

Innovation is a game!

The Cubification Method

Hélène Michel

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**To Lili
for whom life
is a big
playground**

For a society of *Game changers*

There are 3 principles in games that interest me. First of all, a game creates a moment, conditions, which Hélène calls 'magic circles'. Everyone can experience while having the right to make mistakes. This is essential nowadays: let's dare! Then, the idea of intensively involving people, as if it were a quest, helps them progress towards their goal. Finally, any game is based on rules that the player must rely on to move forward. Until the moment when these rules no longer make it possible to evolve. It is then necessary to question them.

Create 'magic circles'

If we want to create tomorrow's France and tomorrow's innovative businesses, we must imagine approaches and specific places where talents can reveal their full potential. *L'école 42* (School 42) is an example of such 'magic circle' for education.

In 2013, with Florian Bucher, Nicolas Sadirac and Kwame Yamgnane, we started this training course from a simple observation: in France, the digital industry was sorely lacking developers. It was therefore necessary to find a new way to detect and train talents. With 42, we innovated on several points; the selection of candidates is not done on academic or financial criteria, it is only based on their talent and

motivation. No need for a diploma! Role-playing, of which the famous 'swimming pool', offers concrete cases to identify talents and develop the autonomy of young people. Lastly, this training is totally free for participants thus giving a chance to all.

Go on 'a quest'

At 42, we were inspired by video games to guide students in their progression. They work in teams on projects, like video game guilds on attacks in virtual worlds. They must develop skills to carry out the mission. When the project has been completed, they can move on to the next level, an even more stimulating one. These principles of gamification rely on intrinsic personal motivation, much more powerful than any mark or school result. This 'fun', this pleasure to participate, is linked both with personal challenge, cooperation and curiosity. It is a way to unleash their creativity. This is the reason why 'fun' is one of *Station F*'s values, Station F states in for the former Halle Freyssinet in which we opened the world's largest start-up campus, in June 2017: 1,000 start-ups, 3,500 young people, a few hundred people to help them create and develop their start-up. We want to help create businesses, jobs and to make France and Europe a key place for entrepreneurship and innovation.

Changing the game's rules

We must change the operating modes of training and entrepreneurship or, at least, suggest alternatives. It is about bringing change, reshuffling the cards. In English, there is a term for that: 'Game changer'. This is the disruptive element, the one that changes the paradigm, which calls practices into question and, in the end, which impacts society. We need to detect the people who can contribute to this, by being 'Game changers' themselves. At *Station F*, we are inaugurating a programme for 'fighters', in order to help less privileged entrepreneurs. We look for young people in places where nobody usually goes to look for entrepreneurs. The programme is free for them and our support is doubled, even tripled. This way, we seek to create another type of elite.

The book *Innovation is a game!* is part of this approach. By offering a playful and operational approach of innovation, it makes some concepts accessible and easy to handle for everybody to dare try out.

Happy reading :)

Xavier Niel

Founder of Iliad-Free, Station F and co-founder of 42.

Who is this book for?

Would you like to re-think your career, to launch yourself into an entrepreneurial initiative or to open up your innovative approach? There are many personal and professional situations in which we have trouble engaging because we consider that they are too complex or difficult. Gamification uses motivation levers and game mechanics to involve or re-involve people in these processes at 4 key moments: to start, to carry on, to finalise an action and to incite other people to enter them.

This book offers you a gamified approach to innovation in order for you to set your situation as a game and imagine new trajectories.

The Cubification Method is based on a theoretical model originating from innovation management and game design, on recognised use cases and on an intuitive presentation allowing most people to play the game of innovation.

This approach can be used on 7 different playgrounds:

- 1. personal development:** you re-think your professional career in an individual approach;
- 2. entrepreneurship:** you are an entrepreneur and along with a small team of 3 to 5 people, you create and expand your first offer;

- 3. business development:** you are a marketing or innovation manager and, with a team of 6 to 12 co-workers, you develop your offer to explore new markets;

- 4. change management:** you are a project manager and you develop the agility and creativity of a 12 to 25 people team to support changes;

- 5. innovation training:** you are an instructor in innovation management or entrepreneurship and you allow groups of 20 to 40 students to use concepts with concrete examples;

- 6. innovation consultancy:** you are a consultant and you help working groups of 6 to 80 people to re-think business' strategy;

- 7. open innovation:** you are an innovation manager and you open your innovation issue by organising a hackathon involving 50 to 1,000 people.

In order to determine these playgrounds, you first have to ask yourself 2 key questions:

- At what stage of your innovation, entrepreneurship or change management project are you?
- How many people are involved in this process?

THE PLAYGROUNDS OF CUBIFICATION

Number
of players

1. Personal development

2. Entrepreneurship

3. Business development

4. Change management

5. Innovation training

6. Innovation consultancy

7. Open innovation

Stage of the
innovation project

About the author



Hélène Michel is a professor of innovation management at the French business school Grenoble École de Management. She is also a game designer. It has been more than 10 years that her research work is focused on the use of games to support innovation and inspire entrepreneurship. Her research projects are conducted in collaboration with the Massachusetts Institute of Technology. She is an international conference speaker and works as an expert at research agencies and at the European Commission. She developed several serious games and gamified innovation methods that are now used by companies such as *Capgemini*, *Natixis EuroTitres*, *Maped*, *Somfy* and higher educational institutions.

About the contributors

The Cubification Method has been developed for several years and improved thanks to many tests and meetings. I would like to thank Mathias Salanon for having supported the approach in *Opopoy's* entrepreneurial adventure, Serge Darrieumerlou for the trust he has demonstrated as director of innovation, in opening the very first playground at *Somfy*, Maylis Vigoureux for the illustrations and original graphics of the method, Isabelle Patroix for her inspirational literary culture and Elizabeth Hadley for her intercultural approach. Finally, I would like to thank the speakers and experts in innovation as well as all the Grenoble École de Management students who have played the game for several years, especially during *Inno-days* and *Innoweek* seminars.

How a virtual cow changed my life!

In the beginning was my thesis

In 2004, I was presenting my PhD thesis in Management Sciences. My work focused on the impact of information technologies and communication on the relationships between the government and citizens. I had just spent 3 years studying online forums and e-voting. At that time (it is not that long ago), many stakeholders (the government, citizens, manufacturers, researchers) imagined, if not hoped, that these tools would strengthen citizen participation. For example, we thought that citizens would rush on online forums to contribute to big public debates or that the young non-voting adults would be more likely to use these electronic ballot boxes. Conclusion of my research: nothing. More specifically, to transpose classical systems (such as voting or debates) on online media did not change anything in the relationship between the government and citizens (at least, according to my research). The great online debates did not happen or did not impact significantly political decisions. Young adults almost rejected electronic voting. Three years for such a result...

Innovation is in the meadow

Meanwhile, an initiative was emerging: in 2004, the Poitou-Charentes region was the guest of the Agriculture Exhibition in Paris. As an intensive agricultural territory, with a very developed cattle industry, the Poitou-Charentes region was weakened by the “mad cow” crisis. For the Agricultural Exhibition, the region considered a different approach to communication to restore the image of the territory, of its activities and of the whole sector. The region decided to launch a serious game in which players raise a young virtual cow: Vacheland¹.



www.vacheland.com (2004 edition).



www.vacheland.com (2004 edition).

Players adopt a cow and raise it. The graphics are colourful. The game is simple and attractive. But to progress, players need to develop a precise knowledge: what are the differences between the *Parthenaise* and *Prim'Holstein* breeds? How to develop your farm? How to protect it from wild boar attacks? Where to buy the cereals to feed them? In short, it is a 'serious' game... and it works! In just a few months, more than 400,000 players representing all age groups and all social classes participated daily. They share tips within a community in which they sell and buy tractors, cereals or milk. To make the best deals, like in the countryside, you must get up early. So, from 5 a.m., players log in to play and to go to the virtual market square. The level of commitment is strong. Research shows that this game has helped to positively

change the image of the sector and of the breeding products.

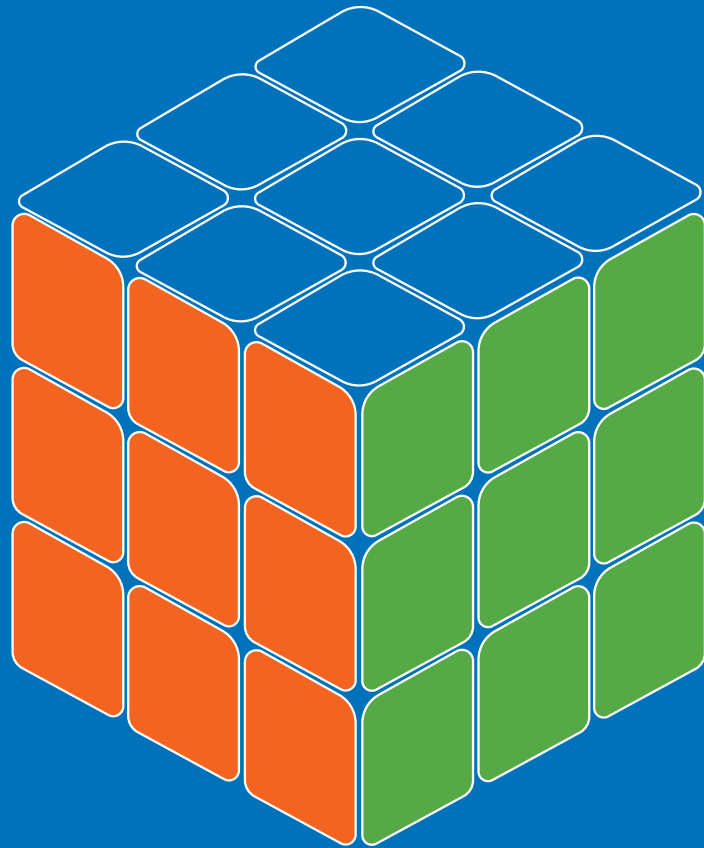
Why I believe in serious games...

From then on, I wanted to analyse the motivation levers of the players. My goal is to use games to involve people in processes or experiences that they would consider as too complex, too daunting or too simplistic for them. By doing so, I am hoping to achieve 3 objectives:

- **making individuals aware** by giving them more confidence in their ability to participate;
- **enrich and renew** the perception of a situation by bringing in original answers from non-experts;
- **facilitate changes** in business.

On your marks, play!

The purpose of this book is to renew the innovation approach through a gamified method, anchored on solid theoretical models and already tested in the context of 7 playgrounds (see chapters 7 to 13).



THE PRINCIPLES OF GAMIFICATION FOR BUSINESSES

Illustrated Principles of Gamification

Whether it is as a citizen, a consumer or a professional, we daily face complex or difficult tasks. By using emotions, games and their mechanics involve us differently in these experiences. Gamification thus refers to the use of game resources in a non-playful context. This chapter details its challenges and illustrates them.

**Gamification focuses
on tasks of 3 sorts:**

- too complex tasks
- too tedious tasks
- too simple tasks.

**Gamification happens
at 4 key moments to:**

- involve an individual in a task
- help carry on with the task
on a long-term basis
- finish the task
- entice other people to undertake
the task.

**Gamification is based on
the following principles:**

- to transform constraint into opportunity
- to create positive emotions
- to foster interaction with the context
- to extend the user's experience
- to reassert the value of tedious tasks
- to turn individuals into ambassadors
- to open the innovation process to
non-expert individuals.

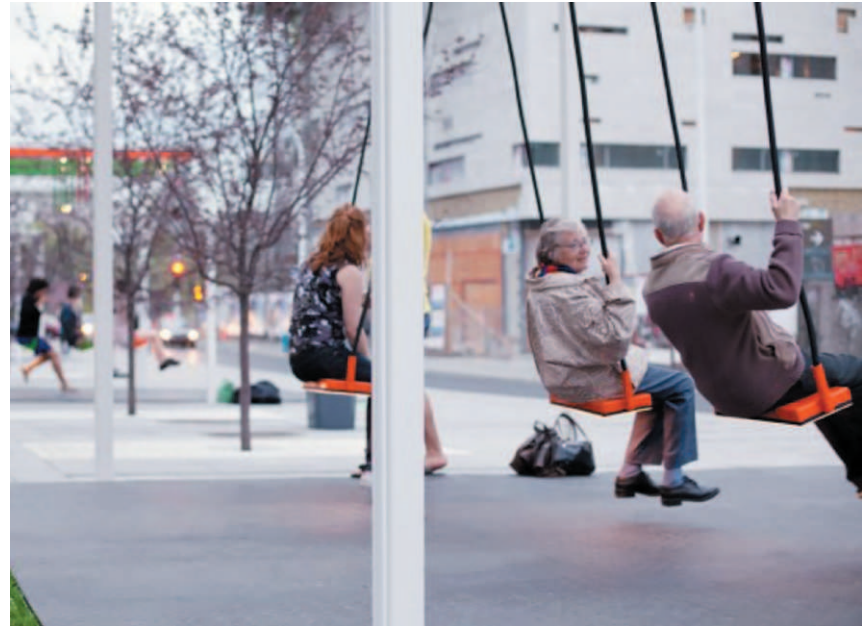
The use of games in non-playful situations is significantly increasing. By using motivation levers like competitiveness, curiosity, collaboration or personal challenge and specific means –board game used face to face, avatars in virtual worlds, enhanced reality–, games enable the involvement of individuals in numerous professional situations such as training sessions, recruitment, knowledge management, innovation or scientific research. This type of game represents a promising market. Its international annual growth rate is estimated to be more than 16% until 2020. Up to this date, its turnover would be worth more than 5 billion US dollars². This use of games in business changes practices and managerial tools. With these new systems appearing, new work methods arise, and new competency profiles come out. Will Game Masters be tomorrow's innovation facilitators?

Gamification transforms constraint into opportunity

What if waiting for a bus was child's play?

Time spent waiting is often felt like being a constraint, some lost time.

Here is a bus stop in Montreal and more specifically an installation created in 2012. It is made of 21 musical swings. Each of them makes a unique sound; if several people go on the swings at the same time, instead of a cacophony, one can hear a melody. This project inaugurates a playground area in town while examining as well the possibilities of collaboration in public spaces.



Musical swings of the Daily Tous Les Jours collective
<http://www.dailytouslesjours.com/fr/project/21-balancoires/>, © Olivier Blouin, DR.

Research³ shows that the positive effects from gamification reduce with time, requiring to regularly renew the mechanism to keep the participants' interest. Besides, gender would have an influence on the payoffs from gamification. In this way, women would be more sensitive to social interactions generated by gamification than men. They would find the reciprocity setting up in human relationships and the creation of a social network thanks to the game mechanics, more gratifying.

3- Jonna Koivisto and Juho Hamari, "Demographic differences in perceived benefits from gamification", Computers in Human Behavior, vol. 35, June 2014.

Gamification creates positive emotions

Spiderman attacks the housework!

Cleaning windows is one of those domestic tasks we try to avoid or to delegate. This time-consuming activity appears purely functional at first sight.

This is happening in Raleigh, North Carolina (United States). We can see window cleaners of a particular type. They are dressed up as superheroes the time of cleaning the windows... of a children's hospital. Batman, Superman or Spiderman: imagine the children's surprise seeing them passing by the window of their bedroom! This role play changes the representation of the situation thanks to a playful approach. On one hand, the task of the window cleaner becomes much more rewarding. On the other hand, his intervention can brighten the day of hospitalised children.



Window cleaners at WakeMed Hospital, Raleigh, USA, © Roche Mamabolo, <https://rochemamabolo.wordpress.com/2015/02/10/design-that-matters-superheroes-window-washers/DR>.

Some research⁴ about the influence of play on the psychological functioning of individuals has been conducted: well-being, feelings, depression, social interactions. They show that adults playing and having played video type of games perform better on several of these dimensions. Some researchers even consider playing as a positive activity to age in good conditions!

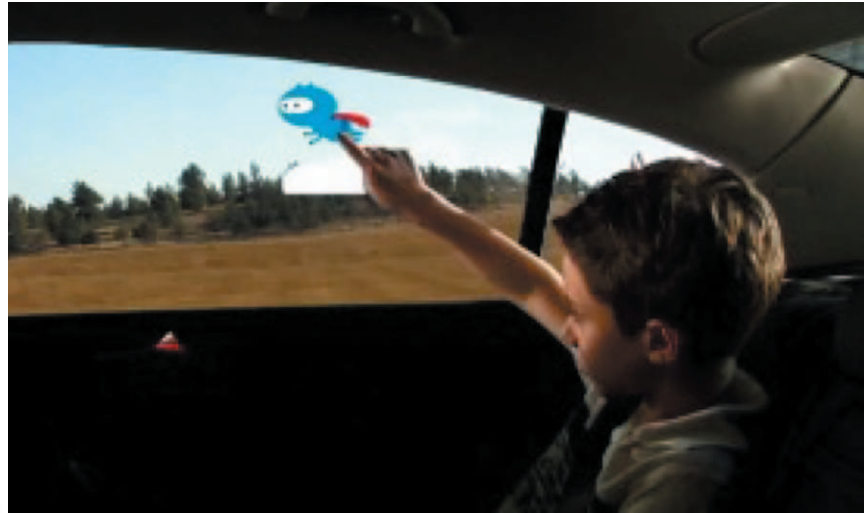
4- Jason C. Allaire, Anne Collins McLaughlin, Amanda Trujillo, Laura A. Whitlock, Landon LaPorte and Maribeth Gandy, "Successful Aging through Digital Games: Socioemotional Differences Between Older Adult Gamers and Non-Gamers", *Computers in Human Behavior*, volume 29, n° 4, July 2013, pages 1302-1306.

Gamification stimulates interaction with the context

Two-hour drive, two young kids, which solution?

It is tempting to provide them with tablets and earphones to occupy them.

Here is the *Windows of Opportunity* project developed by *General Motors* and the *Future Lab* of Bezalel Academy of Art and Design in Israel. This project allows passengers to interact with part of the passenger compartment. For example, the child can, with his finger, move a character on the window, making him jump over the real trees of the landscape. Without earphones, he shares the same environment as other people in the car, while using his imagination and the device to interact.



Windows of Opportunity General Motors Project.

Game design methods echo design thinking methods. Both operate in 3 stages : investigation to have different representations of a situation, ideation to imagine multiple options and iteration to improve a solution. More specifically, game design focuses on 3 aspects: mechanics for components, dynamics for setting the system in motion and aesthetics for the emotion felt by the player. Nowadays, game design finds its way into business innovation teams.

5- Robin Hunicke, Marc LeBlanc and Robert Zubek, "A Formal Approach to Game Design and Game Research", in *Proceedings of the Challenges in Games AI Workshop*, 19th National Conference on Artificial Intelligence, 2004.

Gamification extends the user's experience

Red suitcase, odd and low!

At Venice Marco-Polo Airport (Italy), the luggage carousel has been turned into a giant casino roulette.

While waiting for your luggage, you can have a bet with your neighbours –or with yourself– on the box on which your suitcase will arrive. Beyond transforming a constraint into an opportunity, the gamification of the wait adds a new dimension; it makes you enter a touristic experience as soon as you arrive at the airport. It allows to capture the interest of tourists from their arrival. The attendance level of the casino has increased by 60% since the setting up of the device.



<http://www.stopgap.com.au/blog/marketing-fun/top-10-best-ambient-ads>. DR.

Research shows the interest of gamification in customer loyalty actions . Therefore, many customer loyalty programmes use a recurring gamification mechanics called PBL for Points-Badges-Leadership: points, trophy, ranking. Points encourage you to perform different simple tasks. Trophies incite you to go past a stage in the process. Finally, ranking allows to compare oneself to a reference social group. For example, this is the case for airlines with their Miles. However, be careful not to limit gamification to this type of programme and mechanics.

6- Kevin Werbach and Dan Hunter, *For the Win: How Game Thinking Can Revolutionize Your Business*, Wharton Digital Press, 2012.

Gamification reasserts the value of tedious tasks

Would you take the bin out Honey?

To take out the garbage is one of the most essential tasks but also the most thankless of everyday life.

In 2012, the municipality of Lucerne (Switzerland) has installed stickers around urban litter bins. The goal is to invite passers-by to find, inside the labyrinth, the path that will lead them to the bin. From performing a constraint, one becomes the actor of a challenge. When we start on a task, it is sometimes difficult for us to finish it, even if we know how to do it, even if we have time. We postpone this until later. And it happens that through procrastination, we never finish this action. In this litter bin-labyrinth, it's all about making the last metres playful.



Civic hopscotch, Lucerne municipality, Switzerland, © Jean Allary, Notre Lien Quotidien, <https://notrelienquotidien.com/2011/07/05/le-jeu-au-service-du-changement-de-comportement-une-marelle-citoyenne-en-suisse/>, DR.

It is from constraint that satisfaction arises for the user. Marketing research analyses why consumers appreciate creative experiences under constraint, whether it is painting a picture following very precise colour codes or cooking according to a fixed recipe: these situations require both to mobilise skills to respect certain rules and autonomy to interpret them and suggest alternative resolving modes. Gamification makes it possible to set up this type of mechanism.

7- Darren W. Dahl and C. Page Moreau, "Thinking Inside the Box: Why Consumers Enjoy Constrained Creative Experiences", in *NA — Advances in Consumer Research*, vol. 34, eds. Gavan Fitzsimons and Vicki Morwitz, Association for Consumer Research, 2007, p. 659-662.

Gamification turns participants into ambassadors

No more cigarette butts on the floor!

If you are a smoker, do you always take the time to look for the right place to throw your cigarette butt? There is not always an ashtray nearby. To throw it on the ground is not a possible option, is it?

Here is an ashtray of an original form. It presents itself as a voting system. By choosing which side of the panel to throw their butt in, smokers can express their opinion on subjects of various types. In this case, it is to decide on 'Who is the best football player in the world?', with 2 possible choices: Ronaldo or Messi. Themes can evolve regularly to keep the interest of players/smokers and engage them in a form of competition or collective debate. One of these voting ashtrays has been installed in the old town of Chambéry, in Savoy (France). Smokers come, cigarette butt in the hand, to throw it specifically in this ashtray. A person who has discovered the device will then show it, or speak about it to others, encouraging a civic behaviour.



© iStock - Hajakely

Research shows that players will adapt to the role assigned to them and thus perform different tasks. This is the 'Proteus effect'⁸, from the name of the mythological character that could take many forms. Our avatars would influence our behaviour. This way, if in a virtual environment such as a game, you are assigned, or you choose, a tall and strong avatar, you will tend to behave the way you imagine that someone tall and strong would behave. By creating specific roles, gamification can generate new behaviours.

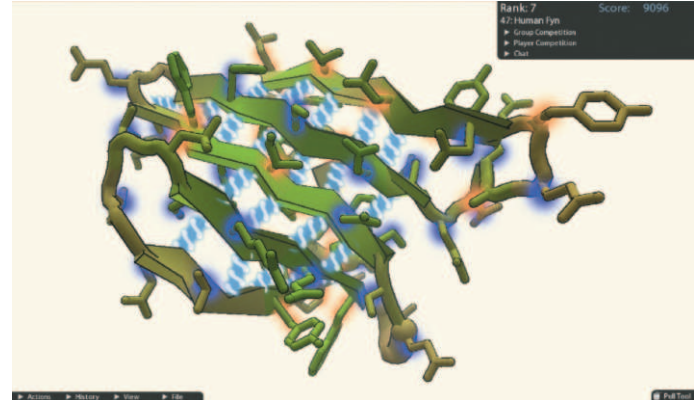
8- Nick Yee, *The Proteus Effect: Behavioural Modification via Transformations of Digital Self-Representation*, thesis submitted to the communication department of Stanford university, 2007, http://www.nickyee.com/pubs/Dissertation_Nick_Yee.pdf

Gamification opens the innovation process to non-expert individuals

Play with jigsaw puzzles for science!

Would you like to help science improve the life of millions of people? Certainly so! Consider modern biology; one of the biggest challenges is to better understand the functioning of proteins to improve targeting with medications. Researches on the subject are complex and expensive. Would you feel like being part of it?

In 2011, an American foundation funded the creation of an online game about protein folding: 'Fold it'. The game, developed in collaboration with the IT and Biochemistry Department of the University of Washington (United States), is open to all for free. Everyone can try to fold the protein by combining a 3D puzzle. No expertise is needed to participate.



<https://fold.it/>

Folding getting the highest scores are identified by the researchers and 'tested' under scientific conditions. Researchers analyse how human beings manipulate these puzzles to improve the algorithms of folding software. In 3 weeks, 50,000 people took part in the game and helped finding a new folding protocol. That is why, when the journal Nature Structural & Molecular Biology publishes the 3D structure of the enzyme, Foldit players are considered as co-authors. These examples illustrate the application of the 7 key principles of gamification in our daily lives. To better understand this influence, it is necessary to identify the structure and levers of commitment offered by the game and make the most of it in the contexts you are interested in.