



Walter Baets

Innovation through the lens of values

You don't know what you don't know

You only know what you don't know when you need it

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Hogeschool Rotterdam Uitgeverij

Colophon

First edition, 2020

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This book is a publication by Hogeschool Rotterdam Uitgeverij

P.O. box 25035

3001 HA Rotterdam

Publication can be ordered by contacting

www.hr.nl/onderzoek/publicaties

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Is it our external focus, our customer focus, that gives meaning to our work? Is it the client that creates the purpose of the company and that motivates our employees? Purpose, value and meaning is what we add for our clients. Can you identify those?

Acknowledgement

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A public lecture, like this one, is never reached without the help and support of many. I would like to thank each and every one who has been instrumental in this development, be it now in the preparation of the lecture, or more generally in supporting me on my own transformational journey.

At the risk of forgetting important contributors (for which I apologize), I would like to mention a few. First, I would like to thank the Board of the Rotterdam University of Applied Sciences and Arjen van Klink, chairman of the Research Centre Business Innovation, for the trust they have given me in appointing me to this research chair.

Many thanks to my colleagues of the Research Centre, who have made every effort to welcome me and to guide and support me in what I intended to do. It is nice to be welcomed and supported in the way they all did that. A particular thank you to Arjen van Klink, Elin Koppelaar and Jelle van Baardewijk for valuable input on earlier versions of this text.

I would also like to thank the many colleagues of the Rotterdam University of Applied Sciences, from different Research Centres, the teachers, the managers, for their wonderful encouragement which, amongst others, has made it possible, as mentioned in the text, to run already a few pilots.

Thanks to the administration that is supporting me on a daily basis, and not just for this publication: Adri-Janne, Nicole, Charissa, Jade. We often forget that the economy stops if the essential functions are no longer taken care of.

I would like to thank all the people and projects that have given me the trust, over the years, to try out many of the things I describe here. A special thanks to Bernard Belletante (former dean and director-general of Kedge Business School and EMLyon Business School), for the simple reason that he had the trust and courage, when we had to completely reformat what is today Kedge Business School, to give me 'carte blanche' to experiment with what is described here, and this, many years ago. He called me back from South Africa for an experiment called the 'thecamp' and later for the experiments at EMLyon Business School. I appreciate his thoughtful support and initiative for the concepts described here,

and for his belief in and ideas about the transformation that is necessary in higher education (Bernard Belletante, 'Dernière frontière avant le monde', Groupe Eyrolles, 2015).

Finally, many thanks to my immediate surroundings, my family and friends who have always supported and encouraged me. They accepted the many changes I have made in my life and which took some of them in the whirlwind, without necessarily their consent. A particular thank you to my wife Erna Oldenboom, who is equally my co-author and with whom I ran numbers of interesting executive seminars throughout the world. As mentioned in this publication, some of my best ideas come from her and she does not always get credit for it. Her flexibility and adaptability, accompanying me to different places, each time reinventing herself, has made it possible for me to have done what I did. Her wisdom and humanity are an example for many.

Thanks to all of you.

1. Introduction

Of course, you cannot wait to go to the deep of the subject, but the journey on which I want to take you, is very much the journey I went through myself. Hence, before going into concepts, possible solutions, and a research agenda, I want to give you some context. Both business innovation and values, let alone the combination of these, have a strong contextual coloring.

Therefore, I would like to share a bit of my story. It is not about my story, it is about a transformational journey that I had to go through myself. It is our story which brought us where we are, and which allows us to see the world the way we prefer to see it. Stories are important, often interesting, and of high educational value. We learn from stories. And therefore, let me start with one.

I lived a number of years in South Africa. As you might know, the African 'being' is rooted into a concept called Ubuntu: We are, since we belong. A world of difference with our Western tradition: I think, therefore I am. We against me, and in the western society in particular, there is a lot of 'me' that causes trouble. Back to Ubuntu, where a European researcher did an interesting and revealing experiment with African children living in poor tribal conditions. They were all definitely hungry and the researcher put some food at a certain distance from the kids. He explained that the one who got there first could eat the food. You might expect that the first one gets it all (or at least most). That is what we call 'the law of the jungle' and which is unfortunately practiced a bit too much. However, the real 'jungle' seems to organize itself differently, if we don't interfere. When he allowed the kids to go, to his big surprise they didn't run or rush. They went there as a group and they distributed the food. When asked why they did not rush, they simply said that you cannot imagine to eat yourself, while the others are hungry. That is just not how it works for them.

It was refreshing to see the CEO of DSM, Feike Sijbesma, asking himself in an interview in the Dutch Volkskrant in the summer of 2019: 'How can you call yourself or your company successful, in a world that fails?' But I am not sure whether his fellow CEOs would walk as a group to the food, or whether Feike would let himself go hungry. Confronted with the huge challenges of our society, we need to alter course, now; the world does not fail, we do. And we can certainly do

differently, showing some Ubuntu, leaving for our children and grandchildren a world that is humane on purpose, not by accident. That is what the research professorship in Values Based Leadership wants to contribute towards. Business has a huge responsibility towards its environment, towards the community in which it flourishes. Possibly the biggest (potential) change agent in the world is business. If business would adopt values, we would live in a different world. This research professorship has the humble purpose to continue repeating this. It wants to help business that wants to contribute towards a socially just and fair society, where all are included, and where we get to the food together. That is where innovation becomes so important: we need to invent and learn to apply new ways to get there.

The most important energy in my attempt to contribute to this more meaningful world is my moral compass, Erna Oldenboom. She is not only my wife, but also my co-author and co-animator of the many executive seminars and academic courses we have been invited to animate. She is my great supporter (and not just when I am winning matches), and has been so kind as to follow me on my assignments abroad, forcing her each time to re-invent herself (with success for sure). I owe many of the meaningful ideas I use in my presentations to her. With great thanks and admiration at the beginning of this booklet. Indeed, one has to do the important things first, not the urgent ones.

I want to start my story when I graduated (in the 70s of last century, yes indeed) in econometrics and operations research at the University of Antwerp. Besides learning how to construct very impressive econometric models, I learned a lot more about some of the structures of society, the economy, politics, public as against private, social inequality, and the many things that matter. I did not learn all of that in the classroom. Often, I learned that in the streets. These were my first experiences with learning by doing. For those of you that are somewhat younger than I am, that was the time that Spain, Portugal and Greece were in the process of becoming democracies (they were military dictatorships), and the Iron Wall and the Soviet Union still existed. World politics were probably easier to understand in those days, and our economic theories were based on a strong and steady growth that we had known since the end of World War II. We also believed we could control society and the economy. Econometrics in itself was possibly the best proof of that belief. We unfortunately still think so, while the world has dramatically altered.

For roughly ten years I tried to construct those econometric models in real life, for various sectors, but I got highly frustrated to find out that those models were unable to anticipate anything, least of all financial markets. If you graduated in the 70s, you were still of the kind that believed his professors. Hence my frustration that whatever they had promised me did not work really. At least, it did not work

for forecasting financial markets. That is when I decided to do my PhD, to become an academic, and so give myself ample time to think it over why it did not work. And that is what I did.

A while later, I was invited to co-create the Euro-Arab Management School in Granada, a project of the EU and the Arab League. This was an interesting and impactful project in many ways. It was an entirely premature attempt to create a virtual school, while virtual learning did not exist yet, operating in the Euro-Mediterranean region, before that region existed politically. The interesting idea was that the school, supporting particularly the small and medium-sized enterprise (SME) networks in that region, would foster commerce, development and so peace in the region. Today we know how necessary that is, and hence how much we have missed the chance to think about those issues in an even more innovative way. This sparked my interest in both corporate and pedagogical innovation. Why is it so difficult to do different from what we have always done?

But there is another important aspect of my stay in Granada. I got to know flamenco. Flamenco is an art form that is born and mainly practiced in the south of Spain (Andalusia). It has gipsy roots, it is very rhythmic, and it is mainly performed with a few guitarists, dancers, singers, and percussionists (cajon). On the one hand, it has a very profound, spiritual dimension dealing with 'the other dimension', the 'other world, our connection to the higher. When I was participating in the World Religious Conference in Barcelona in the 90s, there was a session on 'flamenco as a spiritual practice'. On the other hand, it is an art form, comparable to what exists in other cultures, that sings about misery, suffering, the day to day challenges, love and death. For sure that sometimes gives an interesting mix. What struck me most, however, was the fact that flamenco is present everywhere in the Andalusian community. Everybody practices it, in particular the singing and dancing. You hear it everywhere, even when walking in department store El Corte Ingles. All fiestas have participants dancing 'flamenco' in one way or another, for example Sevillanas. It really is a life style, a culture, and indeed almost a religion. Most surprising, at least to me, was that it is the only type of music that I know of, that can only be performed on one instrument: the guitar. It has been tried on other instruments, but it just makes it something different. I found that very intriguing. What would be the cause for this observation?

We returned to the Netherlands, my wife gave me a guitar and a few guitar lessons as a gift. I felt it was the only way to really find out what flamenco was all about, but also, more specifically, its relationship with the guitar. The lessons proved far too limited. I got some of the best teachers around the world. It is just very difficult, and if you are not born and raised in this culture, it is a huge challenge. I have now tried for too many years, and nowadays I claim that my ambition in life is

to become a great flamenco guitarist. This is just a positive form for saying: 'I am still struggling with it.' During my life long study, I, of course, also took a flamenco theory course. As final assignment I tried to make the parallel between a values-driven organization and flamenco. I felt that there was a lot to learn from flamenco and its performance, that helps to understand the role of values and emotions in organizations.

Many years later, when we were in Cape Town, a flamenco dancer, who had spotted my paper on the internet, invited me to organize a life event combining flamenco with executive education. And that is what we eventually did. I intended to show this life to you during the public lecture. The current circumstances make that impossible. But don't worry, you can find the video on YouTube by searching for the code: FabyF59cQyU. This event became a rich experience-based metaphor for illustrating the essence of values-based leadership.

In Marseilles, at what is now Kedge Business School, we experimented with a completely individualized curriculum. Every student had his or her own personal journey. The driver for that journey was the set of competencies that the students wanted to develop, and in order to realize these competencies, they chose their courses, internships, projects, etc. There were only six mandatory fundamentals: complexity; innovation and entrepreneurship; and yes indeed finance, strategy, marketing and logistics. Every quarter they had to auto-evaluate their progress towards the realization of their competencies, and then choose what to do the next quarter in order to reach their competencies. They had mentors to support them.

In cooperation with the UN Global Compact we ran a pilot with a diploma supplement label for students who had followed a curriculum in line with the Global Compact. They had to choose a number of electives out of a specified list, and they had to do an internship and their thesis in an area of attention of the Global Compact. This led to a group of twenty academics who wrote the Principles of Responsible Management Education (PRME), which we handed to the then Secretary General of the UN, Ban Ki-moon, in 2007. The first principle relates the pedagogical approach (how) to what is learned by students. Indeed, it became apparent that the way how you teach something, is equally important as the content itself. Values-based learning and innovation needs experiential learning and journeys.

Eventually we arrived in South Africa, where I became the dean of the Graduate School of Business of the University of Cape Town and the Allan Gray Chair in Values Based Leadership. South Africa is a wonderful country with very nice people, but also has some serious challenges. Relevance, impact and inequality are real issues at stake, and (social) innovation is a necessity. With my colleagues, we were able to do very interesting work around what it means to be a relevant



Does the company know its stakeholders, all of them? Do you take care of the interests of all those stakeholders? Do you maintain a dialogue with all your stakeholders? What is stakeholder capitalism?

business school (in Africa), social innovation, open innovation with impact and purpose, and values-based leadership. It was Allan Gray himself, who felt that we needed more systemic understanding, so we can achieve an impact and a real purpose. In Africa innovation matters, and not the kind of high-tech innovation that is sometimes preached in Europe. How can you do more with less is a real innovation challenge, and is of life importance in major parts of the world.

It became apparent to me that values and innovation are two sides of the same coin. The lighthouse of innovation should be values, impact, contribution; and our attempt to realize our values, beyond what we do already, often needs a lot of innovation. Since my return in Europe, I have worked in places as Aix-en-Provence, Lyon and Eindhoven to set up open innovation in diverse ecosystems. Our society is badly prepared for the exponential revolution that is disrupting companies and industries, but that at the same time has a huge potential to create more value for people, companies and society. Business, technology and innovation are neutral per se in their impact on and contribution towards society; you can use it for the good or for the bad. It is a matter of choice, not a law of nature. Society, those that don't have, and our children and grandchildren, they all have the right to be taken seriously. The planet is ours. For all of us, not just for those that can turn it to their advantage. Maybe we can learn to go all together to the food and share it. What a different world would we be living in!

Rather than speculating about the future, we should make it. I don't like to copy Nike, but nevertheless: just do it! It is a great time to change course, to give a new purpose to our students, to define and practice meaningful research, research that matters, applied research, and above all to contribute to a more meaningful world.

Essential in the journey described above are a few lessons learned that appear to me crucial to values-based business innovation. Those have been, for me, moments of reflection, but also points where I altered my course. Impactful values-based leadership is embedded in these lessons. Let me begin by stating them clearly. The world, nature, is organized according to the Ubuntu principle: we are, since we belong. Nature thinks in 'we', not in 'me'. Values-based leadership has no basis in a paradigm of shareholder capitalism, but needs a form of stakeholder capitalism. The obsession with measurement and modelling is a matter of choice; it is a paradigm, not a fact of nature. Support of SMEs in their development and innovation seems to work better in networks (ecosystems) and based on specific (SME) needs of the moment. Some artforms, and flamenco in particular, are holistic lifestyles, based on self-organization and on Ubuntu (belonging). A flamenco group functions, since it functions as a group (and not a set of individuals) and this in co-operation with the audience (the client). That allows them to come to excellence. This is a strong metaphor, that we will illustrate during

the public lecture. If for example you want to understand flamenco, or any other competency-based activity, just do it, don't analyze it. The concepts developed in this booklet are based on a design approach (empathy with the user, rapid prototyping, testing, adaptation), and not on thorough analysis with detailed definitions of processes upfront. Analysis of the future, anyway, is extremely difficult. The last few lessons have to do with the role of Principles of Responsible Management Education, its focus on the fact that how you try to educate people is more important than the content you share, and my few years of experience with values as a systemic concept. In the end, concepts like responsibility, values, impact, etcetera are multidisciplinary in nature. A silo-based organization of higher education is not well equipped for this reality. This is the context of the journey we are going to go through.

Now how can we deal with this reality? As stated before, we are ready to go into the real subject, which as you will see is nothing more than a reflection of my own journey: why is business innovation so difficult; values are a systemic concept; what does this mean for learning, education and curriculum; what are we going to research?



Innovation relates to the capacity to observe, to think critically, to dream. It needs intellectual openness, curiosity, passion and tenacity for the least. How would you score yourself on all this?

2. Why is innovation so difficult?

The economic and political reality is becoming increasingly complex, not just complicated.

The economy suffers from important uncertainty in many fields: unstable economic development, fast changing geopolitical situation, political instability in many countries, major questions on the ethics and values of what is done, climate and the relationship to the planet, disruptive technologies and a disruptive societal situation. Most of the management approaches and methods are not based on this reality of a complex, systemic world, and therefore do not give solutions for the real issues of today. What is taught in business schools and what is practiced in business and public policy, assumes the existence of rather stable, slowly growing markets, that are predictable in some way and are not disrupted. That reality is an illusion today.

2.1. Transformation

In order to harness the reality of today, in order to create the future, rather than be subjected to it, this new paradigm needs to be understood. The bad news might be that this reality cannot be controlled and cannot easily be understood. The good news is that it creates ideal conditions for innovation, for creation and for impactful contribution to the economy. But there are choices to be made; it is not enough anymore to just continue doing what is done before, better, faster and cheaper. This new understanding does not need, in the first place, a new set of skills (though some new skills can be useful), but it needs a shift of paradigm, a real transformation. And since the economic and political reality is ever changing, a different compass is needed, a different concept of what business is and its contribution and relevance for the world. In its latest Davos gathering, the World Economic Forum (WEF) at last discovered the concept of stakeholder capitalism: business as a force for good, technology as a force for positive change, inclusion, rather than division, and the company within a network of equally interested parties.

Transformation as argued here, means that complexity and systems need to be understood, in order to use that understanding for creating solutions. Solutions, in this view, contribute to a better world, an improvement of living conditions for all,

and a more just, fair and equal world. Universities (of applied sciences) should be places and ecosystems that facilitate such a transformation, via different routes, however, all sharing a number of 'non-negotiables'.

The outcome of the transformation that (future) leaders will have to experience, is to develop the mindset with which they can comfortably explore, understand and act in a hyper-complex world, disrupted by exponential technologies, while becoming the entrepreneur and creator of sustainable, scalable solutions. This transformation of people, eventually, will be the engine for corporate and societal transformation.

Understanding the economic system from a perspective of complexity, opens a quest for a new paradigm, or even possibly for a new ontology (our belief about the nature of reality). If one wants to understand the world differently, we might need a new set of basic assumptions and beliefs about how nature itself functions. It is generally implicitly accepted that the world functions according to the laws of nature given to us by Newton. We would operate in a fixed time-space concept. Events are causally related, and if it is known what happens today, it is known with certitude what happened yesterday and what will happen tomorrow. Clearly, however, the relationship with the past is a much easier one than the relationship with the future. It is known exactly what happened yesterday; there is no clue what is going to happen tomorrow. In reality, in practice, a Newtonian world does not seem to hold, if one goes down to the level of emotions, feelings, less rational decision making, innovation, the relationship with the planet and climate, etc. Nevertheless, managerial thinking is still heavily based on causal thinking, though management mainly deals with people issues (of different kinds). It is claimed that one can only manage causalities. But in reality, again, what a manager, a leader deals with, is interconnectedness of people, and that seems to follow its own pattern of logic.

Science went through the revolutions of relativity and quantum mechanics (in physics) during the previous century. How do the findings of quantum mechanics allow to adjust the basic assumptions on the functioning of companies and markets? Citing Brian Arthur, an economist of the Santa Fe Institute of Complexity, the economy still thinks and operates on the concept of an industrial era, while reality, clearly, and already for a number of years operates in a world of knowledge (and complexity). This implies a move from competition (and/or) towards cooperation (and/and).

2.2. Complexity

Management theory and practice today are facing the challenge that linear and deterministic ways of thinking about managerial problems may create more problems than they solve. Strategy studies, for instance, displays a growing interest in learning and organizational flexibility, and IT gives importance to

distributed cognition and adaptive systems. Management theorists are keenly observing developments surrounding the complexity and chaos theory in science; management researchers are attempting to apply emerging theories to managerial problems.

The ideas that many simple, non-linear deterministic systems can behave in an apparently unpredictable and chaotic manner is not new. It was first introduced by the great French mathematician Henri Poincaré a century ago. Other early pioneering work in the field of chaotic dynamics is found in the mathematical literature by scientists such as, amongst others, Birkhoff, Levenson and Kolmogorov. More recently, Nobel prizes have been awarded to Prigogine and Kauffman in this field of research. One of the difficulties for management theory and practice engaging with complexity theory lies in its attachment to causality.

Complexity as an emergent organizational paradigm in the knowledge-based economy primarily questions the concept of causality. In the meantime, further developments have taken place in the area of biology (such as the concept of Sheldrake's morphogenetic fields) and mind/body neuroscience that all seem to point to a federating idea of a quantum interpretation of social phenomena (non-locality, synchronicity and entanglement). Could a-causality form the basis for a quantum ontology of complex systems?

In earlier work a lot of research is done on the essence of such a new ontology, what was labelled there as a quantum ontology, which, afterwards, enables the development of a systemic concept of values-based performance and diagnostics that go with it. Since my 'Habilitation' (Habilitation à la Direction des Recherches, Une Interprétation Quantique de l'Innovation, Université Paul Cézanne, Aix-Marseille, 2005; thesis published 2017), more work has been done on the understanding and use of such ontology for improving the innovative potential of organization. Many of my more recent publications report on concepts, but equally on tools and their use, for corporates and organizations. After all, any research starts from a particular ontology. In the classical paradigm of structure, control and certain outcomes, there is no place either for innovation, or for values. That is what makes change and innovation so difficult. Our starting point is outdated; our methods don't fit reality; the world is in a rapid, unprecedented and unknown period of change. But for the sake of not complicating it any further, our work is situated within the paradigm that the world is a complex interaction of individuals out of which emerges the reality, that continuously changes.

The foundational concepts in the complexity realm emerge from such fields as neurobiology, cognitive sciences, physics, and organizational theory. In earlier work (Baets, 2006) I have suggested that an interesting path of

exploration might be to go as low as possible on the aggregation level (and work on the level of human emotions, team members), to allow innovation to produce itself through the emergence of processes. In fact, we want to explore the quantum reality of management (and innovation), and by extension of any other social phenomenon more generally. A double question remains: can, and how can the concept of innovation for instance be made holistic? The answer would encapsulate the personal emotional side; but, on a deeper level, this question can be asked with reference to conscience and causality, and the 'seat' of consciousness (as discussed in earlier work).

At a more grounded level, the questions are: On what level can consciousness be found? Is there such a thing as a collective consciousness (for example in a company: is there such a thing as the soul of the company, or a culture of innovation)? Does everyone have a sort of essential element of incorporated consciousness with a possibility of connection with others (at the level of consciousness)? These questions can be directly translated to companies: Do consciousness, engagement, and emotions make a difference for a company? Does a company have a 'soul', a consciousness? Is there a link between this 'consciousness' and the success of a company? Are vision, emotions and consciousness linked? To put it more concretely: Who determines the choice of a client who prefers one company rather than another? What helps potential clients make a distinction between two companies, which in fact offer the same services (for example, two big banks such as BNP and ING, or two consulting companies such as PWC and Accenture)? And finally, can we arrive at an approach, accepted as scientific, that gives at least the beginning of a response to these questions? Although the questions are, of course, a little metaphysical, this does not prevent them from remaining important questions.

Also, interestingly, values, the values of interconnectedness, the spiritual connection, the contribution of what we do to the greater picture, the value added of companies to a wider societal good, etc., all seem to be situated on that same kind of 'quantum level': a more profound level of reality, beyond the world of molecules and atoms. Seeing values as these small building blocks - at the level of sub-atomic particles and a unified forces theory, where they are elements of comparable nature, creating an emergent reality in interaction with each other - opens doors for a different, values-based, leadership style.

Values-based leadership is indeed a paradigmatic choice, not a dimension of ethics.

2.3. Some concepts of the new ontology

As a basis for formulating a new paradigm for understanding complex systems in general, and (innovation) management in particular, as well as to develop an adequate research agenda, this section summarises some ideas that were developed in earlier work, but that matter for the topic of values-based innovation:

- The paradigm on which values-based innovation is based is fundamentally holistic. Holism, in the sense used here, draws from Ken Wilber's (2000) theories. He defines *holism* as an eternal dynamic interaction between four 'spheres': the mechanical (external) and individual sphere; the mechanical (external) collective sphere; the internal collective sphere (common values); the internal individual sphere (emotions and consciousness). Clearly, in reductionist and rational approaches, the external individual sphere receives all the attention. 'Classical' ecologic scientific movements are especially interested in the collective, but always external, sphere. More recent scientific interests attempt to go beyond that, by including more values and emotions (that is to say consciousness). Holism, as defined by Wilber, is evidently founded on a *constructivist* approach. Hence both education (learning) and research in our new reality should be based on constructivist approaches.
- The proposed ontology fits the reality of the *sciences of complexity* in Prigogine's definition of them as the study of dynamic non-linear systems (Prigogine and Stengers, 1988). An important consequence of complex systems is that it is not possible to extrapolate the future from the past. Complex systems are extremely sensitive to the initial conditions. Minimal changes in these conditions can have major influences on the further development of the process. Finally, Prigogine identifies the most productive state of a (complex) system as one that is far away from equilibrium: 'order at the edge of chaos'. That is the sweet spot where innovation will take place.
- John Holland (Holland and Miller, 1991), a pioneer in artificial life and agent systems, has developed a Complex Adaptive System (CAS) approach called *agent based simulations*. This approach simulates the interaction between different agents and, consequently, simulates *emergent behaviour* in those kinds of systems. Each agent has characteristics. It is necessary to define the field of action (the limits of the system) and to identify a minimum of interaction rules (and exchange rules). Then, it is necessary to make the system iterate and simulate the dynamic interaction of those agents. The agents meet each other, interact, exchange (and hence learn) and, step by step, form a global behaviour with qualities that emerge from the interaction itself. Out of such interaction, innovation emerges. Complex adaptive systems are relevant approaches to understand and deal with innovation.

- *Synchronicity* (a basic characteristic of quantum systems), according to Pauli and Jung (1955), appears in all the sciences and the techniques in which simultaneity plays a role. According to them, it is necessary not to speak about a causal coherence (from cause to effect), but about *coincidence* (as occurring together in time). This has to be considered as potentially useful, even if it cannot explain the more profound cause of the simultaneity. It must be remembered that we always speak of a synchronicity if the events concerned happen in the same period of time. The relationships therefore, to use Jung's words, become *a-causal*. Many successful innovations have proven to be a-causal and so-called incidental.
- The ontological nature of this quantum structure forces us to look again at the approach to innovation, and on a wider scale at our economic theory. *The understanding of innovation must therefore be based on the 'carrying along' of quantum structures, synchronicity, morphogenetic fields and individual space for self organization.*

Describing companies and markets thus implies describing the continuous non-linear and dynamic interaction of agents, with their feelings, within a holistic concept. Business behaviour is the outcome of such interaction. Innovation's great potential resides in the activation of these interactions.

In this interpretation, *values* are the vision of the company. They are situated on the quantum level, smaller and subtler than the molecular or atomic level. They are situated in the area of emotions and feelings, the area where sub-atomic particles and forces seem to flow together (in the unification theory). Eventually, as argued, it all starts in the unified field, the field where consciousness is expected to reside. Thoughts and feelings are already a form of aggregation of that general consciousness. Those values, feelings, emotions, are on the level where people are all much more unified than it ever can be on atomic level. On this level, it makes sense to talk about interacting networks of autonomous agents. But again, to start with, the values need to be considered as drivers and feeders of this quantum reality.

2.4. Exponential technologies

One of the developments that have certainly contributed to the complex world we live in, is the recent emergence of what is called exponential technologies. Technologies (not necessarily all) no longer develop linearly, but rather exponentially (period doubling). In particular the computing power seems to grow exponentially (doubling in each period of roughly two years), known as Moore's law. Singularity University advocates for a number of years already, not only that this evolution will disrupt entire industries and economies, but also that it offers huge potential for development and for solving until now unsolvable problems. Kurzweil (one of the founders of Singularity University) has claimed the law of accelerating

returns, stating that in any evolutionary environment (where one works and learns via trial and error over time) the rate of progress is also exponential. Singularity University anticipates the singularity point will be situated anywhere between now and 2045. The singularity is the moment where computing power will outperform human intelligence, and according to Kurzweil (transhumanism theory), our brain capacity will (need to) be enhanced with inbuilt chips.

While all this sounds maybe a bit spooky, and it is and remains very difficult to compare the intelligence of humans with the intelligence of machines (and certainly using the variable computing power), it is clear that a number of technologies are moving much faster than linearly, and are impacting economies and disrupting industries. It is a challenge, as much as it is a potential for innovation and progress.

Before giving a brief overview of some of the most important 'exponential' technologies, it is certainly good to stop for a moment to discuss the question of values. In the first place, there is the issue of ethics in the use of technology. For certain technologies or their applications (social media, genetic manipulation, etc.) a point is reached where many start questioning the ethics of certain of those developments. While crucial, the ethics question will not be elaborated on here. Concerning values, referring to the purpose, the value added, the impact, the contribution, it is obvious that with the development of those exponential technologies, this is a discussion of opportunities and consequences. Given the power of those technologies, more than ever responsible managers are needed, but also managers that are able to see the systemic dimension of their company, its markets, the stakeholders and the society. Indeed, it will require a redefinition of the purpose of innovation, but also of the processes to follow. It will necessitate a different type of education, as much as it will require a different approach to and agenda for innovation. In later sections I will get back to this point. The potential is there to really contribute via innovation to economic impact, as much as it is able to participate in the destruction of our social fabric. Interesting times.

Without being exhaustive, and in no particular order, a few of the most important exponential technologies are listed.

A group of technologies which appear the most interesting and possibly impactful (for all companies, small and large), consists of artificial intelligence, deep learning and big data. Artificial intelligence is a set of techniques, that exist already a long time, and that are very strong in searching patterns in datasets. With the current availability of data, it allows, amongst others, and most importantly, the creation of learning applications. The continuous training and retraining of those algorithms allows the creation of very adequate profiles. These approaches can search for and

identify all kinds of patterns, useful in marketing, health, automotive, finance, client services, etc. While relatively straightforward in its application, we have unfortunately seen lots of misuse or unethical use over the last few years. Virtual reality (VR) and augmented reality (AR) are techniques that allow for rich and flexible 3D visualisation. Therefore, it has huge applications in animation, entertainment, architecture, learning/education, health.

Biotech and digital biology are certainly areas in huge transition, where technology plays a crucial role. The Internet of Things (IoT) promises to connect a number of devices in order to create really intelligent applications. IoT operates on other technologies, like 5G, advanced sensing, deep learning, etc., but has great potential for disruption. 3D printing, which is printing on design of artefacts (going from biscuits to houses), certainly creates interesting applications, that are changing the face of certain industries. Robots, and increasingly humanoid robots, are probably most appealing to the imagination. This goes from robots that construct cars (and this already for years), over the miniaturisation of medical surgery, to automation of industrial processes and even (health) care. Robots need important investments for their development, and hence seem less relevant for SMEs, but their disruptive potential for certain businesses does require attention also of SMEs.

Some will mention the development of autonomous vehicles as an exponential technology, while it can also be seen as a smart integration of a number of other technologies (as mentioned under IoT). The same could be true for blockchain, which can be considered as an application rather than a technology in itself. While a few years ago it was considered the technology that would disrupt education, public notary, banking, etc., it has not yet proved to be up to that level.

Exponential technologies have potential to change and possibly disrupt certain industries and markets. Some of them are easy to use (and relatively inexpensive); others need important investment and huge technical skills. All of them, however, go hand in hand with the evolution of the complex (networked) society. It is a chicken and egg discussion what comes first and what influences what. There is no discussion that innovation today has a lot to do with understanding not only the new paradigm, but also the technologies that support that paradigm.

Exponential technologies are in need of exponential leaders: exponential leaders, in an exponential world, with exponential organizations. Considering business innovation in this world (be it for development or in defence of disruption) needs an understanding of innovation as an emerging process, directed by the values we would like it to create, and based on much more agility in innovation and management.



Business model innovation is the one crucial competence that can bring you closer to your client. Is this recognised in your company? Is it rewarded? Is it supported?

2.5. Societal exponentialities

The current exponential society, of which the contours have been sketched in the previous pages, is at the same time being harnessed by exponential technologies, as being confronted with what can be called societal exponentialities. These are fundamental societal changes that have emerged over the last years and decades, and have an important impact on the disruption of industries also. At the same time, society is in great need to find a solution for some of those problems, problems that matter, problems that have an impact. Without elaborating on their emergence, awareness of their existence is crucial, on the one hand to disrupt, on the other hand to call for solutions. They might be a real playing field for meaningful business innovation.

Some of those exponentialities, and again in no particular order, are the following. The easiest to see is no doubt climate change and the potential crisis that goes with it. The impact on industries is clear (construction, agriculture, mobility) and begs for innovation. But climate change also creates growing issues and human suffering for individuals and communities.

On societal level there is a difficult and intertwined situation around the broken social contract. There is growing inequality, between individuals, but also between countries and continents. While increasingly people are being left out, there is a real need for inclusion. In the same realm, a growing disconnect is visible between citizens and politics, citizens and society, towns and rural areas, even a disconnect between individuals and their communities. Some speak of a crisis of democracy, and certainly of a loss of confidence in it. Traditional democracies see parliaments with much more parties than a decade ago; the political compromise becomes more and more difficult; while all this leads to a growing separation and even opposition between citizens. The current partisan divide in the US is only one example of this new reality. Populism seems to be at the rise.

Though extreme poverty is decreasing in the world, poverty in many societies is a growing issue. In certain regions of the world one can see a blatant overconsumption with a fetishistic worship of the golden calf. Other regions seem to be regularly hit by disasters and are exploited for the benefit of others. Wars, natural disasters, migration and violence force many countries to critically consider new re-integration policies for migrants. Due to a growing focus on the nation state ('America first') and the questioning of globalisation and in particular of global trade, society will certainly be challenged in the years ahead about what it did and the way it did it in our economy. For Europe in particular, the fact that the power of the economy seems to move east and south, gives some additional challenges.

Again, exponential leaders are needed that can turn the complexity of the world into opportunities and contribution.

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2.6. Exponential organizations

There are certainly many more reasons why innovation is so difficult, but let us add one more. Some organizations have started to explore the new type of organization or company, that would be better equipped to harness a complex world, disrupted by exponential technologies. In the literature they are called exponential organizations. They do use exponential technologies, but the real difference is elsewhere. Airbnb and Uber are not exponential organizations because they are so good at using exponential technologies. In fact, they are more business innovators (turn around the client-supplier logic; the hotel without rooms; the taxi company without cars) than technology companies. But they share a few other characteristics that make them a better fit for our current economy.

Those (exponential) companies have a clear answer to the 'why'- question. They work around a Massive Transformative Purpose (MTP). That MTP drives the business as much as the innovation. The business innovators we want to see have such an MTP, by preference one that contributes to a better society. Here values hit in.

Those organizations share a number of external success factors. They use staff on demand and in order to be able to do so, they are embedded in a community and/ or a crowd. They use algorithms to inform them of tendencies that happen in the world. They have a strong engagement in that world (not necessarily a positive engagement).

They equally share a number of internal success factors. They develop a lot of interfaces and dashboards for monitoring. They operate on experimentation, they give autonomy to employees and they pay a lot of attention to social technologies.

Above all they disrupt markets and industries and therefore are interesting to be understood.

2.7. In summary

Why is innovation so difficult?

The economy is confronted with a complex world and this is not always perceived and/or understood. We are often not yet equipped to deal with this new world. But that complexity is not going to go away. In order to use the complexity of the world for the better of business innovation, we not only need to understand it, but also to develop an empathy toward it, and the competencies to harness its potential.

Our economies are gifted (and some will say cursed) with exponential technologies. Technologies are neutral, but can have important positive or negative impact. They need to be understood, but attention also needs to be given to the ethics and purpose of using them. Here too, experimentation is the key.

Societies are confronted with societal exponentialities that they often cannot influence. But major issues in societies are equally opportunities for new developments. For the least they should not be ignored. Companies, large and small, form society, just as much as citizens are constituent part of society.

Finally, for the sake of this publication, we see the emergence of new types of organizations, that move away from the classical organizational forms we have known for decades. Some are very successful and indeed disrupt industries. That is the current playing field. No time to waste. We should start experimenting with new approaches that fit the realities of the future that we are going to make for ourselves.

This is a great challenge for business innovation that is deeply rooted in a values-based leadership paradigm.

But also, on the educational side there are challenges. The proposal in this publication is to consider values-based business innovation as one integrated system in which learning, students, professionals, and researchers come together in a Living Lab in order to experiment and co-create. Chapter 4 will deal with this in detail.

Those changes and uncertainties mean that it is not known what types of professionals we will need in this new reality. The approaches that are going to work are not known today. The competencies required to be able to play a role in this exponential reality need to be reinvented, indeed in order to shape the future, rather than be shaped by it.

Competencies cannot be taught, they are experienced. Hence, we need to go to a much more active, engaged way of doing research. Research goes hand in hand with doing, action research, hands on learning. As knowledge becomes obsolete, competencies need to be understood and developed. That is the topic of (action) research: which competencies are necessary to play an innovative role in an exponential economy; which dynamics do we need to understand; what (value) drives that impactful innovation?

We might not know what that is, how it looks, what it means, and how it works. Not in larger companies, but certainly not in SMEs. That is why we need to create it. What are the consequences of this new reality for education, learning and business innovation itself? What is the driver of business innovation in this new reality? What is the role that values play in business innovation? Let us start there: what are values and what is the nature of values?



Radical unpredictability is essential for innovative business. Are you comfortable with this statement or do you attempt to reduce that unpredictability? Is your company able to harness the unpredictability in a creative way, in order to add value to its operations?

3. Values, a systemic concept¹

In a complex world, where reality emerges out of the interaction of different individuals and groups, as discussed in the previous chapter, neither operations nor innovation can be controlled in the way this was done before. The ever-changing reality needs to be managed with a purpose, that, in the context of exponential organizations, is called the Massive Transformation Purpose. Indeed, the focus moves away from control and process, to 'purpose' and 'transformation'. Our traditional linear managerial approaches move away to more holistic approaches. What drives a system? What drives integration and cooperation? What drives emergence? How to innovate in a complex, continuously changing economic reality? What is the lighthouse for innovation? Purpose and transformation as the main driver for the exponential organization is based on value choices. What is understood by values?

A systemic view on the company starts with a thorough reflection on values. In this section the scope to management by values is broadened, leading to values-based leadership. Management by Values will show to be the focus for managing for sustainable performance. Indeed, sustainable performance is exclusively based on the realization of socially or societally relevant values. It concentrates on the realization of real value added for the customer, the citizen, the stakeholder, and it does not limit its focus to the shareholder only.

3.1. Management by Instructions, Management by Objectives and Management by Values

In the first part of the previous century, Management by Instructions (MBI) was what was then called the scientific way of management. Since that time, the evolution of the behavior of markets, and also of our understanding of this evolution - especially in terms of an increasing complexity, uncertainty and rapidity of changes - has fueled further evolution in our managerial thinking. The 1960s, for example, gave rise to the still popular Management by Objectives (MBO). MBO

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Part of this section has been published in W. Baets & E. Oldenboom (2013), Values Based Leadership in Business Innovation, Bookboon

came alongside ideas on the role of the group and of group thinking: the idea of matrix organizations, project groups, sales teams etc. This understanding of organizations, and its accompanying, sometimes guerilla-like management style, have contributed to economic success over the last few decades. More recent has been the emergence of Management by Values (MBV), which continues to have a slow uptake. Nevertheless, there is a growing demand for more human, purposeful and meaningful orientation of business. What does it all lead to?

Dolan, Garcia and Richley (2006) suggest that the following four interconnected trends are heightening organizational complexity and uncertainty, and contributing to situations where the MBO approach reaches its limits:

1. The need for quality and customer orientation;
2. The need for professional autonomy and responsibility;
3. The need for 'bosses' to evolve into leaders and/or facilitators;
4. The need for 'flatter' and more agile organizational structures.

The quality and customer orientation are confronted with the issue that in today's markets, value added becomes an issue for continuation (or call it survival). A highly developed customer expectation can only be met, either by a value adding product or service (something which the others do not offer), or by a price breaking offering (which of course, in the long run, is not viable for the company). Consider the simple question that in practice does not seem to be so simple to answer: what is the value added of your company? This means: what are the market, the economy and the society missing if your product or service would no longer be there (e.g., if the company went bankrupt)? Are companies able to state their value added to society and if they are not able to state it, how could they manage the company to realize those values? If they do not have them, why in the first place do they exist from an economics point of view (other than for making an individual profit)? Do we have the answer, even if not perfect?

The need for professional autonomy and responsibility is one that has to do with the re-focusing of the human skills on the human (and the mechanistic skills on the machine). The more technology progresses, the greater the need for humans to take decisions, and to use technology to best realize its potential. Successful companies today seem to clearly understand that need for the human dimension in management. In a networked structure (whether a company or an economy), the intense interaction of individuals can only produce emergence if those individuals have an autonomy, are responsible, and have the necessary professional skills. A soccer team will only function if all players are professionals (they know how to play soccer), they have their autonomy on the field, and they are willing to take their responsibility in the game. There is no other way to manage a soccer team, nor is there any different basis for a company.

Success needs to be based on 'bosses' that evolve into leaders and/or facilitators. Leadership is related to communication and, as Dolan et al. (2006) suggest, instructions are the management tools of 'bosses', objectives are those of administrators, and values are what leaders use.

Though many are convinced of the need for flatter organizations, very many traditional organizations are oriented towards hierarchical control with:

- Those who direct and think (or are supposed to);
- Those who control the ones who produce;
- Those who produce.

According to Dolan et al. (2006), some 'bosses', but only a few first-class ones, continue to be necessary, but not as controllers of irresponsible operatives. Rather, their role should be to transmit values, facilitate work processes, and allocate and co-ordinate resources.

3.2. The scenery of values

'Shareholder value only' still belongs to the mainstream managerial paradigm that is increasingly called into question. With less and less time to lose, people cannot afford the luxury of continuing to think in a paradigm that hardly questions the 'negative' side effect of its own ontology, let alone its impact on all living species, including ourselves and nature. The framework of a short-term business view, ignoring the devastating impact of our consumerism on our own environment and our own well being, is no longer tenable.

The discussion on values is sometimes made a bit artificially complicated (and we will add a bit of complicatedness ourselves further on), and sometimes refers to an ethical reflection (rather than one on values). There is a very simple way to define what is good and bad, and in a way, what is ethical behavior and what is not. 'Good' is what you happily and proudly talk about to your children and grandchildren, and 'bad' is what you prefer not to talk about to your children and grandchildren. It can almost be that simple. And indeed, what you do in your job, is what you should be able to talk about around the family table. If not, that might indicate a bit of a lack of focus on values or ethics in your actions and performance.

We sometimes see a strange separation between private life and business environment and Kofman (2006) clearly states that this separation is the cause of much 'un-ethical' or 'non-responsible' management behavior. Managers can be parents or grandparents who honestly discuss the importance of honesty, integrity and ethics with their children and grandchildren. At the same time some of them

feel no responsibility whatsoever for the disasters created in the organization they help to manage and lead. Some go so far as to say that today's managers are no longer accountable for the risks they incur.

Arguably lots of money is unfairly 'earned' by non-equitable trade, child labor, unsafe working conditions, unfair legislation and regulation, unfair competition, fraud in the construction sector, and that seems to take place in most countries. It is almost place and culture independent; but it is paradigm dependent. Changing this attitude therefore needs an evolved managerial paradigm (as argued before). As written earlier, values-based leadership is a paradigmatic choice.

Europe and the US had some interesting cases. Well known and respected managers of large multinationals were accused of inside trading, which is legally forbidden in many countries. The challenge is to find evidence for inside trading. In respected financial institutes, trading by employees is not permitted. But how can one exclude inside trading by a family member or friends of managers that have key positions in those financial institutes? They can easily share their knowledge in a way that is (also for them) very profitable. Despite the strict laws and regulations in this matter, it is the fundamental paradigm that governs 'management' (and its supporting ideology) that makes this un-ethical practice possible and even underpins it. Banking became, like many other industries, a self-referential system. Inside the system it works highly efficiently, by using a 'jargon' that only the insiders understand. The outsiders do not understand what happens in the system and are therefore excluded from the opportunities that insiders have. Inside trading need not be deliberately unethical behavior; it can be nothing more than a logical consequence of the self-referential system of contemporary banking.

People running a small, sometimes family owned business, often show a different set of values. Such 'owners' of an organization know all the people they work with. They know that they need the ideas and creativity of all the other people in the company. They feel responsible, not only for all their family members, but also for the people they work with. They consider them as an extended family. They have a vision. They are able to answer the question of the value added that her organization brings to society. They are committed to the organization and to the people they work with, first. They do not hide behind hierarchy, protocols, and the like. They 'are' their company.

The present shareholders of many organization are no longer the 'owners-managers' of the organization. There are now shareholders on the one hand and managers on the other. They have different goals, means, and ideas. Shareholders do not necessarily need a vision or a mission. They keep a distance from the organization, and from the people that work in and for the organization. They are much more interested in managing figures, and obviously certain figures interest

them most: share value, dividends, etc. If they believe that the organization will do worse in the future, they will leave 'the sinking ship' without hesitation, and long before the water begins to be visible to others. Some would call this recklessness that gives no thought to the impact on other stakeholders of the company. A number of acquisitions offer dreadful examples of this.

It seems that feelings of empathy are minimal. Currently empathy, respect, a peaceful mind, and love do not seem to be considered part of what business should be. Talking about peace and love is, in many parts of the world, something you do in private and not in public, especially not in the world of business. In business, the prevailing belief seems to be that the analytical, isolated mind is superior and separates us from our heart since minds are much more effective and efficient. But what do we call effective and efficient? Shareholder value only? Return on investment only? Short term (financial) results? Continuous competition?

But what if it is not possible to separate mind and thoughts from the rest of the body? What are the consequences of false hypotheses and assumptions? What price do we pay for these (wrong) mindsets? What about poverty, starvation, humiliation, aggression, child labor, abuse, and other cruelties? It could be that our reason can deal with all of these, but what about our own feelings and health? Could this be why people in many organizations and corporations avoid talking about love, compassion, empathy, and peace? Could it be that the decisions made by corporations could be completely different if they did not exclude compassion? Is this what people fear most in business? And could this be a cause of the many burnouts?

The separation of the owner-manager into an owner (shareholder) and a manager did not only change the purpose and the method for the shareholder, it also changed them for the manager. As Whittington wrote in his award winning 1993 book 'What is strategy and does it matter?', managers have invented a new type of skill in order to justify the role of the manager. In the era of the owner-manager, the role of that owner-manager was clear: it was the leader who committed to the vision of the company, who committed first, and who functioned in a co-creating mode. In the absence of that commitment, and given that the manager takes a technocrat's role (i.e., managing on behalf of someone else), a new skill was necessary to justify the role and position of the manager: the outcome was strategy. Gradually, strategy disconnected from purpose, meaning, commitment and involvement. The risk-return logic of entrepreneurship has become one of 'administration' (indeed, managers are trained to become masters in business 'administration'). Whittington's conclusion is devastating: after having explained what strategy is, it appears, to him, not to matter.

3.3. Some principles

Before talking about values per se, it is important to spend some time on principles that allow and support MBV. Values in themselves can easily be identified, but managers starting with MBV will face a hurdle. Values need a context, and without that context, values are little more than wishful thinking.

An example of a set of interesting principles for this purpose can be found in the Core Principles of Sustainability developed by Michael Ben-Eli (2018).

At the core of its vision, the Alliance recognises the unity of all life and a wholehearted adherence to the noblest aspirations of humankind (as proclaimed in all spiritual and humanist traditions that call for compassion and the celebration of life). The values and principles of the emerging movement for a new humanity (and of the Alliance, which is trying to serve it), are based upon the support of policies, causes and actions that favour respect for life, human dignity, freedom, ecological sustainability, and peace.

The basic tenet of this approach is a consciousness based on the inseparability of all life (i.e., that everything is connected and that therefore our well-being is the well-being of everyone; Ubuntu). This consciousness, it is believed, cannot be just passive, otherwise it would remain irrelevant. Instead, it has to be expressed for the benefit of all, through service that improves life for all mankind. Love and action need to go essentially together, as the human rights activist Hafsai Abiola suggests, when he says that action without love is meaningless and love without action irrelevant.

Sustainability, according to Ben-Eli (2004), calls for a deep transformation in all aspects of human activity including our worldview, our values, our technology, our governance and more.

A growing number of people need little convincing that it makes sense to establish the concept of sustainability as the organizing principle on our planet. This concept fosters a well-balanced alignment between individuals, society, the economy, and the regenerative capacity of the earth's life-supporting ecosystems. It is a challenge unprecedented in scope and urgency in our time. It requires a fundamental shift in consciousness as well as in action. It calls for a deep and simultaneous transformation in all aspects of human activity including worldview, values, technology, current patterns of consumption, production, investment, governance, trade, and more.

The concept of 'sustainable development', as coined by the World Commission on Environment and Development and with it, the term 'sustainability' itself, have been gaining increasing recognition in recent years all around the world.



What value do you, does your company, add to society? If you are bankrupt tomorrow, what is society missing? And if we are missing nothing, why then do you exist?

Wide-spread use has been followed by growing ambiguity. As a result, both terms are employed within a very broad spectrum of meaning, often to the point of trivialization. Expressions such as 'sustainable loans', or 'sustainable projects', for example, are often used in international agencies which provide financing for development. The terminology relates to questions of whether loans are likely to be repaid, or if projects are likely to be self-supporting beyond the term of initial backing. It has become completely disconnected from the deeper and more important questions regarding the very nature of development and its ultimate impact on humans as well as on the environment.

To be serious about ensuring a sustainable future, however, means adopting more rigorous concepts, and principles that can provide clear blueprints for the required change.

The currently prevailing definition of sustainability emphasizes cross-generational equity, clearly an all-important concept for any society that wishes to endure, but one that is operationally insufficient. Since actual, specific wishes of future generations are not easy to ascertain, the definition in many cases fails to provide unequivocal guidance when specific policy decisions are debated. Anchoring an alternative definition directly to the relationship between a population and the carrying capacity of its environment offers a more advantageous approach. Indeed, it starts to become a systems approach. It assumes a number of key variables, for example, population numbers; a degree of well-being; total inventory and rate of consumption of resources; impacts of by-products generated by human activity on the absorption capacity of the environment; impacts of new technologies in opening or hindering new evolutionary possibilities; and the like, that are all potentially measurable. Hence, the following definition (Ben-Eli, 2004):

Sustainability is a dynamic equilibrium in the processes of interaction between a population and the carrying capacity of an environment such, that the population develops to express its full potential without adversely and irreversibly affecting the carrying capacity of the environment upon which it depends.

The set of sustainability principles which follows is grounded in Ben-Eli's definition. The principles are articulated in broad terms but can receive a specific operational meaning in relation to particular sectors of the economy, development issues, business strategies, investment guidelines, or initiatives taken by individuals. We express them in relation to the following five fundamental domains (all representing essential aspects in the interaction of human populations and the environment):

1. *The Spiritual Domain* identifies the necessary attitudinal orientation and provides the basis for ethical conduct.
2. *The Domain of Life* provides the basis for appropriate behavior in the biosphere with respect to other species.
3. *The Social Domain* provides the basis for social interactions.
4. *The Economic Domain* provides a guiding framework for creating and managing wealth.
5. *The Material Domain* constitutes the basis for regulating the flow of materials and energy that underlie existence.

The result is a set of five core principles, each with its own derived policy and operational implications. The set is fundamentally systemic in nature, meaning that each domain affects all the others, and is affected by each in return. Rather than a list, the set should be approached and understood as a coherent whole. The framework of these principles enables a nurturing context for talking about values.

Ultimately, any serious reflection on the concept of sustainability and the five core principles that together prescribe it, reveals that the spiritual principle is essential for the possibility of attaining sustainability as an enduring state. It alone underscores the difference between a greedy, ego-centric, predatory orientation and a nurturing, self-restrained approach to the world. The spiritual principle drives, integrates, and centers the other four principles. It provides the attitudinal orientation that is absolutely essential as a basis of change. To quote Satish Kumar: 'The moment our attitude changes, everything will start to change.' Or in Gandhi's words: 'We must be the change we want to see in the world.' It's the values that drive the innovation.

Another burning question is whether it is possible to do something for the environment and nature without knowing what nature needs. This question is based on the idea of separation: the disconnection between the observer and the subject. In a new paradigm the observer is connected to the subject. The observer is part of the subject. According to a quantum interpretation, the observer creates the observation while observing. Therefore, it is said that we are nature ourselves. Nature is not something out there.

This only takes a shift in perception and a small change in consciousness. In our business school environments, 'teaching' should be scaled down, to the advantage of the creation of an environment in which learning can take place. This follows the belief that we are all connected, that we believe in unlimited possibilities and that we are able to create something for the better of all living creatures. The opportunity has to be given to young people to take responsibility for their own future and not denying them the right to live in a peaceful and natural

surrounding. It is each individual's choice and freedom to try and make this world a better place, or alternatively, not to bother about it, as anthropologist Jane Goodall suggested. According to Chopra (1990), change cannot start on the surface. It can only be generated from consciousness, and translated into management terminology, that is where we get to MBV.

3.4. What are values?

Without too much effort, it is possible to come up with a whole list of possible corporate values: liability, availability of information, involvement, reliability, conflict solution, consensus, creativity, democratic process, sustainability, ecological awareness, honesty, ethics, organization as a family, decency, shared identity, shared vision, shared values, equal chances, community services, harmony, humour and pleasure, innovation, integrity, quality of living, long term perspective, emphasis on global thinking, nature conservation, humility, mutual support, openness, training possibilities, optimism, personal growth, personal satisfaction, personal freedom, political involvement or activism, recreation possibilities, respect, respect for the law, risk mindedness, social justice, social cohesion, social responsibility, social security, solidarity, spirituality, strategic alliances, strict moral or religious rules, tolerance, transparency, responsibility, diversity, to make a difference, faith, public health and security, prosperity, continuing improvement, peaceful cooperation, friendship, freedom of expression of opinion, conscience of values, world peace, employment and many other values. Dolan et al. (2006) propose a triaxial model of organizational values: economic-pragmatic values, ethical-social values, and emotional-developmental values.

Economic-pragmatic values are:

- Efficiency;
- Performance standards;
- Discipline.

Ethical-social values are:

- Honesty;
- Congruence;
- Respect;
- Loyalty.

Emotional-developmental values (related to trust, freedom and happiness) are:

- Creativity and ideation;
- Life and self-actualisation;
- Self-assertion and directedness;
- Adaptability and flexibility.

The single most critical success factor for MBV is congruence between what corporate leaders say they believe and what their actions and decisions communicate about what they believe, in both the short and long term. One should not only preach the gospel. A first step to be taken in MBV aims to achieve high performance in day-to-day work by making it more meaningful.

Dolan et al. (2006) claim that values are more than just words. Values guide and direct our behaviour, and affect our daily lived experiences. Espoused values may represent a mismatch between what we say and what we do. Values that are demonstrated through consistent and enduring behaviour are lived values. From an economic perspective, value is also the measure of the significance or importance of something. And gradually, Dolan et al. drift to what are classically called values: the economic value of something (that in theory is expressed by its price).

This is a return to the beginning. Dolan et al. (2006) even refer to Porter's (1985) value chain, claiming that this chain reflects the shared values of the people that constitute the company. Concerning the emotional-developmental dimension they identify 'final' values and 'instrumental' values. And they suggest that the number of final values a person habitually holds is less than a dozen, and that the number of instrumental values is much higher. These latter values can be subdivided into personal values (what is important in life), ethical-social values (what you want to do for the world), ethical-moral values (how you think you should behave) and values of competition (what is necessary to compete in life).

- A few examples of each can clarify this subdivision:
- Personal values: happiness, health, salvation, family, personal success, recognition, status, material goods, friendship, love;
- Ethical-social values: peace, planet ecology, social justice;
- Ethical-moral values: honesty, sincerity, responsibility, loyalty, solidarity, mutual confidence, respect for human rights;
- Values of competition: culture, money, imagination, logic, beauty, intelligence, positive thinking, flexibility, sympathy, courage.

Companies and people move from beliefs to behaviour via values. Beliefs and values are indeed closely related. Personally, I would like to go a bit further in my understanding of values, though the classification of Dolan et al. (2006) gives due attention to human developmental issues. Exploring their book further, however,

does bring the MBV approach back to the realm of efficiency and management for (financial) result. I think beliefs and values need to be brought closer to each other. At this stage I therefore define a managerial value as *a measurable belief of value added that it leads to*.

3.5. A step by step process

Dolan et al. (2006) define MBV as a major change process in the company. Accordingly, based on change management theory, they suggest the following step-by-step plan for putting MBV into practice.

It starts with a pre-change phase in which the company asks itself the following questions: Are they are serious about a culture change? Are they in for the long term and how do you define the long term? Do they have the right type of leadership to initiate and sustain the process? Do they have the necessary resources?

Next, the company distils shared essential values. Currently, corporate strategic plans are notoriously confusing in their use of terms like vision, mission statement, strategic purpose, objectives, behaviour guides, values, and goals. In this phase the company is expected to collectively visualise the kind of future desired, which will lead to the final values that should be integrated in the organization's mission and vision. The current set of values should be analysed and compared to the desired one (a SWOT on values). Finally, a consensus on the change path should be built. All this is designed to happen in dialogue with all the stakeholders.

Once agreement is reached on the change path, the project teams will commence their work. Their purpose is basically to convert the essential values into objectives for action. These include the design of a set of new practices and policies, especially a human resources policy based on the values. This relates to recruitment and selection by values, training and development by values, and performance evaluation and recognition of effort according to compliance with values. Finally, they propose the realisation of operational values should be monitored via culture audits.

The steps that Dolan et al. suggest have a high risk of seeing MBV gradually revert back to management by financial values (economic values). Such processes are familiar, are measurable, are simple to visualise as progress, and can easily be related in terms of (financial) appreciation. At the end of the day, they are very reassuringly close to business as usual. The planned process is interesting, but it carries the potential to confirm inertia, and needs strong and visionary leadership to maintain momentum and reach the desired end.

3.6. Conscious business

Let us go a little more a-centric. Would the culture shock be made bigger by limiting the values to consciousness-related values, in line with Kofman's (2006) view that conscious business means finding your passion and expressing your essential values through your work? A conscious business seeks to promote the intelligent pursuit of happiness in all its stakeholders. It aims to produce sustainable, exceptional performance through the solidarity of its community and the dignity of each member.

Ken Wilber (in the introduction to Kofman, 2006), talking about Kofman's book 'Conscious Business: How to Build Value through Values', says that integral mastery begins with mastery of self, at an emotional level, at a mental-ethical level, and at a spiritual level. Anything more than that is not needed; anything less than that is disastrous, according to him. Peter Senge, in the same book, highlights yet another important issue. The key to organizational excellence lays in transforming the practices of unilateral control into cultures of mutual learning. When people continually challenge and improve the data and assumptions upon which their map of reality is grounded, as opposed to treating their perspectives as *the* truth, tremendous productive energy is released.

Collins (2001) studies what drives average companies to take a quantum leap and become extraordinary. He concludes that a crucial component of greatness is a group of leaders with a paradoxical blend of personal humility and professional will. These leaders, whom Collins calls 'level 5', channel their ego ambition away from themselves into the larger goal of building a great company. Conscious employees are an organization's most important asset; unconscious employees are its most dangerous liability. So, what are conscious employees?

Kofman (2006) uses seven qualities to distinguish conscious from unconscious employees. The first three are character attributes: unconditional responsibility; essential integrity; ontological humility. The next three are interpersonal skills: authentic communication; constructive negotiation; impeccable coordination. The seventh quality is a condition that is needed to enable the previous six: emotional mastery. Conscious employees take responsibility for their lives. They don't compromise human values for material success. They speak their truth and listen to others' truths with honesty and respect. They look for creative solutions to disagreements and honour their commitments impeccably. They are in touch with their emotions and express them productively.

Buckingham and Coffman (1999) concluded from a 22-year study on organizational effectiveness that exceptional managers create a workplace in which employees emphatically answered ‘yes’ when asked the following questions:

- 1. Do I know what is expected of me at work?
- 2. Do I have the materials and equipment I need to do my work right?
- 3. At work, do I have the opportunity to do what I do best every day?
- 4. In the last seven days, have I received recognition or praise for doing good work?
- 5. Does my supervisor, or someone at work, seem to care about me as a person?
- 6. Is there someone at work who encourages my development?
- 7. At work, do my opinions seem to count?
- 8. Does the mission/purpose of my company make me feel my job is important?
- 9. Are my co-workers committed to doing high-quality work?
- 10. Do I have a best friend at work?
- 11. In the last six months, has someone at work talked to me about my progress?
- 12. This last year, have I had opportunities at work to learn and grow?

Kofman (2006) proposes a systemic organizational map that comes very close to my own tools as published in previous work. In line with Wilber’s (2000) proposal (see my previous and published work which heavily relies on Wilber’s model), he offers a matrix consisting of the columns ‘I’, ‘we’, and ‘it’ and adds three rows (in each column): product/result oriented (Have); process/behaviour oriented (Do); and platform/structure oriented (Be). But most importantly: the tools are systemic and the purpose is to manage those as a holistic system.

Kofman (2006) illustrates the difference between unconscious and conscious attitudes through table 1.

Tabel 1 Unconscious and conscious attitudes (Kofman, 2006)

Unconscious attitudes	Conscious attitudes
Unconditional blame	Unconditional responsibility
Essential selfishness	Essential integrity
Ontological arrogance	Ontological humility
Unconscious behaviours	Conscious behaviours
Manipulative communication	Authentic communication
Narcissistic negotiation	Constructive negotiation
Negligent coordination	Impeccable coordination
Unconscious reactions	Conscious responses
Emotional incompetence	Emotional mastery

A big, tough samurai once went to see a little monk. 'Monk', he barked, in a voice accustomed to instant obedience, 'teach me about heaven and hell!' The monk looked up at the mighty warrior and replied with utter disdain, 'Teach you about heaven and hell? I couldn't teach you about anything. You're dumb. You're dirty. You're a disgrace, an embarrassment to the samurai class. Get out of my sight. I can't stand you.' The samurai got furious. He shook, red in the face, speechless with rage. He pulled out his sword, and prepared to slay the monk.

Looking straight into the samurai's eyes, the monk said softly, 'That's hell.' The samurai froze, realising the compassion of the monk who had risked his life to show him hell! He put down his sword and fell to his knees, filled with gratitude. The monk said softly, 'And that's heaven.'

Zen parable

Applied now to values-based innovation (as evolved from procedure-driven innovation) a comparative table (see table 2) can be made (based on the arguments developed thus far).

Table 2 Values-based and procedure-driven innovation

Values-based innovation	Procedure-driven innovation
(Massive) transformative purpose	Financial contribution
Driven by purpose and transformation	Driven by control and process
Success is measured by impact	Success is measured by margin
Holistic/a-causal	Causal/linear
Cooperation (open innovation)	Competition
Ubuntu (we belong)	I am
Sustainability focus	Short term focus
Value added for the stakeholders	Value added for the shareholders
Humanoid management	Machine like management
People are autonomous/take initiative	Structured and fixed procedures
Agile innovation	Planned (engineered) innovation
Minimum interaction rules	Detailed rules and regulations
Trial and error/experimentation	Analysis
Networked	Hierarchical
Shared purpose	Individual purpose
Leaders	Bosses

In summary, a few lessons can be drawn. I have illustrated what values are, in what way they are different from and supersede ethics. By describing values as I did, I sketched the ideal circumstances for values-based business innovation to take place. Above all, I illustrated that values are a systemic concept and can only be understood and researched via systemic routes. This implies that values-based innovation is an ontological choice. In my previous work, I illustrated the need to integrate MBV into the larger context of a holistic management view, illustrating the role of the values-based leader. To assist in doing that, I developed (and published) a diagnostic for sustainable performance. Once it is used to make the diagnosis, that diagnosis can serve as a guiding principle for transformation. As argued in this section, MBV is from the start a spiritual choice, however within a context of principles that operate within a systemic approach. Now, what does that mean for values-based business innovation, in its practice, research and its learning?

Crucially important is to start supporting young people (our students) to become those values-based business model innovators. Hence, we will have to review our pedagogical approach and curriculum in view of this new reality and the ontology that supports it. But systemic as this problem is, we cannot do that in isolation from the real world, the world of the wicked problems, the world that is ever changing and that is causing lots of uncertainty for companies, their leaders and employees. Business innovation is the centre court of the tennis tournament. That is where eventually we win or lose the finals. How can we redefine centre court so that students, managers and researchers alike can be successful in their respective business innovation endeavours? The next chapter describes the new centre court and the rules that go with it. It will bring together business innovation, corporates, students, researchers, and policy makers in order to lay down the path in walking, together, in co-creation.

4. Let us lay down the path in walking

(the consequences for learning, teaching, curriculum and research)

As I have stated in previous chapters, values-based business innovation is the systemic center court of impactful and sustainable management. How can the center court be redefined so that students, managers, researchers and teachers alike can be successful in their respective business innovation endeavors? How can corporates, students, researchers and policy makers best be prepared to play in this new court? What is the impact on the way of training them (which is what this chapter deals with) and what do schools and academics need to understand and research in order to support this transformation (chapter 5)? How can we create an environment to research meaningfully values-based leadership in business innovation as described in previous chapters? While this chapter describes the Living Lab necessary to study this transformation in co-creation (and at the same time organize the learning), chapter 5 details the necessary research themes.

In this chapter I describe an ideal setting for 'teaching' values-based business innovation (I would rather like to call it 'experiencing' values-based business innovation), which is labelled here as a 'Living Lab'. At the same time, it is a suggestion for the ideal research setting for researching values-based business innovation. This chapter is structured as follows. Section 4.1 describes what is understood by a Living Lab. Section 4.2 explores what the necessary and sufficient conditions are for the Living Lab to operate. Section 4.3 deals in detail with the learning and innovation processes practiced in the Living Lab. Section 4.4 shares some experiences and possible use of the Living Lab. Finally, section 4.5 highlights the role of values and leads into chapter 5 where the research agenda is defined.

4.1. What is a Living Lab?

While a Living Lab often takes place in a physical space, a campus, or building, the latter is only one part of what the Living Lab is. And while the presence of a diverse ecosystem is a condition for a Living Lab to function well, it is not identical to the Living Lab either.



*If you want to build a ship, call people together
and give them a desire for the endless sea
(Antoine de Saint-Exupery)*

A Living Lab is an experience in a diverse ecosystem that is co-created over time by executives, students, startups, policy makers, citizens (all depending on the wicked problems that are dealt with), since the more diverse the ecosystem is, the more it creates potential for transformation of the individual participants and the organizations.

The co-creation takes place while working on a meaningful wicked problem (a complex problem for which we do not have, upfront, any good idea for possible solutions). A transformational journey (individual and collective) brings together creativity, innovation, entrepreneurship, open mindedness and personal transformation in order to support the participants to develop themselves to the next level of being. And at the same time the journey transforms the organization from the current to the future economic reality. The transformation that is anticipated is the one from causal (linear) to complex thinking, which is the paradigm that allows for meaningful business innovation. Researchers participate in an action research mode, contributing to both learning (of themselves and the others) and to the creation of insights and research output. The output of a Living Lab is multiple: a prototype of a solution of a meaningful wicked problem, transformation of its participants (learning for students; lifelong learning for executives and teachers; agile innovation for companies), action research output. The Living Lab, by its nature, is a multidisciplinary, multigenerational experience. For all intents and purposes of this publication, let us use this as the definition of the Living Lab.

The aim of the approach of a Living Lab is to transform mindsets in order to empower people and organizations to embrace radical change, create a more sustainable world, and more humane societies. The Living Lab is an awe-inspiring experience that creates an exceptionally collaborative community of creators, leaders, experts, and inventors who are in turn, inspired to create groundbreaking and scalable solutions.

The Living Lab is an experience, but part of that experience can take place in a physical space (in fact, most often it will), and the physical space can play a supportive role in the experience. We all know the creativity spaces that are for rent (for example BlueCity in Rotterdam), or those that have often become part of (larger) companies. There are interesting examples of purpose-built campuses: thecamp in Aix-en-Provence, Eindhoven Engine in Eindhoven and SingularityU campus in Santa Clara. There has been a wave of design schools established in most major cities in the world, the most eminent ones being those sponsored by Hasso Plattner (founder of SAP) at Stanford University, at the HPI in Potsdam and at the University of Cape Town. Many of those successful campuses are constructed outside the classical university frameworks, though they might still be

administratively connected. Some people refer to this kind of campuses as 'universities outside the university'. The purpose of the campus is to facilitate the Living Lab, in particular the facilitation of the transformational journeys and the agile prototyping. Ultimately (part of) the campus experience could be virtual. Indeed, in order to cater for flexibility, the physical campus is often extended to a virtual one (as we have used ourselves in some experiments).

As argued, the Living Lab experience is one of an active ecosystem, but it goes above and beyond the ecosystems itself. So, where the existence of a vibrant and diverse ecosystem can only enrich the transformational experience, it is not the transformational experience. An ecosystem is often used in innovation and entrepreneurship in the form of a metaphor or even an allegory for the biological community of living organisms that it originally refers to. The term became very popular after the apparent success of Silicon Valley and the Boston Area in turning out lots of successful companies in the new economy. An ecosystem is a kind of co-location, though not necessarily at the same geographical place, of a number of entrepreneurs, economic development, support functions, public support for innovation, office space, logistics, often good universities, entrepreneurial culture, etc.

Arguably, there are today around forty entrepreneurial ecosystems in the Netherlands, which is certainly related to the very high position of the Netherlands on the global GEM-index (Global Entrepreneurship Monitor).² Within the country the Delft and Eindhoven regions score high on impact, while the wider Rotterdam region does not do very well.³ Other than the regions Delft and Eindhoven, city regions like Den Haag, Leiden, Amsterdam, Utrecht and Twente are at the top of the list. The Living Lab could be an engine to propel the Rotterdam region in this ranking.

The transformation that takes place for all participants, and that is facilitated in the Living Lab, empowers the participants to develop the following four meta-competencies:

- Comfort in complexity: feeling comfortable in the current economic reality of complexity and uncertainty, in order to be able to explore, understand and act in this hyper-complex world, disrupted by exponential technologies. The potential for innovation indeed resides in the complexity of the economic reality, and not in the presumed structure of it. This is equally true for individuals and for companies;

2 *Global Entrepreneurship Monitor the Netherlands 2017*, National report, 2018

3 E. Cloosterman, E. Stam & B. van der Starre (2017), *De kwaliteit van ecosystemen voor ondernemerschap in Nederlandse regio's*, Birch & Universiteit Utrecht

- Team effectiveness: being able to work in a creative group and getting the best out of the group dynamics; igniting collective intelligence as a power for the group level transformation;
- Personal transformation: becoming a confident, creative, values-based leader and entrepreneur (intrapreneur) who can lead a project to success, based on innovative and systemic methodologies. Personal transformation will be a key achievement;
- A multidisciplinary no-nonsense approach to management and innovation forms the basis of the transformational journeys. These journeys aim to develop in participants not just a momentary transformation, but a profound competence of being transformed and being able to spread that transformation throughout the organization. The approach develops the competence of meaningful lifelong transformation (or lifelong learning to keep it more restricted).

A tangible outcome of the Living Lab transformations is a prototype of a real case innovation. That output can also be achieved in any regular ecosystem (as defined before), it is not an exclusive outcome of a Living Lab. However, in the Living Lab, innovation, learning and research go hand-in-hand, delivering a richer output.

More than anything else, the Living Lab is a new and innovative way of cooperation, co-creation, innovation, research and learning. It is an attempt to make optimal use of the diversity and the collective intelligence of the group. The most fundamental change, compared to other learning and research approaches, is that the Living Lab is oriented towards the creation of a real solution to a real problem. While working towards a solution, the participants will discover 'what they don't know'. Remember that one doesn't know what one doesn't know. One only knows what one doesn't know when one needs it. Here, one will find out what is needed and not known. That is what is going to ignite learning. The learner finds out what to learn (and that is obviously an individual discovery) and is going to learn the necessary, not what someone else has invented that should be learned. That is why individual initiative and responsibility are so important for learning. Someone else can no longer make a program for the learner. The learner makes the program, and takes responsibility for the learning. The school or teacher becomes a facilitator, a coach, a mentor, a mirror, etc. The environment opens the door for the 'teacher' to become an action researcher. Someone who is able to listen and to share some experience. The approach moves from a vertical approach (course after course, after course) to a horizontal approach of a journey (where occasionally some input is still given). The pedagogical logic is turned around from teaching to learning.

4.2. What are the necessary and sufficient conditions for a Living Lab to operate?

Within the given definition of the Living Lab, this section explores the conditions and context for the Living Lab to operate, based on what we have learned out of theory.

To facilitate this transformation, a few 'non-negotiables' have been identified, based on complexity theory, systems theory and pedagogical innovation.⁴ It has led to the development of a deep understanding of the issues of open innovation in diverse ecosystems, with its impact on meaningful learning experiences and innovation prototyping. A conceptual model for transformational learning has been developed, as well as a pedagogical approach and a detailed methodology. They support both agile prototyping as a learning experience, and the process of personal transformation (see section 4.3). All our activities take place within the following perimeter:

- Transformation takes time, hence a major meta-competence to take away from this approach is the focus on, and the capacity for, lifelong transformation. Engagement and focus over time are important issues.
- Transformation takes place by doing, not just by listening or reading. Teaching does not work beyond the teaching of rules and procedures. Competency-based transformation can only be reached via experiential learning and prototyping. All our activities are based on these experiential transformation principles.
- Transformation takes place in an ecosystem of mutual and experiential learning. Transformation is ignited by the confrontation of one's own mental model, with the mental models (ideas) of other people. Therefore, diversity is crucial for transformation: the more mental models differ, while people are willing to co-create, the easier transformation will be. That is why this approach needs to be based on a very rich and broad ecosystem, ideally containing all bricks of diversity (gender, age, experience, interest, education, etc.).

4

For a more theoretical background, do consult the following books:

W. Baets & G. van der Linden (2000), *The Hybrid Business School: Developing knowledge management through management learning*, Prentice-Hall

W. Baets & G. van der Linden (2003), *Virtual Corporate Universities: A matrix of knowledge and learning for the new digital dawn*, Kluwer Academic Publishers

W. Baets (2006), *Complexity, learning and organizations: a quantum interpretation of business*, Routledge

W. Baets & E. Oldenboom (2009), *Rethinking Growth: social intrapreneurship for sustainable performance*, Palgrave MacMillan

W. Baets & E. Oldenboom (2013), *Values Based Leadership in Business Model Innovation*, Bookboon, Internet based, free downloadable

- Peer learning and peer coaching are part of the process. The transformation experiences are continuously supported by peer coaching and peer feedback. All participants of a project team are considered as peers. While we will have experts (technical experts, facilitators) available, feedback and evaluation will be done by peers who best understand the situation and necessary transformation of their peers.
- Learning is self-defined and self-managed. Only the learners know what they need to learn. They need to take responsibility in defining and managing their learning agenda. We create the structure, support and the conditions to do so. The learning log plays an important role here. The challenge is to integrate the necessity for personal transformation into a wider plan for corporate transformation.
- All solutions are systemic and driven by values (contribution). Only systemic solutions can be sustainable solutions, without creating more problems than solving them. Therefore, only systemic approaches and systemic solution are relevant. This is essential in the transformed mindset that is needed.
- Experiential learning is based on the combined experience of all individuals and companies. It is an effort in co-creation of groups and individuals, targeting to raise the collective intelligence of the participants. While the approach is based on transformation by doing, and does lead to prototyping innovative solutions, the purpose is not the action for the action itself. All activities have the sole purpose of contributing to the transformation of individuals and companies, via experiential learning.

These 'non-negotiables' are the principles of the learning environment and approach that is proposed to support the transformation towards values-based business innovation.

From experience with successful incubation spaces it became apparent that the ecosystem with its huge potential for cross pollination is a central asset. The ecosystem needs to contain all necessary parties, and open cooperation in the system is key. The simple existence of the ecosystem, without an active effort to organize the intertwining of people and projects will not lead to success.

The 'necessary' condition for an ecosystem to work is that it contains all the necessary partners. On the one hand the ecosystem needs the partners that create 'wealth', and that will, eventually, commercialize the projects: the corporates, the public providers, the startups. And on the other hand, it needs the partners that create the intellectual property and insights: universities, researchers, and students. Commitment of participants is crucial, and tends to prove a stumbling block if not dealt with correctly.

The partners need to be superseded by a layer of learning and transformation: on the one hand in a format of learning by doing (transformation by doing), and on the other hand via more formal transformation journeys (learning journeys). It is such a space (combining the above) that creates the potential for development of successful innovations that will foster impactful and lasting transformation. This is not the only necessary condition for a successful ecosystem, but it is the most essential one. The successful ecosystem creates the space and conditions for magic to happen, as well as an environment where ideation is a second nature and imagination is supported and encouraged. It makes for an ideal action research environment.

When different parties and the different transformational approaches are brought together, the space, the approach and the ecosystem are created, that facilitate transformation while contributing to innovation. They are able to cater to different individuals and groups, and can be delivered in different formats. All of the offerings, virtual or live on the 'campus', are completely modular, which means that every participant can create his or her unique personal trajectories. Transformation is an individual commitment, and while experienced in teams, it makes personal engagement, commitment and responsibility of key importance. The campus and the person agree on what the mutual commitment and expectations are and log that in a transformation contract. It is the participant's responsibility to work towards the realization of the contract; the campus and/or the ecosystem is the tool that will facilitate this.

Integration and creation of conditions is crucial, as much as personal commitment is. But an ecosystem will need an approach that supports cooperation, facilitates the activation of collective intelligence (see section 4.3) and is able to create a trusted environment.

Under these conditions (campus, ecosystem and approach) the Living Lab creates the potential for magic in innovation, and it allows us to reach what we need: a quantum world of ideation. It facilitates the energy of imagination, where we are able to go beyond what we know today as learning, universities, innovation and R&D. It allows for meaningful action research.

The '*sufficient*' condition for a successful transformation is how individuals and groups use this ecosystem and how the ecosystem is able to cooperate, exchange, open up to each other, and integrate; in other words, to activate the collective intelligence that is potentially present in such ecosystems. This does not happen overnight, nor does it happen automatically.

4.3. Which learning and innovation processes are used?

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4.3.1. *The overall picture*

When a participant engages in this experiential trajectory, one engages in the design and realization of a prototype of a real solution to a real problem, for real people. Teams can work on (their own) corporate problems, or choose to work on open-innovation challenges of interest to multiple parties. These projects could have a corporate interest, as much as a public interest. The realization takes place in teams of four to five people, working both face-to-face and remotely, and this can be supported by an innovative virtual resource and collaborative platform. This platform would contain valuable resources (books, articles, Massive Open Online Courses, etc.), smart tools for easy remote cooperation, and a methodology and approach supporting both the personal and project-based transformations. In the pilots mentioned at the end of this chapter, such a platform has been used successfully.

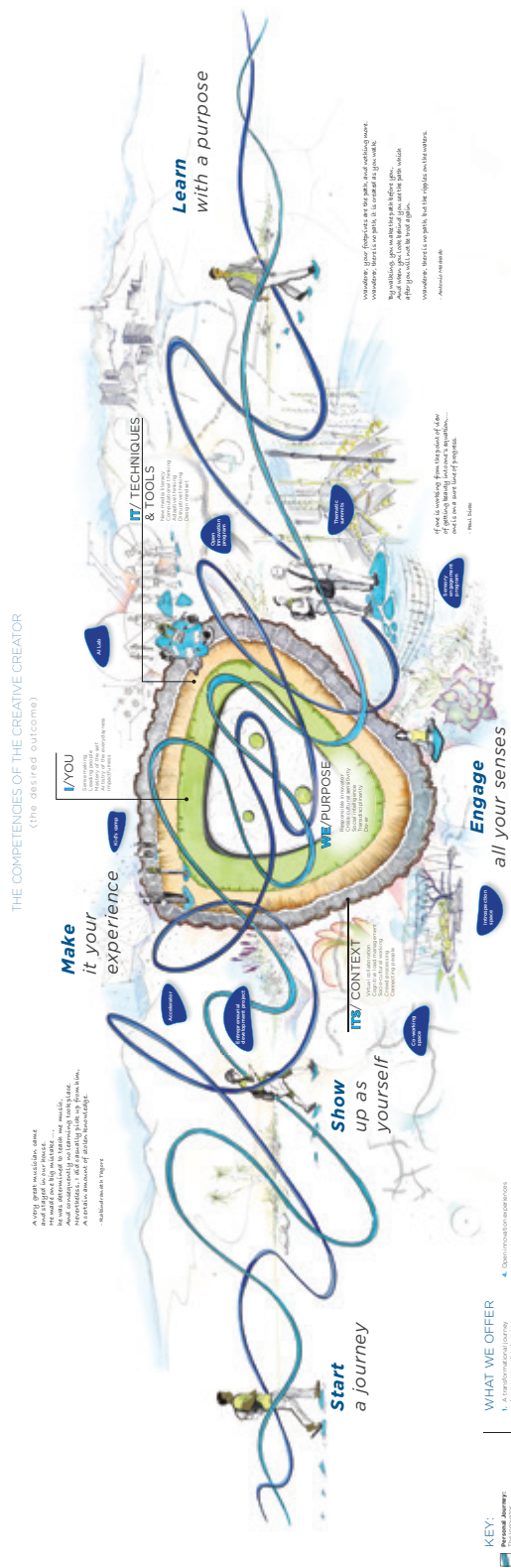
Transformational journeys combine different approaches: co-creation of innovative projects, personal transformation, virtual exploration of resources and communities, expert input, mentoring and peer to peer feedback. Action research uses the activities of the Living Lab as input to identify the living principles of values-based business innovation.

Within the pedagogical model applied (see previously published material) the meta-competencies are translated in each of the four dimensions of our systemic approach (based on the Wilber model): personal transformation; values, purpose and meaning; agile innovation skills; disruptive technologies and models. Each of those dimensions entails a number of challenges, which the world and companies are confronted with today. Besides dealing with any or many of those challenges, the transformational journey's purpose is to transform individuals that transform organizations. That transformation is achieved by the development of a set of personal competencies. The participants will develop these competencies in a systemic, integrated way throughout all the activities in the Living Lab. These can be different for each participant.

Since a picture speaks more than a hundred words, a designer has made the following [impression of the Living Lab \(figure 1\). \(link\)](#)

Take some time to watch the design. Allow the drawing to tell you it's story. With this image in mind, let us explore it in a bit more detail.

The approach is based on a lot of my research over the last twenty years, and the many experimentations I have been able to do in different parts of the world, with



A Transformational Journey

Figure 1 Impression of the Living Lab
Click on the image to view full size

different people, with the purpose of supporting learning and transformation. Some experiments were more dramatic, some were more gentle. For the theoretical background I refer in particular to the books I have published. For the detailed description of this drawing, the public lecture deals with that. I will only give some highlights here.

The following poem refers to the supporting paradigm. Antonio Machado is a Spanish poet who has written a lot of flamenco songs. I came across his work, and in particular this poem, while being a visiting fellow at the Complexity Research Centre in Aix-en-Provence, many years ago. Prof. Jean-Louis Lemoigne, a giant in the field of complexity theory in France and Europe, embraced it, and had translations of it in many languages on his website. My 'Dutch/Hollandais' translation is still there. Other complexity thinkers, amongst others Francisco Varela, have often referred to the poem.

*Wanderer your footprints are the path, and nothing more.
Wanderer, there is no path, it is created as you walk.*

*By walking, you make the path before you,
And when you look behind, you see the path which
After you will not be trod again.*

Wanderer, there is no paths, but the ripples on the waters.

Antonio Machado

There is no path, we lay down the path in walking. That is the good news. Indeed, since there is no path, one can make it oneself, one can innovate, one can create, one can make a difference. It is all possible. If we lived in a Newtonian, strictly causal world, a controllable world, where everything is known and measurable, then we could only 'manage' it, 'control' it. One cannot innovate, create, since everything is known. We fortunately live in a complex world, where we can lay down the path in walking. But why do we try then to manage, to control, to direct? Why would it be that innovation fails within a control paradigm?

The Living Lab is, therefore, based on a learning-by-experimentation approach, a journey of creation and discovery, with the purpose of transforming one's mindset, and of realizing an impactful prototype. Each participant in the Living Lab lays down his or her own path in walking.



Reality does not exist, it is the observer who creates reality. When a tree falls in the forest, it does not make a noise. When you are present you pick the energy of the falling tree up with your ears as a noise. Are you mindful and aware of how you observe?

*A very great musician came and stayed in our house.
He made one big mistake..., he was determined to teach me music,
and consequently, no learning took place.
Nevertheless, I did casually pick up from him,
a certain amount of stolen knowledge.*

Rabindranath Tagore

The poem of Rabindranath Tagore illustrates two additional interesting concepts. The first, which is not new, but still little applied, is that teaching only makes sense for teaching rules or facts. But they can equally easily be read if written down; in the current Internet era, obviously a lot is already written and available. It is impossible, however, to teach competencies. One cannot teach how to become a professional soccer player. In order to become a professional soccer player, one has to practice a lot. One cannot teach how to become a professional musician. In order to become a professional musician, one has to practice a lot. Learning of competency-based activities (and that is most of what we do anyway) only takes place by experience and exercise.

The concept of stolen knowledge refers to the huge importance of ecosystems, as diverse as possible, in order to create the ideal conditions for 'discovering' knowledge of which one was not aware; indeed, to 'pick up' knowledge that was previously not known, and of which one did not even know that one didn't know it. The more diverse an ecosystem is, the more potential it offers to pick up some unexpected knowledge and insight. One can learn more from different mindsets than from likeminded colleagues.

Hence in summary of these two poems:

- Learning takes place by doing and experimenting (with little scope for teaching).
- Transformational journeys are the structure of the program or the process.
- The Living Lab should be a rich and diverse ecosystem in which students, managers, corporates, public servants, researchers, young and old, with different experiences, work together in co-creation.

4.3.2. The process of the journeys

All participants in the Living Lab engage to start and walk two transformational journeys: one of co-creation of a prototype of a real solution for a real problem (in 'diverse' groups); one of personal transformation (if we are not having some introspection, we will continue to do what we always did). All participants describe in a learning contract, what they are expected to work on, to learn, which

competencies deserve attention and what contribution can be expected. The Living Lab engages in what support will be delivered in order to contribute to the transformation of the individuals. A learning log (in which participants log their progress, their learning, their discovered knowledge, the competencies they have developed, etc.) is the tool that supports the participants in their journey, but also gives insight in their learning progress. For diploma or certification purposes, the learning log is a record for justifying progress or a level reached.

The two journeys (the personal transformation and the project prototyping journey) are interwoven and feed into each other in four ways:

1. Crucial in business innovation are the personal commitment, values, drive and vision of each participant. A transformational journey will therefore only have an impact if the participants show up as they are, with their strengths and weaknesses, their human qualities, their emotions, etc. And not just as a function, a manager, a researcher, or whatever. Each participant needs to be his or her authentic me, which will allow him or her to embark on an honest personal transformation, to contribute to the group project usefully, and also honestly define the personal learning and transformational trajectory and take responsibility for its management. Authentic values-based engagement is key to the success of the Living Lab.
2. The journeys that each participant will embark on, need to be in their personal (and possibly professional) interest, in order to generate the necessary commitment. Each transformational journey is one's own experience, one's own commitment and one's own interest. The better a participant is able to meaningfully contextualize his or her journey, the more he or she can benefit from the experience. Nobody can define the program for a participant, other than him or herself. Hence each 'program' is individualized, albeit that participants work together in groups. Successful cross-fertilization between the personal and the group transformation trajectory allow the participant to optimize the transformational experience.
3. Unfortunately, during the last few years people have lost a lot of our natural knowledge concerning our interaction with the environment (social as well as biological environment). We don't use our senses as we could, and certainly not as people living close to nature do. We observe that in what we eat, what we taste, the noise levels that are common today, the urbanization and the alienation from nature. But our senses are our gateway to our environment. Hence the potential quality of our engagement with the outside world, the others, depends heavily on our capacity to fully use our senses. We have become human doings, rather than human beings. Innovation needs a correct connection with the environment in order to be impactful. We need to redevelop that humanitarian capacity (and there is certainly also an ethical dimension in there), our competence for human being. We have to consider qualities like: impact, belonging, inclusion, purpose, meaning, contribution; all

defining elements of our relationship with the others.

4. Eventually, participants learn with a purpose. On the one hand that purpose is going to feed our transformation, and the potential for successfully developing an impactful prototype. If we keep in mind where we would like to get to, we are able to decide what to do now. When Alice in Wonderland asks the cat which road to take, the cat asks where Alice would like to go to. When Alice responds she does not know, the cat says: 'Then every road is a good road.' We need a purpose, a meaning, not that much to reach the purpose, but in order to allow us to decide, right now. Whether we reach the goal is not important, and even less so manageable, since we lay down the path in walking. On the other hand, any journey is only the beginning of a lifelong transformational attitude, that will support us in the need for continuous adaptation, for lifelong learning. Transformation takes time; time gives us the potential for transformation. Time plays a constructive role in our being and becoming, as Prigogine explained (Prigogine and Stengers, 1988).

4.3.3. Competencies

While experiencing the personal journey and the professional journey, a series of competencies are developed that could be brought together under four headings.

It would go too far to elaborate here on the competencies themselves. For each of the four headings/themes of the competency-based learning approach, I will suggest a few competencies, only as an illustration, and in no particular order.

Under the 'I' theme, the emotions, the feelings, some meaningful competencies might be: sense making; leading people; mastery of the self; artistry of everydayness; impactfulness.

The 'we' theme deals with values, belonging, purpose, meaning. Some competencies worth considering are: responsibility in innovation; cross-cultural sensitivity; social intelligence; transdisciplinarity; competence of 'doing'; connectedness.

The 'it' theme or focus deals with those novel approaches and techniques that are useful in the contemporary world. A few examples are: new media literacy; computational thinking; adaptive thinking; disruptive thinking; design mindset; systems thinking. Eventually, the 'its' theme deals with the context, societal as well as technological. We live in what some would call turbulent times: geo-political, societal, climatological but also technological. We need to develop the necessary competencies to understand and be able to operate in this world of today.

The integration of those four themes, leads to a rich and authentic systemic understanding, that we can then navigate with a compass of values.

Paul Dirac, a quantum physicist, brings it all nicely together in the saying below.

Good solutions, meaningful and impactful solutions will require harmony and beauty. While one would expect this to be brought forward by artists, it's the quantum physicists that consider beauty as a criterium for truth.

*If one is working from the point of view of getting beauty into one's equation,...
one is on a sure line of progress*

Paul Dirac

4.3.4. The role of the campus in the transformational journeys

The place where the competencies are developed, is the 'campus' (as defined above): a 'space' or even the 'place' where things happen. While it is logical to see it as a physical space, it can be extended with a virtual platform in order to transcend the limits of space and time that are linked to a campus. The campus is just a place where certain activities can take place (the blue spots in figure 1 in section 4.3.1). Participants 'walk' with their transformational journeys 'through' the space and pick up some stolen knowledge. Each participant decides what to engage in, what seems most apt to feed the transformational journeys, what contributes most to his or her learning. The journeys, however, take precedence; the space is used whenever useful.

The purpose of the campus, the space, is to facilitate the participants on their transformational journeys: the development of the competencies of the creative creator. One can be creator without being creative; one can be creative without being a creator.

A campus can offer all kinds of activities that support the transformational journeys of the participants. Here again, one's imagination is the limiting factor. A non-exhaustive list of possible activities is: thematic summits, open innovation projects, sensory experience activities, AI Lab (or any other lab for that matter), kids camps, incubator, accelerator, entrepreneurial development programs, introspection and mindfulness.

4.3.5. The pedagogical approach

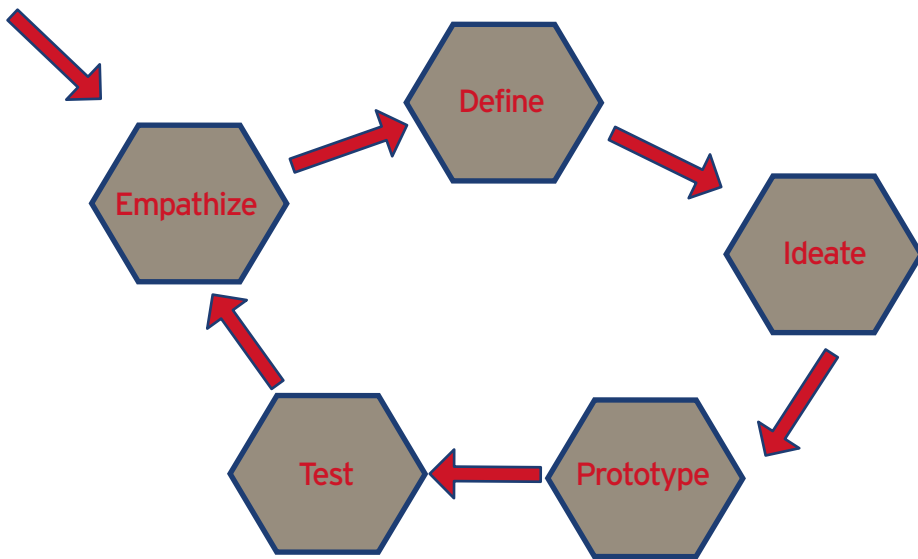
All the participants of the Living Lab embark on a transformational journey. Hence if I speak here of a pedagogical approach used in the Living Lab, in order to facilitate the learning of the participants, I refer to all participants: students, executives, researchers, and teachers. Indeed, despite the value added of such a Living Lab (compared to what we know today), and its attractiveness, innovation and transformation do not happen by accident. Just bringing (smart) people

together, even locking them up in a room, does not guarantee innovation. If they are aligned in their way of thinking about innovation, they will do what they have always done. If they do not agree, they might end up in a fight. If participants and teams want to work differently with innovation, they will have to be supported, with a method that fits the current day paradigmatic reality.

Over the years, thanks to my own research and experience, a methodology was developed that is based on a combination of design thinking and systems thinking. Participants, for both their journeys, iterate between a number of steps. They can do as many iterations as necessary. While the cycle of such iterations is suggested, participants can nevertheless define their own trajectory.

Figure 2 shows the five main steps (of design thinking), ideally, starting with an observation and empathize phase.

Figure 2 *Five steps of design thinking*



The purpose is to get as close as possible to 'the client': the person or group of people for whom we are working on the solution of their wicked problem. Next, the project is framed for a first time, within a systemic context, aiming to answer to the best of the participants' abilities what 'clients' expect. This idea is enriched with a step that we call ideation: any kind of creativity or brainstorm technique that has the potential of bringing more value to the proposal. Next a first prototype could be constructed in order to test it with a 'client'. The outcome, the learning, leads into a next cycle. Cycles are cycles of learning from and with the 'clients',

re-defining, again enriching, and constructing a next prototype.

Each of the steps in figure 2 contains a number of activities and, therefore, defines a path. As an example, let us briefly illustrate two possible learning journeys: a degree program defined as a journey (project journey), and a journey for a manager (personal transformation journey).

From the corporate's point of view, the purpose is to go through a transformation experience, while working on a real innovation project. Without going into any detail, for both journeys a certain methodology (call it the outline of a program) is given in support. Both trajectories follow the same structure (combination of design thinking and systems thinking), but both the intensity and depth of the two trajectories may differ. Both journeys follow the logic presented in figure 2.

For each step, a set of assignments is given.

In the *project journey*, the team is going to work through the project using the following tools:

- Empathize/observe:
 - Observe your clients (using pictures).
 - Interview your clients.
 - Get into the shoes of your client, developing an empathy map.
- Define/frame/identify:
 - Frame your idea using Soft Systems Methodology.
 - Draw a systemic picture using causal loop diagrams.
 - Check the impact of your ideas on the broader ecosystem (eco-design tool).
 - Visualize your project at this stage, in order to be able to share it.
- Ideate (what value can you add):
 - Use the principles of biomimicry in order to enrich your proposal, and to make it more resilient and sustainable.
 - Use storytelling to create a moonshot story.
 - Use the SCAMPER tool to test the concept of your idea.
 - Use any further ideation technique that seems interesting.
- Prototype:
 - Make a usability analysis.
 - Create a prototype that can be tested with real people.
- Test:
 - Test the prototype with real people.

This testing might give a good idea of what to do, and whether and how it could go into production. If the test results are not satisfactory, a second cycle is launched.

For the *personal transformation journey*, each individual in the team, is going to work through the realization of a personal transformation plan, using the following steps/tools:

- Empathize (in this case with yourself)/observe:
 - Start from a leadership profiling tool (any tool will do).
 - Reflect on it, and in particular pay attention to what you would like to work on.
- Identify/frame (yourself in your desired format):
 - Frame yourself within your organization; observe your actions, attitudes, behavior.
 - Make a deep dive using the '99 challenging question' (described in the theory).
 - Reflect on what are the issues at hand in your personal transformation.
- Ideate (what value can you add to your self-idea):
 - Ideate your alternative 'selves', using some ideation tools (for example biomimicry life principles).
 - Reflect on the gap between the 'is' and the 'want to be'.
- Prototype:
 - Define your own transformational plan with activities and milestones.
 - Anticipate the difficulties you can identify.
 - Design daily rituals that will help you to stick to your agenda.
- Test:
 - Test your transformation plan by executing it, and continuously reflect on it.

The two journeys can be mentored individually and/or at a group level. Peer feedback plays an important role, in both journeys. This kind of journeys can have (dependent on the choice of the involvement, duration, impact, etc.) different outcomes:

- A meaningful prototype of an innovation of interest to the company (with minimum time involvement, and maximum creativity);
- By experimentation, acquaintance with an agile innovation approach, useful in general (and not only for innovation);
- A personal transformation (to become a more impactful innovator);
- Some 'formal' learning, fitting a route of lifelong learning;
- Certification or even diplomas, in our case via the Career Academy;
- Entrepreneurship in the company.

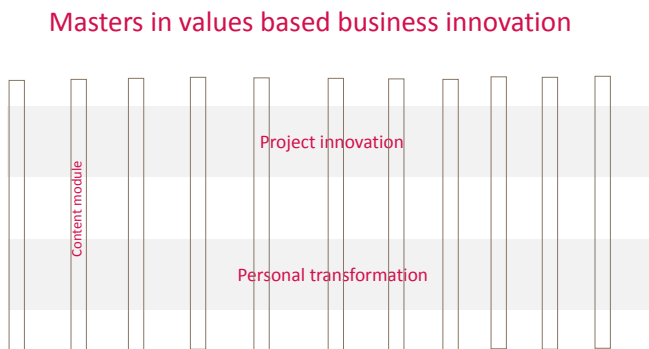
Each journey, for each participant, can be highly individual, while working in a group and experiencing the benefits of the collective intelligence of that group. The participants learn what needs to be learned, when it is needed, and that has immediate relevance and impact. Neither the school, nor the participants need to know what they don't know (which they don't know anyway) and what they would

like to learn consequently. The project will make clear what learning is needed. 'You only know what you don't know when you need it.'

4.3.6. What to expect for learning, courses and minors?

An example of the possible use of the Living Lab could be what, for instance, a master degree (in business innovation, obviously) would look like, according to these principles and operating within a Living Lab. For the Rotterdam Region, and for the contribution of the Rotterdam University of Applied Sciences to business innovation in that region, such a master's degree would be a real value added. Any degree program (on any level) can be organized along the same principles. The backbone of any program, is two journeys that are interwoven and move along in parallel: an agile innovation project (in group) and a personal transformation journey. Both those journeys are longitudinal (they go over an extended period of time). They are foundational for the other activities and are the glue that keeps the entire program together.

Figure 3 The framework of a master program



The two backbone elements (comparable to what is described for the executive's learning journey) can be enriched with a number of one-week face-to-face experiences of co-creation in cooperation with experts in different fields/ disciplines. This is where different schools/partners, can each have their particular focus, covering one of the societal challenges/themes that matter. Experts can be internal or external to the organization. In an indicative way, one could think about some of the following themes (and hence the following one-week sessions). Each student would select and follow for instance five of those:

- Climate and related energy issues;
- The data driven society and AI;
- Equality and inclusion: the risk of a polarized society;
- Purposeful (values-driven) innovation;
- Agriculture and food security;

- One planet concept;
- Urbanization, infrastructure and mobility;
- Health and demography;
- Governance and leadership;
- Responsible finance, management and employment.

Given this focus, and the need for diverse input and ideas, it will be necessary to create an ecosystem with students, corporates and experts (schools) covering a number of different disciplines. Keep in mind that the purpose of this approach is in particular to supersede the idea of a functional model, in order to create a systemic approach, campus and hence enriched solutions to challenges that matter.

For a master's trajectory, for example, the following structure and workload could be envisaged:

- Face-to-face modules (five weeks of five days): 200 hours;
- Further learning activities (like MOOCs or other courses or seminars, could be more of the elective weeks on campus): 200 hours;
- Project work on the platform, supervised by a tutor: 300 hours;
- Personal transformation journey, partly self-reflection, partly coached: 150 hours;
- Self-study, reading, etc.: 150 hours.

4.4. What can we learn from earlier experience?

Without going into too much detail, I want to touch on five experiments that illustrate in varying degrees the approach of the Living Lab in action. It is in no way a study on the success or failure in ecosystems, innovation hubs, or the like. That is not the purpose here. The only purpose is to show the approach, and generate a few lessons from each experiment. The two examples in South Africa are running successfully. The experiments in Lyon were pilots. The innovation campus in Aix-en-Provence was not really successful, but provided interesting lessons.

Based on the pedagogical approach described, the Start-Up School in South Africa (Cape Town) runs a successful twelve-weeks program, that is mainly virtual. Enrolment is free and the participants create their own company or foundation while studying. Most of the participants have no formal training in business, management or entrepreneurship. The guided learning by doing approach, when combined with a (mentored) personal transformation journey, has a success rate of almost 100%. But more importantly, 75% of the projects or companies created continue to run after 'graduation'. Beginning of 2020, the CEO of this venture was elected, from a worldwide audience, as one of the Influential leaders' class by the AACSB global business education network.

Lessons learned from this project:

- The participants need to start their own journey, and, within a given frame, define their own learning path. In this case the motivation was obviously the desire to create one's own company.
- The learning log is a useful device to support the learning progress.
- The approach and method matter for the result.
- The role of the (virtual) community is crucial.

At the Graduate School of Business of the University of Cape Town, the master of Philosophy in Inclusive Business Model Innovation now runs for almost seven years on the exact same principles. There are twice as many interested participants than there are places. The purpose of the masters is to have participants come on board with a real problem and with real people that own the problem. Selection takes place based on the solidity of the project and on its potential impact. During the year the participants work on their two transformational journeys, and they get four weeks of face-to-face courses (design thinking; systems thinking and values; how to make a business plan; pitch training). They spend most of their time in the field, with the people that own the problem. At the end of the process the evaluation is done on the basis of a detailed learning log, and of the success of the project (also evaluated by the problem owners). While the success rate is a bit lower (80%) than in the other example, these projects almost all continue in real life.

Lessons learned from this project:

- The value added of working on real projects that matter, in co-creation with those people that 'own' the problem, is a key motivator.
- In a one-year trajectory, it is important to keep the focus, pace and progress. Method and learning log are important.
- What keeps participants connected, is their personal motivation for the project.
- The limitations of the ecosystem (limited resources), limit the participants in their progress. The more the ecosystem is rich and diverse, the more opportunity for learning it contains.

At EMLyon Business School I ran two experiments. A virtual platform supported the journeys (guiding the methodology), including a semantic machine that was able to curate content on demand and as was needed on the spot. We ran a one-week course for master's students, where they had to work on the 'business school of the future'. In one week time they came up with really original ideas. But more importantly, they were delighted by the approach and agreed that it should be a mandatory experience for all students. See the YouTube video 'How would you imagine the business school of the future ?' (<https://www.youtube.com/watch?v=oj5-nXNNavE&feature=youtu.be>) for some of the feedback from the students.

Lessons learned from this project:

- If delivered in a pressure cooker format, a different process is needed and stronger concentration of the participants (the hackathon effect).
- The pedagogical approach fits the expectations of today's students.
- A weak ecosystem, and a lack of engagement from the problem owners limit the quality of the outcome and, more importantly, its future deployment.
- The concept of 'stolen knowledge' that students pick up while working on their projects is impressive.

At the same school, we also ran a program in which students were asked to design their own next course. Because of administrative issues, the number of participants was limited. Eventually, It is up to faculty members to be the changemaker of this approach. The participants did appreciate it and were convinced that business schools should go much further in that direction. One of the projects was immediately implemented in the regular curriculum. While the pilot was too small to draw real conclusions, from the output it can be said that the experiment was highly motivational.

Lessons learned from this project:

- The approach does not add value if the problem owner is not involved.
- The time necessary for this kind of experimentation is often underestimated. That time is not 'additional to', but 'a replacement of'.
- Time and longitudinality (long term personal relationships) play an important constructive role, if the method is correctly applied. Time commitment is crucial for success.

Over the last five years, an interesting experiment has taken place in the nature of Aix-en-Provence. The founder of this purpose-built innovation campus (a public-private initiative) provided, besides the building, an initial investment of forty million euro to support the start-up of the ecosystem. The ecosystem consisted of roughly fifteen top French international companies (each from a different sector), an accelerator for start-ups, an incubator for young and diverse graduates, kids camps and experts. All companies were highly motivated for the project, by its potential for multidisciplinary co-working and so coming to solutions that an individual partner would not even work on (for instance the use of drones for delivery in urban areas, in order to limit urban congestion). Partners were 'chosen' for being leaders in their respective sector (for instance: Accor for hospitality; Air France-KLM for travel; Vinci Energies for energy). There was no formal link (yet) with universities, other than via individual contacts. Rather than being an inspirational campus (like the SingularityU campus in Silicon Valley), this campus had the aim to be transformational. The concept of transformational journeys perfectly fitted this purpose. While the campus is still up and running, it did not become the success that was anticipated by all parties involved.

Lessons learned from this project:

- The ecosystem plays a crucial role, not only as a consumer, but as a driver. The ecosystem is a biological entity that needs 'gardening'.
- The need for 'another' approach to innovation was fully supported by the ecosystem, but is still not easy to implement.
- As much as one needs corporates and the public sector, one equally needs researchers and students to create a vibrant 'out of the box' innovation campus. However, inside a university, this kind of Living Labs tend not to survive.
- The space, the co-location and co-creation, are important.
- An ecosystem, and the individual partners in it, need a clear methodology, or they go back to what they have always known, and always done. Things don't happen by accident.

Many of the lessons learned have helped us with the design of the Living Lab as described here. It is obvious that this approach, for pedagogical purposes, would be disruptive for most of what happens today. It is, therefore, important to start experimenting with those companies and groups of students that are most open to it. In my experience, this applies to the more mature students, later years bachelor, master and executive education students. In terms of Rotterdam University of Applied Sciences, the approach would certainly involve the Career Academy, the creation of a meaningful and impactful master in business innovation (full-time and/or part-time), and of multidisciplinary minors or a restructured format of year 3 and 4.

The Living Lab is an ideal dynamic and integrated testbed for business innovation. It will be at any moment a realistic representation of what is happening in companies and the civil society. By definition, it will be up to date in respect to the issues that are alive in the business community. As such, it is an ideal research lab, not only for a relevant research agenda to emerge, but also to provide the ideal conditions and target populations for applied research.

4.5. What role do values play?

There is not a lot of evidence of the impact of values (impact, meaning, contribution; the way we have defined it here) on business innovation. Most research and hence evidence about purposeful business, is ethics based, which is equally interesting, but has a different focus. Ethics is a branch of philosophy, that has received increasing attention from business and social activities in general. It attempts to systematize and judge behavior in a certain circumstance (a case), and it often relates to concepts of good and bad, useful or not, right or wrong, etc. It attempts to clarify what is morally right or wrong, via analysis and recommendations.

Values-based leadership is defined differently in chapter 3. As said many times, values-based leadership is a paradigmatic choice and does not fit each and every paradigm. Ethics does. It gives answers in any paradigm, since it concentrates on the analysis and judgement of an action, within the given situation. Within this approach to values, a lot of interesting research is still possible, provided we can create an attractive research approach. That is what we try to do by building and using a Living Lab, in this case using it as a research laboratory.

The approach and methodology of the Living Lab mainly serves the purpose of transforming the participants into 'creative creators', exponential leaders, leaders that can cope with the challenges of today, leaders that are able to work towards solutions for wicked problems, which is what we see as values-based leaders.

In chapter 3 I summarized the characteristics of values-based innovation:

- (Massive) transformative purpose;
- Driven by purpose and transformation;
- Success is measured by impact;
- Holistic/a-causal;
- Cooperation (open innovation);
- Ubuntu (we belong);
- Sustainability focus;
- Value added for the stakeholders;
- Humanoid management;
- People are autonomous/take initiative;
- Agile innovation;
- Minimum interaction rules;
- Trial and error/experimentation;
- Networked;
- Shared purpose;
- Leaders.

Many of these characteristics return in the way I defined the Living Lab and the approach to support the transformational experiences of its participants. This is not by accident, of course. This creates ideal circumstances to train for values-based leadership, as well as to research, in an action research approach, what values-based leadership contributes to innovation.

Meaningful experimentation for managers, students, teachers and researchers in values-based innovation needs to emulate a few (if not all) of the characteristics mentioned. In the Living Lab setting, presented here as a possible 'ideal' transformation experiment, some of the following characteristics are used as design principles:

- Driven by purpose and transformation.
- Success measured by impact.

- Holistic and a-causal in its thinking.
- Based on cooperation, open innovation.
- Sense of belonging, ownership.
- Sustainability focus.
- Autonomous participants that have a responsibility for their own transformation.
- Agility in the approach.
- Trial and error, prototyping.

In particular in the area of business innovation, by definition, a different way of dealing with the ever-changing reality, and the exponentiality of the technological evolution is needed. The compass needs recalibration, individually and within the group or company. That is where values become of paramount importance. Where exponential technologies allow increasingly the most imaginative things, at the same time, it might drive society (individuals and organizations) into an uncontrolled spin. The classical guidelines of profit, margin, shareholder value, and growth don't work in a complex world. Technology only amplifies that. Where before we were on a huge ocean cruiser, that was calmly sailing on automatic pilot to its destination, we are today on small, fast and hyper powerful boats, in an ever changing and rough sea. When the sea is calm, all boats alike showed mastership in floating (The Tragedy of Coriolanus, Shakespeare). Everybody can sail a ship on a calm sea, but....

In the next chapter, I will summarize my intended research agenda within this framework and understanding.



Far away from equilibrium, a system is most creative and innovative. When did you last bring your system, your company, yourself, far away from equilibrium? Ever wondered why it is so difficult to innovate?

5. We don't know what we don't know

5.1. Roadmap Next Economy

In its 'Roadmap Next Economy' (November 2016), the Metropoolregio Rotterdam Den Haag sketched the way ahead for this region to be successful and impactful in the next decades. The proposed Living Lab, with its educational and research dimension, fits this agenda perfectly. Let me summarize the shared vision of the Roadmap and the Living Lab.

The region needs economic renewal, focused on the current reality of a world in a fundamental transition. The Roadmap even uses the expression 'change of an era'. The region is confronted with major societal challenges, that need a fundamental change; continuous improvement is no longer good enough. Companies and government can use the upcoming exponential technologies much better, towards realizing that necessary change. While the knowledge and the competencies are present in the region, it is not always transformed into economic and societal gain. The Living Lab aims to contribute to that transformation. The Roadmap is critical about the lack of cooperation and cross-fertilization, since the new economy will be a cross-section of the current economic tissue.

The region suffers from a lack of entrepreneurial culture, and this in a society where the levels of education are in general too low. The OECD report of 2016 (as mentioned in the Roadmap) also stresses that many benefits can be gained from an intensified cooperation within a region. The new economy is based on networks of small-scale units, and is no longer based on vertical integration. We need to act, and a possible answer to the question 'how', is the creation and use of a Living Lab. In this setting, entrepreneurship takes the broader meaning that many of us would like it to have.

The Living Lab caters for at least two focus areas: entrepreneurial region and Next Society. Of course, within the Living Lab there is ample opportunity for projects in the three other focus areas: smart digital delta, smart energy delta and circular economy. In the more recent orientation of the region, and in particular in its focus on Next Education, the Living Lab seems to fit even better in that it contributes to

the fulfilment of the expectations. Let us for a minute imagine the 'post-Corona' economy and the potential that a Living Lab would have.

In order to create a more entrepreneurial region, we need to strive for a radically different economic model. The region needs to support and stimulate open innovation outside and between the classical economic sectors. Therefore, we need an ecosystem that is as diverse as possible in its participants: entrepreneurs, investors, start-ups, knowledge institutes, government. The Roadmap itself pleads for the creation of a Fieldlab ecosystem, as a way to breach with the classical infrastructure. The region understands this as the creation of a series of Fablabs, and while very useful, they cannot be the main force for a fundamental shift. The Living Lab has the ambition to go beyond Fieldlabs.

Education is too important to be left solely to the educators

(Francis Keppel)

Within the focus on Next Society, the point is correctly made for the necessity to transform the educational system itself. The Living Lab is an experiential example of this transformation. There is a real need inside the educational system to work out and experiment with Next Methods: ecosystems for entrepreneurs, based on self-motivation and personalized learning. We need to develop workable approaches for lifelong learning, and to close the gap between learning and working, in order to make continuous learning a reality. Education and companies need to cooperate on these issues. The Next Education Group correctly sees a great challenge and future in cooperation around solving wicked problems (see section 4.1). Innovation in a network of SMEs, or for any particular SME, in a period of technological challenges and a difficult economic climate, would be such a wicked problem: we do not have the clear-cut answer; we will have to co-create it. We do not even have, yet, enough of the necessary research output to support this process. In the Living Lab, students, teachers, researchers and companies work together for the purpose of experiential learning (for students and managers), co-creation of innovative solutions for the SMEs, and applied research insights. It is, in its settings and in its approach, ideally suited for dealing with wicked problems.

The Roadmap, in its concluding recommendations, correctly underlines the need to pay much more attention to systemic approaches. That requires a focus on open innovation, within a network of diverse partners, in an active problem-solving mode, and this on co-location. We need to learn to understand innovation differently, based on exploration, testing of more available opportunities, faster try-out, rapid prototyping and faster adaptation. The great opportunities of exponential technologies need to receive more attention, but this alongside a

crucial focus on the person (the human) as innovator and entrepreneur. Finally, education and corporate renewal need to go hand in hand: lifelong learning and practice-based learning finally come together.

5.2. What is the Living Lab in this context?

Let us now match the concept of the Living Lab, as developed in this booklet, to the needs and aims of the region. The Living Lab is a flexible form of cooperation, in this case using a physical space, where students, teachers, researchers, managers, employees, and the public sector work together in an open innovation mode to find solutions for wicked problems that matter, with a clear purpose to have a positive impact on the economic development of the region. This approach needs a space that can be furnished as an area for creativity, co-creation and innovation. As argued in section 4.2. the ecosystem operating within the Living Lab 'space' can be small, but would need to have at minimum one or more SMEs/ problem owners, some researchers/teachers, some students, and ideally some participants of the wider economic tissue (harbor, city, public services). The Living Lab is not a research approach 'about', it is a research approach 'with'. The co-creation of solutions is the raw material for the action research.

The Living Lab has a few aims that reinforce each other:

- To develop solutions (using the collective intelligence of all participants);
- To support the innovation of the companies and the economy with a hands-on approach;
- To support the students and employees that learn by doing and from real situations;
- To formulate lessons learned (research output) from this new form of co-creation and from the process of values-driven innovation;
- To create potential impact on political decision making in the areas of innovation and entrepreneurship.

To realize those aims, the Living Lab, has the following tools:

- Co-creation and innovation in cooperation with companies and to the benefit of those companies, which accompanies the transition of the region towards the Next Economy;
- Relevant applied research;
- Learning-by-doing, action-learning for students (and for credits) (Next Education);
- The potential, for employees, to define relevant learning trajectories for themselves that, via the Career Academy, could lead to certificates or diplomas (lifelong learning).

The key to success is that we are all engaged in a different, more flexible way of innovation, using the diversity of knowledge and experience in the project groups. It is based on the commitment to undergo the necessary transformation, and discontinue doing what we have always done. It implies that participants are willing to be self-critical and introspective. Learning takes place by doing, in action, in a peer group in which everyone gives feedback to everyone. In this way it will be possible to activate the collective intelligence of the groups, which is so much more than the simple sum of the individual insights and competencies. This will lead to innovation that surpasses what each individual (company) in isolation would be able to realize. The result will be much more than the simple sum of individual inputs. Therefore, it is crucial that each participant is able and willing to take responsibility for his or her experiential journey.

All this is not easy. So we need to support these transformations with a thoughtfully designed and tested method, based on a combination of design thinking and systems thinking, as argued in detail in previous chapter.

In summary, the anticipated outcome is a transformation of individuals becoming successful key players in the new economy, and this for managers, entrepreneurs and students (future managers). At the same time, the learning endeavor itself, and the creation of innovative solutions, is an equally important contribution to the new economy. Individuals and companies evolve jointly and in co-creation towards becoming impactful players in the new economy. Values and positive impact are the lighthouse of our innovation. The approach is based on design thinking and the focus is on systems thinking. We can only find sustainable solutions if we start to understand the issues at hand within their full, interconnected and complex environment.

In the second part of the year 2020, we will run a small pilot in the form of a test-minor. For illustrative purposes only, let me formulate what it will look like. Within a specific space (room) that is equipped for creativity sessions, has desk space, open meeting space, white boards and the like we will bring together the parties necessary for a successful ecosystem. First, we have ten honors students that are interested in values-based innovation. Most of them have a focus on the circular economy. We will bring in two SMEs, that each have a problem for which they want to explore solutions in an open innovation structure. Besides the problem, the SMEs will also contribute a certain amount of time of some employees over the entire period. The facilitating team consists of a lecturer, a senior lecturer and an account manager, complemented by myself as research professor. Two days of the week, the students will work in the dedicated space, all together, with the faculty and the corporates. They will have three days for fieldwork or desk research.

Participants (students, corporates, faculty) will keep their individual learning log (see chapter 4 for detail), that has a pre-structured format, to help in identifying the lessons learned while on the journey. There will be two teams of roughly six people, each dealing with one project. The common sessions are sessions of co-creation, but will equally be used in order to introduce the next steps of the method to follow (see section 4.3.). Feedback can be given continuously, live or via internet-based tools such as TEAMS.

In an action-research mode, the research professor will gather the observations, in order to bring it out via different channels: for instance, a live blog, and at the end a regular publication. Other anticipated outcomes are the two prototypes of solutions for the SMEs, the learning of the students (illustrated by their learning log), the learning of the corporates (illustrated by their learning log) and the same for the faculty. The learning of the students will contribute towards their diploma. The next step will be to scale this pilot.

We cannot solve our problems with the same level of thinking that created them

(Albert Einstein)

5.3. The Living Lab as a research tool

The Living Lab, as described above, is a living emanation of what applied research could be. It definitely serves a multitude of purposes (Next University, lifelong learning, agile innovation of projects, personal transformation), but its simple experience, in itself, gives an experiential definition of what applied research could be.

The research agenda this professorship would like to work on has two main interest areas:

- The Living Lab itself, as a pedagogical innovation and an experiential setting for applied research in business innovation (viability of Next University, lifelong learning and personal transformation);
- The role that values-based leadership plays in business innovation. How do the characteristics of values-based innovation (section 3.5) contribute to successful agile innovation as experienced by the end user? What role does personal transformation of the participants play in that success?

While the Living Lab is a tool in this research agenda, it is also the subject of study. Research 'of' the Living Lab is the pedagogical moonshot that my professorship will serve. Research 'within' the Living Lab will give interesting insights in how a

more systemic, multidisciplinary, agile innovation approach, driven by values and impact, can help SMEs to be ready for the exponential revolution we envisage. Rather than studying this theoretically and empirically, this will be action-researched, giving immediate illustration of what works (design principle of scientific validity).

5.4. The research agenda of the Values Based Leadership professorship

The *first theme* of my research agenda, is to research whether a Living Lab indeed contributes to its different purposes and gets value added out of the co-creation in the interaction that takes place. The Living Lab described here is a new phenomenon, and it is interesting to research and validate its contribution, its impact, and how it contributes to solving the issues of the users. For the SMEs, this approach would provide solutions, possibly faster, richer in content and more experienced as owned by the SME. For the learners, it would give them easier, more multidisciplinary learning, of subjects they would normally not even consider in their curriculum. It should give them an understanding of and approach to the use of design thinking and systems thinking. It will allow us to gather feedback from users, feedback we even cannot think about right now. It will allow us to learn lessons (and generalize them) about what the Next University should look like in practice, and not only in theory.

The Living Lab needs the cooperation of companies, students, teachers, and researchers. Discussions are underway with SME networks in the Spaanse Polder and the network of Singularity University in the Rotterdam area. The researchers are some of those currently associated with the Research Centre, as well as a few faculties that have shown an interest in using the Living Lab as a test environment for their minor programs. The Career Academy (a pilot in January 2021), the Werkplaats (a pilot with honors students in September 2020), some keen minors and management (currently seeking to restructure year three and four of the bachelor's program of Hogeschool Rotterdam Business School) have all shown an interest in the Living Lab, and discussions are under way.

I prefer to define my research agenda by four research hypotheses and one open-ended research question. Indeed, a research question limits the researcher to the elements mentioned in the question. For an action researcher, with a clear multidisciplinary focus, a research hypothesis allows for exploration. Rather than doing 're-search', as searching what has already been searched (which makes that one finds what has already been found), I would like to explore new promising fields.

Hypothesis 1. Open innovation in a diverse ecosystem contributes to faster innovation of participating SMEs, and faster and more impactful learning for participating students.

This research hypothesis will be examined by following both managers and students in their projects, and comparing the results with the research already published (as far as possible in comparable situations). What are the key success factors to contribute to faster and meaningful agile innovation in SMEs, from the point of view of the SME? Can a number of key success factors be identified that make working with a Living Lab more interesting for the SMEs? Are the results of this Living Lab approach, both the innovations themselves, and the learning of the employees from this Living Lab approach, of a nature to attract corporates and in particular SMEs to being part of such a Living Lab?

The same type of question could be researched amongst the students and faculties participating in this experiment. Does the approach facilitate the learning of the students, according to them? Does the approach make teaching/facilitation easier, and in particular in dealing with multidisciplinary situations? Is this approach a road to the Next University, at least for the students and faculty?

Hypothesis 2. Rapid prototyping (design and systems thinking) is particularly efficient for innovation in SMEs, certainly in the current situation of disruptive economic change.

The Living Lab as described, follows a certain methodology: the combination of design thinking and systems thinking. While this methodology has been tested successfully in a number of experimental settings, more evidence would be welcome in order to be able to generalize it. Would this approach be one that could help in particular SMEs to faster, more agile innovation?

The approach defined and its accompanying tools will be used to support the innovation of the SMEs. Can we define, out of this experience, a series of practical recommendations that allow SMEs to apply these somewhat complex methodologies? Can we test and validate a straightforward approach easily usable in SMEs? What does such a methodology look like?

Researching these two questions contributes to the Roadmap's desire to transform the educational system itself, in order to make the region more innovative, and it is expected to yield practical suggestions on how to do so.



You don't innovate what exists. So yes, all innovation is impossible before being innovated. Don't start there. Start by dreaming big. The others will take care of limiting you anyway. Don't do that yourself.

While many relevant research hypotheses could be defined in respect to the *second main interest area* (the role of values-based leadership in business innovation), I will suggest just the following few. These research themes could be considered as low hanging fruit, potential for more immediate publications. As argued in this entire booklet, values are the lighthouse in the disruptive sea of exponential evolution, for which we need exponential leaders to innovate, with more impact and added value. Given the nature of those exponential technologies, of exponential organizations but also of the true nature of values, we need an adapted research approach to research this. The Living Lab fits the research setting that is needed. It should allow us to do meaningful applied research on values-based leadership in business innovation.

The Roadmap pleads for a radically different economic model that better fits the economic reality of today. As argued here, a different paradigm is needed, and one that is constructed on an integrated systems approach. If we are able to build a simulation model, based on (for instance) agent-based simulation, on integrating all aspects of this new economic reality (as published and researched), and on the SME's attitudes towards innovation (see earlier work of the Research Center), we not only integrate previous research into an operational model, but we also create deep insight in innovation in the SME market. The simulation gives insight in what are the drivers of the system. What drives the development of SMEs in particular? It would allow to visualize the claim that values-based leadership is a paradigmatic choice (operationalized in this simulation), and not just a dimension of ethics.

Hypothesis 3. An agent-based simulation model of the SME's innovation reality and aspirations, in its interaction with values, impact and technological evolution, will give an integrated understanding of the issues at stake. It will allow simulations around the role of values in business innovation.

This agent-based simulation (created in cooperation with students and researchers of the Knowledge Center Creating010) will be based on previously published research of the Research Center, and in addition by interviewing SME managers for complementary views. Furthermore, other academic publications on the subject, and theory on the role of values in innovation is used. While interesting research output, it is equally a tool for policy formulation. Though such a simulation model can be built without the use of the Living Lab, the latter might give it an extra dimension.

The Roadmap suggests the power of open innovation and obviously, the Living Lab is an ideal experiment to research around open innovation.

Hypothesis 4. In an open innovation approach, purpose and transformation are the main drivers for exponential innovation.

The activities of the Living Lab will give ample data allowing us to validate this claim. Purpose and transformation are the words that the Roadmap uses, but it is evident that purpose and transformation are the translation of a series of basic values. A question related to the hypothesis would be:

Research question 1. What values drive impactful innovation in an exponential world?

A number of questionnaires and tools (detailed and shortened versions) exist that were researched and published in my earlier work. We can use those questionnaires to explore this question in the case of innovation as experienced in the Living Lab. A very first test with a shortened version, with the aim to explore future readiness of SMEs, was undertaken with honors students, at the end of 2019. The results have been written up.

This research agenda is an open agenda. It can change, it can take opportunity of the experiments of the Living Lab, and it is oriented towards exploration, more than towards validation.

5.5. Impact

The potential outcomes are multiple and of a different nature (research, learning, innovation). The anticipated impact of the professorship can be expected in three main areas: education and learning; research; economy, companies and society.

Impact in respect to education and learning:

- We experience with, and define, what solution-based learning can be.
- We learn from and about the dynamics of ecosystems and Living Labs.
- We experiment with new formats of learning-while-doing in active co-creation with corporates.
- We contribute to the Next Education concept of the Roadmap and hence to the Next Education model of the Rotterdam University of Applied Sciences.

Impact in respect to research we want to contribute to the Next Methods for innovation and research, in particular:

- We contribute to a deeper understanding of the role of values in business innovation, and in particular dealing with wicked problems.
- We apply and research the usefulness of an innovation approach based on design thinking and systems thinking, for agile innovation in complex corporate situations, in particular for the SMEs. We anticipate the outcome of a workable methodology.
- We create case evidence, that can be published and shared.
- We contribute to defining an area of research around innovation in an exponential economy, driven by values, integrating different orientations as we know them today. We foster multidisciplinary research.

Impact in respect to the economy, companies and society:

- We contribute to the development of agile innovation in the SME economy, and as such of the Metropoolregio Rotterdam Den Haag.
- We contribute to meaningful lifelong learning in values and business innovation.

Science cannot solve the ultimate mystery of nature. And that is because, in the last analysis, we ourselves are part of nature and therefore part of the mystery that we are trying to solve

(Max Planck)

Ultimately, what we aim to do is as much the creation of a research device, as it is a contribution to the needed innovation of our educational system. We don't know what we don't know, and we only know what we don't know when we need it. Let us lay down the path in walking and while doing so, discover what we don't know, in order to use the collective intelligence of teams with the purpose to contribute meaningful solutions to real problems.

How can we create a world that is humane on purpose, and not by accident? I trust my professorship will contribute to that goal.

5.6. Through the lens of values: what do we see?

Last but not least, I want to re-iterate the indispensability of a values-based leadership approach, as a fundamental concept in business, and underpinning the Living Lab.

Values-based leadership is based on an impactful transformative purpose. Values-based leadership dreams big and meaningful. It is driven by purpose and transformation, and no longer by control. It measures its success by its (positive) impact and in best cases even rewards for that outcome. It is holistic in its thinking and understanding, and it is a-causal. It accepts that causality does not exist in the managerial world of innovation. Rather, it accepts the paradigm of complexity as the leading organizational principle.

Values-based leadership is based on cooperation, and in the realm of innovation, on open innovation. Without naming it as such, it subscribes the principles of Ubuntu: we are, since we belong. It considers all and everyone to be connected. This is in clear contrast with the 'I think, therefore I am' mentality of our western societies. Values-based leadership moves from the focus on 'me' to the focus on 'we', and this on an individual as well as on a corporate level. Values-based leadership has therefore a sustainability focus, a long-term focus. It aims to add value for all stakeholders.

Values-based leadership shows humanoid management (and it is a bit odd that this needs to be mentioned). Employees have an autonomy and they can take initiative. Teams function on the basis of minimum interaction rules, and not detailed process guides. Activities are networked, based on shared purpose.

Values-based leadership uses agile innovation as a managerial approach and gives way to trial and error, and to experimentation. Learning is the outcome that is monitored. Contribution is the cherry on the cake. Values-based leadership indeed needs leaders, not bosses. It contributes not only to become successful individuals or organizations, but it equally contributes to a world that fails less. In the words of Indira Gandhi: you must be the change you wish to see in the world. That is what will give the Rotterdam University of Applied Sciences (but any educational institute for that purpose) the opportunity to change the face of business.

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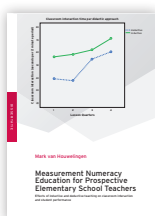
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Notes

Walter Baets

Innovation through the lens of values

You don't know what you don't know

You only know what you don't know when you need it

Values-based leadership is based on an impactful transformative purpose. Values-based leadership dreams big and meaningful. It is driven by purpose and transformation, and no longer by control. It measures its success by its (positive) impact and in best cases even rewards for that outcome. It is holistic in its thinking and understanding, and it is a-causal. It accepts that causality does not exist in the managerial world of innovation. Rather, it accepts the paradigm of complexity as the leading organizational principle.

Values-based leadership is based on cooperation, and in the realm of innovation, on open innovation. Without naming it as such, it subscribes the principles of Ubuntu: we are, since we belong. It considers all and everyone to be connected. This is in clear contrast with the 'I think, therefore I am' mentality of our western societies. Values-based leadership moves from the focus on 'me' to the focus on 'we', and this on an individual as well as on a corporate level. Values-based leadership has therefore a sustainability focus, a long-term focus. It aims to add value for all stakeholders.

Values-based leadership shows humanoid management (and it is a bit odd that this needs to be mentioned). Employees have an autonomy and they can take initiative. Teams function on the basis of minimum interaction rules, and not detailed process guides. Activities are networked, based on shared purpose.

Values-based leadership uses agile innovation as a managerial approach and gives way to trial and error, and to experimentation. Learning is the outcome that is monitored. Contribution is the cherry on the cake. Values-based leadership indeed needs leaders, not bosses. It contributes not only to become successful individuals or organizations, but it equally contributes to a world that fails less. In the words of Indira Ghandi: you must be the change you wish to see in the world. That is what will give the Rotterdam University of Applied Sciences (but any educational institute for that purpose) the opportunity to change the face of business.