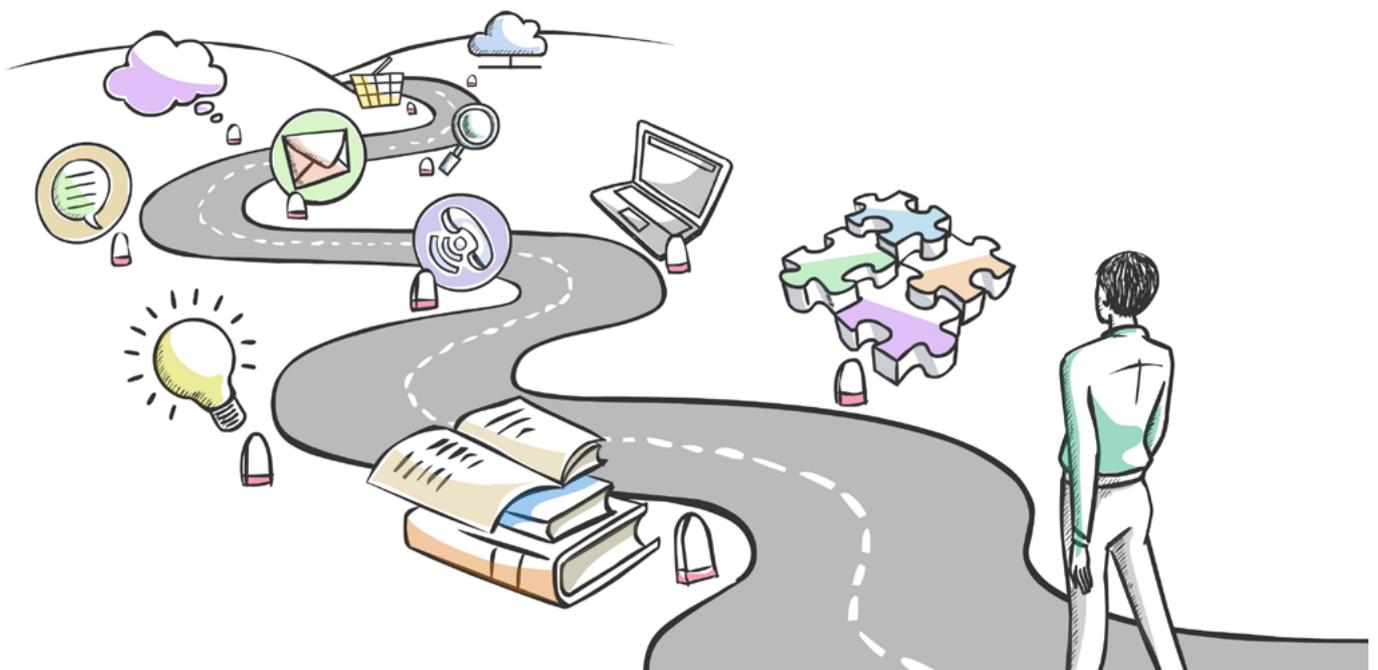
Friedman (2005) sees **a role**, not only for governments, but also **for businesses** to help workers develop the skills and attitudes necessary for self-directed, lifelong learning. It starts with corporations **ensuring that their workforce is digitally fluent**, so that employees know how to effectively learn in the digital age.

The company should not be the place where one stops learning; the company must be the place where **constant learning opportunities** enable workers to stay relevant within their industry and throughout their daily work and entire career. Organizations must present employees with continuous formal and informal learning opportunities.

Many companies are now offering technology-based self-guided tutorials and content repositories that allow users to

find the “**nuggets**” of information that will help them **perform specific activities and tasks. It can also help them solve problems** as they come up. Companies have had to **un-bundle their “courses” and transform them into “resources” and job-aids** (Nick Shakleton Jones, 2016), and ensure that the context for their use is well described and searchable.

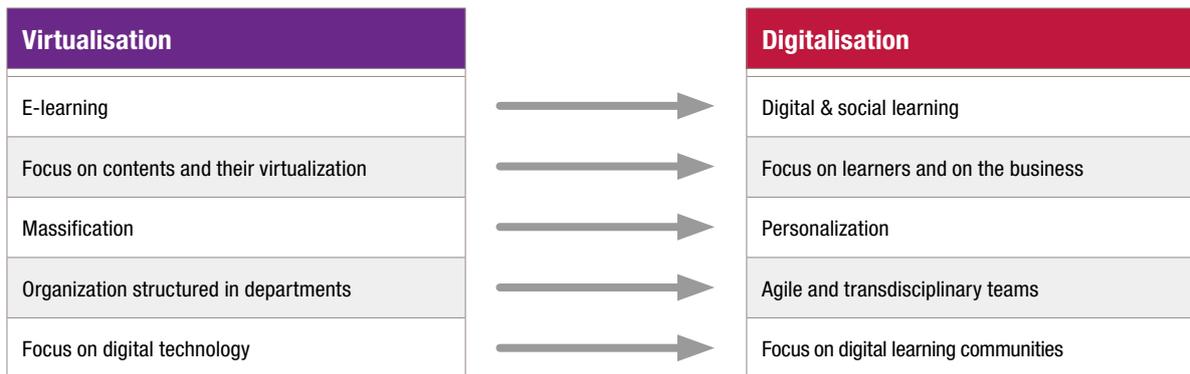
In addition, **learning design must promote inquiry, exploring and doing** so that the individual of the digital age is equipped to be a **continuous and autonomous learner**. Rather than focusing on covering existing content that is given to them, learners who research answers to questions build their own mental model based on their experience and their existing knowledge (Piaget, 1936). Finding answers to their problems and tailoring those answers by exploring and trying them is also part of learning.





CONCLUSION:

It is clear that learning in the digital age goes well beyond virtualization which was focusing on virtualizing content, massification of learning, and digital technologies. Digital Age Learning is about digital learning communities, it is about social learning, it is about focusing on the learner (user) and the business (client), and it is about being more flexible and agile as learning professionals.



Within Capgemini, this definition of Learning in the Digital Age means that the Capgemini learning organization must recognize that the world of learning is evolving and must seize the opportunities that the digital age learning offers.

In the digital age, everything is moving faster. It therefore means that the learning organization must support the business and learners needs with more speed and agility. That can be done through leveraging the power of **cross-functional teams which are strongly aligned to specific business initiatives**. A multi-disciplinary team supporting the deployment of a market offering requires a team and processes that will focus on a short-term “fast and furious” deployment approach. For a team supporting the professional development of a strategic role within the organization, a focus on quality processes and longer-term solutions are more appropriate.

Learning in the Digital age also means that the Capgemini **learning organization must be strongly aligned with the HR strategy and processes of the group**. Learning in the Digital Age must fall under a larger Digital Employee strategy. This will ensure that a seamless end-to-end learning experience integrated in the “natural workflow” of the organization can be delivered. It also means that the design of the learning solutions must evolve and leverage **learner-centric design and build techniques**, as well as the right mix of social, experiential, formal and informal delivery mechanisms.

Finally, the Capgemini learning organization must implement the **appropriate digital learning technologies** to support social learning, learning product management and analytics capabilities at a minimum.

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Established in 1987, Capgemini University offers training to all Capgemini's employees worldwide through its international Center of Excellence (Les Fontaines, near Paris), as well as through virtual classrooms and e-learning programs.

Capgemini University plays a key role in developing team skills and capabilities in line with the company's strategy, priorities and clients' expectations. Capgemini University leverages digital age learning principles to deliver a learner-centric end-to-end experience to inspire and develop Capgemini employees as they continuously grow in their professions.

Capgemini University was accredited by the European Foundation for Management Development (EFMD) in 2009 and received reaccreditation in 2014. In 2015 the University delivered 3.3 million learning hours to over 161,000 unique participants.