EXPLORING THE CULTURE OF OPEN INNOVATION: TOWARDS AN ALTRUISTIC MODEL OF ECONOMY

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EXPLORING THE CULTURE OF OPEN INNOVATION: TOWARDS AN ALTRUISTIC MODEL OF ECONOMY

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Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2018

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN: 978-1-78743-790-6 (Print)
ISBN: 978-1-78743-789-0 (Online)
ISBN: 978-1-78743-979-5 (Epub)

To our colleagues at the EU Open Innovation Strategy and Policy Group and the Innovation Value Institute who have helped to raise the cultural foundations of Open Innovation 2.0.

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Acknowledgements

Like the seed of the tree, the culture of open innovation is the seed of the future. The search for the origins of that culture of open innovation leads us towards an altruistic model of the economy. We have invited a widespread group of 'cultural sowers' to give us their points of view in light of the discussion we develop in Chapter 1. We express our thanks to them for accompanying us with dedication and their rich contributions on the intellectual journey we undertake in these pages.

The valuable advice received from John Edmondson and Tim Feest, our language editors, has enriched the text. We thank them for their passionate commitment.

Special thanks are due to the University of Maynooth which allows us to continue our research work.

The Innovation Value Institute of Maynooth University and the EU Open Innovation Strategy and Policy Group are communities of innovators who believe in the cultural values of open innovation for altruistic purposes. They are privileged spaces for debate in the spirit of transdisciplinarity that animates its culture of innovation. We dedicate this book to our colleagues.

Piero Formica and Martin Curley
January 2018

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Foreword

This important volume, *Exploring the Culture of Open Innovation: Towards an Altruistic Model of Economy*, is a vital and stimulating contribution to our understanding of open innovation and how it can be fostered and promoted. Curated and edited by two of the most prominent scholars in the field, with strikingly original and insightful contributions from leading thinkers, the breadth and diversity of perspectives offered are the book's greatest strength.

Exploring the Culture of Open Innovation considers how open innovation is changing, accelerating and pervading, fuelled by the transformative power of digital technology and advances in the science and art of innovation. The work presented represents an important shift in thinking: as the Quadruple Helix conceptualization of innovation systems (academia, enterprise, state, civil society) emphasizes the role of the citizen, this volume foregrounds citizenship and culture as key to our understanding of the nature and process of open innovation.

The power and agency of the citizen, and how that agency is shaped by culture, define a society and its capacity for sustainable innovation. This book causes us to think more about the nature of the society in which open innovation can flourish, and the importance of pluralism, dialogue and democracy. We are prompted to value the voice of the individual, cherish the spark of creativity that emerges from the different charges of distinct cultures and see the extraordinary benefits of the free and open flow of people and ideas.

These chapters cause us to reflect on the influence of culture (whether expressed at the level of the individual, the organizational collective, the city, the province, the state and the global region), and how innovation is shaped by and reflexively shapes those cultures. More widely, open innovation is a means of challenging and redistributing power and, in that context, the unique capacities of those who speak the language of more than one discipline and access the wisdom of more than one culture are privileged.

The direction taken by this book, to value the utopian and altruistic, resonates with the concerns of learners in the twenty-first-century university. It is a source of optimism that the modern learner is keen to explore the insights, approaches and tools of different disciplines, the

shades, nuances and riches of different languages, the practices, artefacts and wisdoms of different cultures, and above all the joys of their intermingling. It is with great excitement that we realize that education for open innovation, and hence for individual and societal well-being, fosters such divergent curiosity. It is challenging for educators and educational systems to support such divergence systematically, but the rewards are extraordinary. This volume supports the efforts of any actor who seeks to support open innovation and realize its benefits.

Philip Nolan
President, Maynooth University
Maynooth, Republic of Ireland
April 2018

Preface

In his 1891 essay *The Soul of Man Under Socialism* Oscar Wilde wrote, 'A map of the world that does not include Utopia is not worth even glancing at, for it leaves out the one country at which Humanity is always landing. And when Humanity lands there, it looks out, and, seeing a better country, sets sail. Progress is the realisation of Utopias' (Wilde, 1915, pp. 28–29). And, not to be outdone by Oscar Wilde, the Argentinian poet Juan Gelman, in a speech given on 27 September 2003 in acceptance of the Lerici-PEA Prize, said, 'Maybe the function of Utopia is found in its failure, and after the failure each time a better one is born, the function is found in its being more cause than effect, the engine of a voyage towards an horizon that always recedes by one step, after each step forward of humanity'.[1]

The words are high-sounding, and this is what they are meant to be. This book – *Exploring the Culture of Open Innovation: Towards an Altruistic Model of Economy* – perhaps sounds, in its sub-title, a trifle utopian. But, after the recent failures of economics, we need to direct our eyes towards different horizons. The 'failure of economics'? – yes, and the 'Queen question' pointed to that failure: Queen Elizabeth was visiting the London School of Economics in November 2008, right in the middle of the turmoil on the international markets, and posed an innocent question: 'Why did nobody see it coming?'.[2] And, now, the Queen could pose another question: 'Why did nobody see the wave of populism coming?'. Both 'Queen questions' – the actual and the putative – are aimed at two distinct failures of the standard economic models: the lack of understanding of the interactions between financial conditions and the real economy on one side and the culpable ignorance of the effects of growing inequality on economic activity on the other.

For several years now those engaged in the field of economics have come to realize that the cogs and wheels of *homo oeconomicus* do not reflect what happens in the real life of *homo sapiens*. This realization has given birth to 'behavioural finance', a branch of economics that is,

[1]See http://www.lericipea.com/ for details of the Lerici-PEA prize.
[2]See, for example, https://www.ft.com/content/50007754-ca35-11dd-93e5-000077b07658

however, essentially 'micro', and does not face up to more fundamental questions about what makes an economy tick.

The concept of 'open innovation', around which this book revolves, sets out to describe and promote the conditions that foster a more collaborative and creative economic environment. It does so being mindful that such conditions are also essential for mending and stitching a social fabric that has been torn by recession and inequality.

Anthropological studies have highlighted 'collaboration' as the essential trait which led to man becoming the dominant species on the third planet. We have to rediscover this trait in our economic systems – it is well known in the famous 'industrial districts' of Italy, where a peculiar mixture of competition, collaboration and emulation, through the sharing and exchange of ideas – even with potential rivals – carries the day. In his 1890 study *Principles of Economics*, Alfred Marshall could observe, even then, that in the industrial clusters,

> The mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously. Good work is rightly appreciated, inventions and improvements in machinery, in processes and the general organization of the business have their merits promptly discussed: if one man starts a new idea, it is taken up by others and combined with suggestions of their own and thus it becomes the source of further new ideas. And presently subsidiary trades grow up in the neighbourhood, supplying it with implements and materials, organizing its traffic, and in many ways conducing to the economy of its material. (Marshall, 1890, p. 332)

Nothing is new under the sun. As Piero Formica reminds us, the Renaissance *bottega* (workshop), the 'ancestor' of today's innovative co-working spaces, was an open culture crucible 'in which master artists were committed to teaching new artists, talents were nurtured, new techniques were at work, and new artistic forms came to light with artists competing among themselves but also working together' (Formica, 2016).

The dichotomy between individual creativity and teamwork is largely unresolved. Finding the right mixture is a work in progress. One negative extreme can be evoked by the biting irony of Monty Python in the film *The Life of Brian*:

> BRIAN: You've got it all wrong. You don't need to follow me. You don't need to follow anybody! You've got to think for yourselves. You're all individuals!
>
> CROWD: Yes, we're all individuals!
>
> BRIAN: You're all different!
>
> CROWD (in unison): Yes, we are all different![3]

The other extreme belongs to a utopia which reproduces at the national level the best features and best practices of the best 'Valleys' and 'Districts' of our world.

Stefano Mancuso, a scientist with the University of Florence, operates at the forefront of 'vegetal neurobiology' and sees the design of open innovation, a design that looks to the future responding physiologically to changes in the environment, as comparable to the architecture of plants whose lifestyle is cooperation 'without organs or command centres'. This reminds us of a wonderful book by Eugène N. Marais, a South African naturalist. *The Soul of the White Ant*, published in 1937, is a passionate, insightful account of the world of termites, where unconscious, genetically entrenched collaboration is at the centre of incredible engineering feats. The extraordinary psychological life of the termite led Marais to formulate his theory that the termite nest is similar in every respect to the organism of an animal and the whole is more than the sum of the parts: namely, it is the 'soul' of the termite colony.

Many fascinating contributions appear in this present book. Edna Pasher and her co-authors offer case studies of open innovation in action, in Haifa and Bremerhaven. In Haifa, the municipality identified the need to create better collaboration among all stakeholders in the education system. The concept of 'communities of practice' was introduced, encouraging stakeholders to volunteer to improve processes that would benefit the children in their neighbourhoods. 'We believe', Pasher et al. write, 'that bottom-up ideas passionately led forward by people who care enable better communication and, hence, a better learning process. With the help of those passionate volunteers we created more than 100 educational communities in the spirit of the African proverb "It takes a village to raise a child"'.

[3]See http://www.montypython.com/film_Monty%20Python%27s%20Life%20of%20Brian%20%281979%29/14 for details of *Life of Brian*.

Another contributor, Leif Edvinsson, describes the many-faceted 'experiential value' at the centre of the gaming, media, or fashion sectors: a value for which metrics can be formulated. By doing so, with a systematized approach it will be possible to navigate this intangible, soft dimension of intellectual capital. In 1494, Fra' Luca Pacioli, a great friend of Leonardo da Vinci, invented double-entry accounting: but another value, the experiential one, can be inserted into the balance sheet, thus updating the 1494 traditional one-dimensional accounting practice which, today, is increasingly distorting our view. This approach goes beyond accountancy: on the level of society as a whole it will also provide us with the means to navigate the uncharted waters of societal and social innovation.

In his chapter, 'The evolution of business species: a Darwinian metaphor', Vincenzo Nicolò addresses the possibility that open innovation will lead towards an altruistic model of the economy. Currently, the allocation and delivery of resources occur, in most cases, through competitive mechanisms that rely on the self-serving behaviour of economic agents. The outcome? Inequality and the concentration of power and wealth in the hands of increasingly narrow minorities. But, Nicolò argues, a different outcome is not impossible….

Jay Mitra proposes a novel form of entrepreneurship and offers a conceptual framework for a better understanding of the emergence of 'citizen entrepreneurship'. This is a concept that refers to a unique form of the democratization of opportunities, combining, recombining and mobilizing resources among users and producers: the outcome is a citizen-led system of governance of the entrepreneurial process. Consumers, intermediary users and producers share knowledge, resources, ideas and technologies.

Bror Salmelin describes the transition from single-helix roadmap innovation to Open Innovation 2.0. While innovation is about making things happen in new and better ways, a substantial take-up is always part of the process.

In Open Innovation 2.0, all four stakeholders (industry, academia, the public sector and the users/citizens) are seamlessly integrated into the process. So, we can see at an early stage how developments are shaping or are being taken up by the end users; often, the end users also have a co-creator role. The development track therefore has a higher success rate, 'and the feedback from the (emerging) market is rapid: fail fast – scale fast'.

Another contribution of particular interest is that from Diego Matricano, who sets out to summarize 'the state-of-the-art of

open-innovation culture at social, organizational and individual levels' and who considers 'how an OI culture developed at company level may serve to drive its development at the social and individual levels'. It is possible that organizational open innovation culture will end up driving the development of social and individual cultural settings. Many companies worldwide are currently involved in open innovation processes through which they aim to collect innovative insights and ideas from the crowd. Is it possible that an open innovation culture already exists is widespread and is shared among subjects involved in knowledge ecosystems? Perhaps so; but only if the context supports open innovation, and if the crowd is inclined towards it, can open innovation processes be successful.

Open innovation is a horizontal approach that aims to transform not only the economy but also polity and society. An interesting example is provided by a recent form of financing: crowdsourcing. Peter Robbins looks beyond the purely financial attraction of crowdsourcing (a way to provide capital to small borrowers while bypassing the banking system and the stock market) and sees it as a means of harnessing the 'wisdom of the crowds', collecting ideas for improving the social fabric and societal infrastructure. A past echo of crowdsourcing can be found in a famous phrase from John Kennedy's inauguration speech in 1961, on the first day of his Presidency, as quoted by Peter: 'Ask not what your country can do for you; ask what you can do for your country'.

Fabrizio Galimberti

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Chapter 1

In Search of the Origin of an 'Open Innovation' Culture

Piero Formica and Martin Curley

Abstract

In the knowledge economy, greater togetherness is the prerequisite for innovating and having more: selflessness extends scope while selfishness increases limitations. But human beings are not automatically attracted to innovation: between the two lies culture and cultural values vary widely, with the egoistic accent or the altruistic intonation setting the scene. In the representations of open innovation we submit to the reader's attention, selfishness and selflessness are active in the cultural space.

Popularized in the early 2000s, open innovation is a systematic process by which ideas pass among organizations and travel along different exploitation vectors. With the arrival of multiple digital transformative technologies and the rapid evolution of the discipline of innovation, there was a need for a new approach to change, incorporating technological, societal and policy dimensions. Open Innovation 2.0 (OI2) – the result of advances in digital technologies and the cognitive sciences – marks a shift from incremental gains to disruptions that effect a great step forward in economic and social development. OI2 seeks the unexpected and provides support for the rapid scale-up of successes.

'Nothing is more powerful than an idea whose time has come' – this thought, attributed to Victor Hugo, tells us how a great deal is at stake with open innovation. Amidon and other scholars have

Exploring the Culture of Open Innovation: Towards an Altruistic Model of Economy, 1–54

ISBN: 978-1-78743-790-6

argued that the twenty-first century is not about 'having more' but about 'being more'. The promise of digital technologies and artificial intelligence is that they enable us to extend and amplify human intellect and experience. In the so-called experience economy, users buy 'experiences' rather than 'services'. OI2 is a paradigm about 'being more' and seeking innovations that bring us all collectively on a trajectory towards sustainable intelligent living.

Keywords: Open innovation; knowledge economy; disruptive innovation; entrepreneurial culture; organizational culture; innovation culture

Prelude: The Cultural Openness of Open Innovation

Culture – and open innovation culture is no exception – is a karst river flowing down to a very deep level beneath the superficial layer of transient cultural trends. Delving deeper, it seems that the Manichean vision of innovation – its clear division into the two opposite principles of closure and openness to the outside world on the part of the innovator (whether an individual or a team) – does not reflect the reality. As early as the 1980s, technology programmes in Sweden and Finland, for example, were developed through collaboration between businesses, universities and public authorities. European programmes also referred to openness and co-creation. More generally, in the absence of cultural openness, open innovation looks like an old wine in new bottles, to adopt Trott and Hartmann's (2009) characterization.

Even before 'innovation' entered into common usage, as Rita Gunther McGrath (2012) notes, in corporate vocabulary the word 'diversification', which meant entering new business territories, was associated with knowledge and information beyond the company walls, obtained by interweaving external links. It is therefore on a continuum, ranging from weakness to strength, from randomness to a systematic approach, from low- to high-quality ties, that open innovation unfolds.

Divested of the habit of Manichean dualism, open-mindedness enables us to view open innovation as a work in progress, far from perfect, non-linear and cyclical, with widely varying points of origin, emitting warning signals and equipped with feedback mechanisms. Open-mindedness, then, acts like a magnet in attracting talent and implementing rapid cycles of creative iteration. The result is a highly generative behaviour based on mutual responsibility and reaping mutual benefits.

The starting point for this path is to escape from the fenced-in area of economic theory, fixed once and for all in the figure of *homo oeconomicus*, a meticulous calculator who pursues his or her pleasure to the point of maximizing it. Those who leave that enclosure enter the field of economic life. Here, business people with their short-term profit-oriented commercial interests aim, together with the managers who support them, to acquire power and social prestige as well as increasingly high monetary rewards. As a dominant class, their ideas and approaches expand the bureaucracy that guarantees the status quo. But cultural openness works against this reductive tendency, seeking and finding a means of redistributing power by giving voice to scientists, engineers, technicians and 'multilinguists' (those committed to bringing together research, innovation and entrepreneurship by combining physical and natural sciences with human and social sciences). With its reliance on freedom of expression and collaboration, open innovation undermines the status quo and, therefore, sets in motion the evolutionary process of economic life.

Setting the Scene

> *O knowledge ill-inhabited, worse than Jove in a thatched house!*
>
> William Shakespeare (*As You Like It*, III, iii)

'The totality of the space outside the borders of the world is infinite', wrote Lucretius (50 BCE) in Book Two of *On the Nature of Things*. Similarly, outside the boundaries of our culture, the open innovation space is infinite. The above quip by Shakespeare's jester Touchstone in *As You Like It* may prompt us to reflect that culture – of which knowledge is a component along with language, beliefs, customs, practices, codes of conduct and institutions – is the enabler of innovation processes, especially in the open innovation mode. If the cultural norm is unhealthy, knowledge is affected. In turn, a knowledge malaise has negative repercussions on culture. Such repercussions are 'sandbanks' in the shallow waters of the convergent thinking that are not navigable by entrepreneurship (unconventional thinking). Instead, they are navigated by managerial thinking with its focus on codified and mandatory practices – such as business plans, financial projections and the guarding of innovation in the coffer of intellectual property protection.

It is the non-linear flow of divergent thinking that gives rise to new ideas such as those featuring in the open innovation framework, where the entrepreneurial process – that is, the process of finding solutions to existing problems or of recognizing opportunities to be exploited on an entrepreneurial scale through the sharing and exchange of ideas, even with potential rivals – finds ample space for action. The culture of open innovation does not sacrifice such a process on the altar of managing existing activities with proven products and services. Nor is it subjugated by the power of senior corporate bureaucrats, who play only at the table of corporate business while neglecting that of entrepreneurship.

The agility of the innovative imagination produces entirely original visions that feed knowledge with new lifeblood through digital technologies. This is how a new infrastructure – 'knowledgefication', whose force of transmission is comparable to that of the electricity networks of the early twentieth century – underpins the entire fabric of open innovation.

Bits break into the world of atoms, upsetting previously established social and economic balances. The ocean of research is crossed not only by large, bureaucratic companies with their experts on the ship's bridge – who, while asking their subordinates to be independent and creative, tell them exactly what they have to do and how to do it. That ocean is also crossed by the agile vessels of emerging innovative firms, with their key people like explorers who perceive new horizons. Reflecting on scenarios such as these, there is much debate about how to design and implement tools, techniques and practices that complement in-house competencies with external sourcing, thus overcoming the 'not-invented-here' mindset. This approach, which is broadly defined as 'open innovation' is not open innovation if it lacks a cultural background – characterized not only by a set of written rules but also by the intermingling of traditions, rituals, styles, languages and the attitudes of the protagonists.

When embedded in institutions, business and social organizations, civic communities and enterprises, open innovation agents are game changers whose culture is rooted in the creation of value, to be retained where it has been generated. Having long-term expectations, pursuing societal benefits, contributing to altruistic goals, targeting the most progressive knowledge fields and discovering new horizons through creative ignorance (see below) amid the fog of uncertainty are key aspects of their cultural background. Their interplay recalls the informal but

culturally significant environment of the coffee houses of the Age of Reason:

> In the period of Enlightenment and Rationality, the so-called Age of Reason, people like Joseph Priestley, who discovered oxygen, James Watt, the Scottish engineer who refined the steam engine, and Josiah Wedgwood, an entrepreneur who developed ceramic tableware and decorative items, would meet in the English coffee-houses to drink coffee and smoke tobacco ('drink the smoke', or 'chi yan', as the practice was called by tobacco smokers in China in the seventeenth century).Thus it was that in Europe in the eighteenth century, immersed as the continent was in the scientific method of Newtonian physics, the introduction of coffee, to be sipped in company, was volcanic in effect. Inventions and discoveries seemed to spread like molten lava, arising from conversations between intellectuals stimulated by caffeine to such an extent that the historian Tom Sandage has described the coffee houses as the Internet of the Age of Reason. Here was the starting point of the phenomenon which was to become known as the cross-fertilization of scientific, industrial and financial ideas. (Formica, 2013, pp. 123−124)

To ignore culture, with its major components of language, beliefs, customs, codes and institutions, is to leave the projection of the company to the outside world in the hands of strategy and structure alone. Even if this approach succeeds temporarily, over time the marginalization of culture will have negative effects. The culture that prepares for open innovation is not, therefore, an ornament − beautiful but useless. On the contrary, it is beautiful and useful, since it presents to us the human mind predisposed to openness to other, different minds and, therefore, inclined towards collaboration. It also shows us the virtue of altruism which, by defeating predatory behaviour, brings benefits to all players in the collaborative game. This reminds us of a comment widely attributed to Peter Drucker, the management thinker who considered himself a historical writer (Simon, 2016): 'culture eats strategy for breakfast' − and, we might add, 'structure for lunch'. Alternatively, by recalling Greek mythology, we could say that, thanks to culture, we have the opportunity to enjoy the favours of Athena, the goddess who, among her many attributes, presides over strategy.

Only subject to cultural conditions will open innovation have the opportunity to speak, in the framework of strategy and structure, the language of technical skills and methods acquired through experience and from books, articles, databases and dossiers. Last but not least, culture is the key that gives access to open innovation beyond the boundaries of business, making it accessible to society as a whole.

Borrowing from Einstein's playful comment during banter with other physicists after a famous dinner with the King and Queen of Belgium (Greison, 2016), we could depict classical innovation as apricot jam and open innovation as the grapes that make up a bunch. His joke referred to the concept of discontinuity (quantum physics), which stands in contrast to that of continuity (classical physics). And it is precisely the concept of cultural discontinuity that characterizes open innovation – a discontinuity that removes established certainties to reward Renaissance values such as dynamism, diversity and versatility, and cognitive conflict. This is a culture rooted, as the philosophers of the Enlightenment would say, in the 'art of conversation', involving the whole of society and whose horizon is, therefore, much wider than that of a culture restricted by practices mastered by experts pursuing innovation strategies. This is a culture of imagining, exploring, experimenting and creating, in a dynamic balance between introspection and open-mindedness, which touches the most sensitive chords of the human imagination projected onto future events.

'Discovery consists of looking at the same thing as everyone else and thinking something different' – this is, according to the Hungarian physiologist and Nobel Laureate Albert Szent-Györgyi (1893–1986), the preparatory way to the future, which is unfathomable, ambiguous and open to every option. One major move by a competitor, or one new technology, is sometimes all it takes to end an empire determined to grow its own fortunes rapidly by pressing down on the accelerator. Were your own current business maintained like a carefully tended garden, with neat beds and high walls, that would not be enough. Although apparently in a stable state of equilibrium, the survival of the garden would be continuously under threat from unexpected weather events or invasive pests. On the other hand, those who breathe the air of open innovation disregard the conditions for equilibrium, because they deliberately expose themselves to both the need for constant adaptation and unexpected disruptions.

The education we have received and our past experiences push us to formulate ideas along lines of thought drawn from that education

and those experiences. Thus, we are inclined to conceive novelties that are a correction, not a radical change, of the old. Revolutionary ideas, in contrast, come to us once we have left that predictable course and have embraced uncertainty and doubt. Open innovation prompts us to reject our indoctrinated thinking and proceed along a path that takes us back to a concept of the ancient Romans embedded in the verb *patere*. *Pateo*: 'I am accessible', 'I am exposed' – to imagination, exploration, experimentation and creation. It is along this open path that wayfarers create or search for opportunities and find solutions to difficult problems.

Open innovation, with its cultural attributes, is the zeitgeist of the twenty-first century, characterized as it is by its emphasis on the widest possible access to new knowledge and resources, with subsequent beneficial effects in terms of new entrepreneurial ventures. From it emerges a hybrid culture enriched by a wide range of options reflecting the various strands of open innovation. Among these are altruism and, alongside it, openness to experimentation by recourse to unorthodox and unconventional methods.

Experimentation in an open innovation environment involves a focus on exploration rather than exploitation. In the open space of exploratory experimentation, experimenters attempt to chart new courses by means of their mental agility and imaginative observation and also by mutual sharing and learning. The result is a dynamic, adaptive ecosystem that creates, channels and transforms ideas into effective innovation. In our essay *The Experimental Nature of New Venture Creation*, we highlight three stages of conceptual experimentation:

> 'Idea building' is the first in the series of experimentation. Experimenters test a rudimentary business idea, although it is not conducive to a successful new venture. This flash of inspiration has the advantage of creating a language that moves the experiment forward, thanks to the formulation of a strategy and the interaction with other teams. At the end of this stage, a prototype shall be available.
>
> 'Idea reformulation or re-evaluation' is a second set of experiments. Experimenters get from a few potential customers feedback through which the original business concept with its assumptions could be reformulated or re-evaluated.

> 'High growth potential' is featured in the third stage of experimentation, which the experimenters manage with the intention of building a bridge between the very small base of early-bird customers and the wide platform of pragmatic buyers. (Curley & Formica, 2013, p. 61)

The Culture of Open Innovation

Expanding knowledge is the key message transmitted by the culture of open innovation: a message that results from the evolution of the language of innovation and the consequent construction of a vocabulary. The expansion of knowledge is nothing but the discovery of original or unfamiliar cognitive lands. The success of the open innovator travelling through those lands is of value to the whole peer community.

'Renaissance Man': Forerunner of the Open Innovation Culture

The modern origins of the open innovation culture can be traced back to the age of change that we call the Renaissance, with those fifteenth-century geographical discoveries that opened up the horizon beyond the 'Pillars of Hercules' and the emergence of the *bottega* (workshop). Those discoveries demonstrated that it was always possible to move the horizon forward and so to communicate with populations and cultures different from our own.

The Renaissance *bottega*, the 'ancestor' of today's innovative co-working spaces, was an open culture crucible in which master artists were committed to teaching new artists, talents were nurtured, new techniques were developed, and new artistic forms came to light, with artists competing among themselves but also working together. There painters, sculptors and other artists met each other, and worked with architects, mathematicians, engineers, anatomists and other scientists – and rich merchants who were their patrons. All of them gave form and life to Renaissance open communities, generating aesthetic and expressive as well as social and economic values. The result was a form of entrepreneurship that conceived revolutionary ways of working, of designing and delivering products and services, and even of seeing the world (Formica, 2016).

The Renaissance *bottega* has lessons for the open innovation milieux of our times on how to turn ideas into action, foster dialogue and facilitate the convergence of art and science (Formica, 2017a).

Homo Oeconomicus, Homo Romanticus and Homo Innovatus

Open innovation culture explores the economy as a non-linear, highly dynamic, ever-evolving complex system. The economic operators in this culture are socially adaptable people who give weight to incommensurable values (such as passions, dreams, paranoia) and who thus favour the meeting ground between the precision of *homo oeconomicus* and the imperfection of the romantically imaginative *homo romanticus* (so named by Bronk, 2009) who shapes the future. The creative choices and degrees of freedom of *homo romanticus* are such that economic expectations are not only attributable to reason but also greatly depend on how the future is envisioned. The scenario that unfolds as the imagination takes its first steps is characterized by both logic and suggestiveness. This is the profile of the open innovation agent: a person of broad views who pursues a multi-perspective approach, eschewing restriction to the typical features of the rational *homo oeconomicus*, whose exclusive motivation is the care of one's own interests. In the agent of open innovation, economic rationality and imaginative anticipation coexist (Bronk, 2009).

The synthesis of *homo oeconomicus* and *homo romanticus* is *homo innovatus*, the bearer of the open innovation culture. Immersed in the cognitive field of intellectual innovation, *homo innovatus* learns to shoot the arrows of doubt, thinking, action and construction (Figure 1). There is no a linear time sequence that, starting from doubt, leads to achievement. The uncertainty of judgement (doubt), the weight (*pensum*, participle of the verb *pendere*, meaning 'to weigh' – used by the Romans with reference to 'thinking') of the subject to be treated, the will to change (action) and its concretization intersect and become integrated along a circular path. *Homo innovatus* contributes to a better blending of all these elements by daring to diverge from his or her peers, aware of the importance of personal diversity and cultural distinctiveness in attaining more creative, more sustainable and fairer performances. In this way, *homo innovatus* models the environment of open innovation, which, in turn, shapes his or her own personality.

The opening up and expanding of the field is conditional on the direction and the speed of the four arrows. The emergence of new

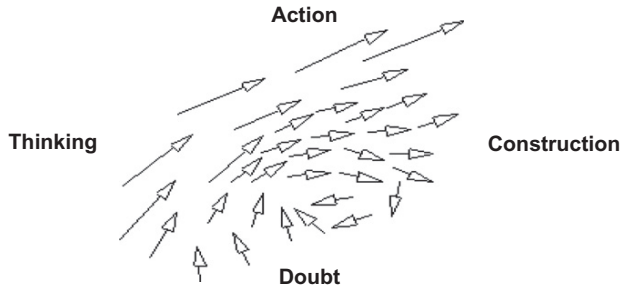

Figure 1. Cognitive Field of *Homo Innovatus*. *Notes*: With regard to 'doubt' and 'thinking', reference should be made to the French philosopher René Descartes (1596–1650) and the literary critic Antoine Léonard Thomas (1732–1785). According to Descartes in his *Principia Philosophiae* of 1644, 'Cogito, ergo sum' ('I think, therefore I am'). The extension into 'Dubito, ergo cogito, ergo sum' ('I doubt, therefore I think, therefore I am') is attributed to Thomas. The shift from thinking to a constructive and profitable course of action and accomplishment was captured by Edward de Bono, founding father of lateral thinking, in the expression 'Ago ergo erigo' ('I act therefore I construct').

perspectives and the changing of old points of view mark the passage from the 'stagnant immobilism' of closing the door to innovation – or effecting innovation, trapped in the maze of rules based on the 'as-it-has-always-been-done' axiom, in such small steps as to take one forward and two back – to innovation in an open environment of mutual collaboration that accepts competition without jettisoning altruistic behaviour in favour of personal ambition. In such a milieu, knowledge is multiplied because it is shared. It creates value because, from its point of origin, it is transmitted to meet needs and show new opportunities; and, leveraging mutual expectations, it enables the optimal use of both tangible and intangible resources (Amidon, 1997; Amidon, Formica, & Mercier-Laurent, 2005).

Open Innovation as Plant Neurobiology

Paraphrasing the thought of the Roman Stoic philosopher Lucius Annaeus Seneca (*c.* 4 BCE–65 CE), we could say that within the framework of open innovation it is a joy to share ideas, thoughts and projects. No one has unlimited knowledge. The potential of each of us is not to be found in the restricted spaces of individual rationality, but

rather in the will and ability to think and act in open innovation communities. This requires that mental openness that pushes us to divulge our ideas rather than hide them. We might dub this approach 'anti-Newtonian', given the alleged aversion of the great Cambridge scientist to reveal his own ideas (Gribbin, 2012): The interest generated by the dissemination and the resulting interpersonal relationships become sources of advantage, exceeding the cost incurred.

The hierarchical, pyramid-style view of human relationships thus gives way to its opposite – the distributed, circular system. Considering the ideas of Stefano Mancuso of the University of Florence, the scientist at the forefront of plant neurobiology, an open innovation culture that looks to the future, responding to changes in the environment, is comparable to the neurobiological architecture of plants, which share information 'without organs or command centres' (see Ulivieri, 2017).

Creative Ignorance, Transculturation and Anti-discipline: Three Cultural Masks in the Open Innovation Theatre

Open innovation revolves around what people do not know. To prevent the open innovation community being subjected to the 'abuse' of knowledge, its culture promotes the process of unlearning (leaving one's cognitive baggage at the 'departure gate'), the hidden value of not knowing (to experience how to explore the darkness of uncertainty), and the role of creative and purposeful ignorance – 'that *state of open mindedness which challenges what according to current views appear to be irrefutable truths*. In this perspective, purposeful ignorance is "knowledgeable, perceptive, insightful" (Firestein, 2012) – a learning process for cultivating a fertile land seeded for growing abstruse questions which reveal untouched paths' (Formica, 2015, p. 107). Ignorant creatives, focused on observation and curiosity for change, lay down new paths for invention, innovation or entrepreneurship. They break away from the schemes and rules generally applied to problem-solving and other tasks in order to leave space for creativity and observation freed from habit and limitations, and thus to open the door to fresh ideas and new possibilities. Unlike path creators, those who rely on their knowledge maps are interested in what is closest to them, and it is in this context of proximity that knowledgeable path *finders*, as opposed to path creators, gain new experiences. The greater the proximity, the more the path finders tend

to resemble one another and the more they follow similar paths (Formica, 2015).

To avert the risk of falling into the darkness at the bottom of the well of specialization, transculturation and anti-discipline play a major role. Coined by Cuban anthropologist Fernando Ortiz (1940), the term 'transculturation' refers to the reciprocal exchange of cultural influences that overlap with each other. Anti-discipline is a method that breaks down the barriers separating disciplines and specializations. As the Reverend Patrick McLaughlin (1964) relates, in early nineteenth-century Europe, an educational process embracing such a method was initiated by St Patrick's College, Maynooth: the National Catholic Seminary of Ireland, founded in 1795. Each student, without exception, undertook a wide range of studies that included, in addition to Theology: Humanities, Rhetoric, Belles Lettres, Logic, Mathematics and Physics. Physics was studied under the guidance of the Professor of Natural Philosophy (as Physics was then known) Nicholas Callan (1799–1864), the Irish priest and scientist to whom we shall return shortly. Subsequently, however, universities tended towards over-specialization, with its associated psychological walls, which has only recently been seriously questioned. The fuse of the debate was lit by Harvard biologist Edward O. Wilson, who saw anti-discipline as an 'adversary relation that often exists when fields of study at adjacent levels of organization first begin to interact' and generate creative tensions (Wilson, 1978, p. 7).

With the aim of breaking down barriers, Joichi Ito, Director of the MIT Media Lab founded by Nicholas Negroponte, fights to ensure that 'more people [can] work in the wide-open white space between disciplines – the anti-disciplinary space' (ITO, 2014). Broadening the perspective one can see, in the economy of ideas, the significance and continuing growth of the contribution of convergence – defined by Siegfried (2006) as 'merger fever' – between scientific (mathematics and the physical and natural sciences) and humanities subjects, and how open innovation, whose richness lies in the cultural diversity of participants, can accelerate that trend.

Transculturation, anti-discipline and knowledge convergence enter the stage as protagonists in the conversation that animates open innovation, creating encounters among people previously unknown to one another. It is by wearing now one, now another of the cultural masks provided by open innovation culture that all players in the field can give of their best.

The Psychological Space of Open Innovation

'Walls are in the mind' – this is one of the suggestions deployed along the 'Path of Meditation' on the Island of San Giulio in Lake Orta, northern Italy. Playing the game of open innovation, we change our minds. As Virgil says, '… terraeque urbesque recedunt' (*The Aeneid*, III, line 72, quoted by Seneca, *Epistulae morales to Lucilius*, III, 28) – '… leave the cities and the shores behind' (Dryden's 1697 translation – Virgil, 2009, p. 92). Passion combined with determination can produce outstanding results. In 'The First Word to Cross the Ocean', one of five 'historical miniatures', Stefan Zweig (2016) recounts that, leveraging the power of electricity, it was the passion as well as the will to succeed that allowed Cyrus W. Field to bring about the laying of submarine cables for telegraphic transmissions between Europe and North America. It took eight years, from 1858 to 1866, and several attempts to achieve the desired result. Field's great effort resulted in the mobilization of the very substantial funding that such an ambitious project required. If, apart from that of finance, other gates had been open in the field of innovation, perhaps the time taken would have shorter. What is now called Open Innovation 2.0 is expected to speed up the journey from ideation to completion.

No one person has knowledge of everything. Referring to our earlier discussion, it is the ability to relate to others and to think in large groups that frees *homo innovatus* from the straitjacket of egoistic individual rationality worn by *homo oeconomicus*. *Homo innovatus* is agile, with an unmatched ability to integrate into the social context, and thus inclined to plant seeds in the field of cooperation.

Framed this way, the psychological space inhabited by *homo innovatus* is not that of the specialist. Descending ever deeper into their wells of knowledge, specialists cling to increasingly smaller pieces of their cognitive domains and, sheltered by high walls raised with the bricks of accumulated experience, protect them from the eyes of others. *Homo innovatus* emerges from the experiential space and occupies the experimental space, which is as extensive as the imagination that circumscribes it. Experimenters know that experience and the ideas they have already cultivated reflect the past, while dreams and speculations about the future constitute fantasies with which to confront reality. *Homo innovatus*, therefore, is so unreasonable as to transcend the boundaries of dogmatic thinking and conventional wisdom and to challenge the status quo through experimentation and thus to complete the journey from fantasy to accomplishment.

Social adaptability and the ability to plant the seeds of cooperation will bring new words to the language of innovation, such as 'fluctuation', 'disturbance' and 'imbalance'. They are part of the cultural baggage of *homo innovatus*; the evolution of the language of innovation reinforces arguments in support of transformative disturbances of economic relations over the economic calm ensured by rational preferences, the maximization of utility and profits and the full availability of relevant information – three climatic conditions that keep the storms away.

How does the innovator move in the psychological space of open innovation? A solution lies in the game of chess. The innovator's move resembles the characteristic movement of the knight as it jumps over squares and other pieces. The innovator has endless possibilities to exploit and the feasible reactions of the other players are unlimited. In the radical uncertainty that surrounds them, each relies on simple rules of thumb.

One can move around in the spaces adjacent to one's own domain. In such a way, Nicholas Callan invented the induction coil in 1836. This was the result of combining two adjacent ideas: the discovery in 1831 of electromagnetic induction by physicist and chemist Michael Faraday (1791–1867) and the electromagnet invented in 1825 by physicist William Sturgeon (1783–1850). It may happen that adjacent psychological spaces give rise to physical spaces that are sources of unlikely combinations. As Christina van Houten (2016) tells us, the concentration on the island of Murano of Venetian glass craftsmen turned out to be an 'inadvertent creation of a colony of highly-skilled glassmakers'. Socializing in the 'neighbourhood' cultural space could lead to a 'sole mode of thought' syndrome of loyalty to the scientific community or industrial district to which one belongs. Those who espouse anti-discipline move into wide and 'white' (uncontaminated) spaces.

Augmenting OI2: The Value of Interdependence between Business Agents and Citizen Agents

The journey towards building a collective wisdom from the meeting of the constituencies of business and citizenship brings more power to the ability of OI2 to drive change. Indeed, reciprocal respect and help from the members of those two communities promise a bountiful harvest of bright innovative ideas.

We have formerly focused on the phenotypes of open innovation. We then wrote:

> Networking is at the core of open innovation and it is a socioeconomic process where people interact and share information to recognize, create, and indeed act upon business opportunities. […] We have all seen cases of collaboration that create effects which are at best additive, delivering a sum of the parts which is less than the sum of each of the individual components. OI 2.0 generates synergies and network effects rather than just additive effects. Synergy describes two or more entities interacting together to produce a combined effect greater than the sum of their separate effects. (Curley & Formica, 2013, p. 64)

What does the cultural evolution of an innovation community open to business opportunities look like if that community is brought into close contact with the world of physics? As do water molecules when heated in a microwave oven, its agents collide and mingle by moving from one team to another. In the process of mingling, teams change their configuration. This produces a disorder which creates interactions that fuel intellectual energy and give rise to very variable events. Innovation emerges from the disorder of events.

Processes triggered by business agents leave traces, each of which is a brick of what we might call the 'Lego® of Memory'. The traces of the past can serve as a guide for the future. Alternatively, business agents may decide to dismiss that Lego of Memory to build an alternative future by becoming enmeshed in civic experiments in their communities. Such behaviour promotes cooperation between them, as agents of communities made up of economic operators (employers and their employees), and the agents of the civic communities. If business agents strive to achieve results for their own benefit, their efforts may (but will not necessarily) have a positive external effect on the society as a whole, while the civic agents, the citizen-contributors to the pursuit of a civil society, act in the general interest of the body of individuals who constitute the city.

Opening up a company to the outside and the outsider therefore represents more than a willingness to engage in clear and focused dialogue with peers in the business 'galaxy'. The interaction between the large and varied set of economic operators and the other galaxy – the community of citizens – which appears so distant from the former in the primordial stages of open innovation, renders the latter, in its new 2.0 identity, as a bearer of unexplored opportunities. Working together, business and civic communities can turn the tide of pressing issues

raised by economic and social transformation to their mutual advantage.

The state of aggregation of the two galaxies hinges on the personal point of view of each agent concerning peer-to-peer interaction. For bonds to be forged between the galaxies, there must be an intermingling not only of each and every individual agent with his or her peers but also of the dual roles of business person and citizen *within* each individual. The intensity and quality of intrapersonal relationships reduce the potential for conflicting values between the two galaxies. And from ties between the two emerges innovation in the form of common goods – non-rival resources and therefore of mutual interest, shared among all participants: in short, a discontinuity in the theory and practice of open innovation that we may call 'common-based Open Innovation 2.0'.

Towards a Municipal Culture of Open Innovation

The search for new consensual views for the care of common goods prompts public administrations to perform a strong cultural turn. It should come as no surprise if partisan interests, established since the medieval days of merchant corporations, still prevail over the general interest of the community of citizens. On the front line there is the municipality, the institutional framework that coordinates representation of the city's general interests. For some time now in a number countries, the confidence of citizens in the 'common house' (the house in which we citizens all live) has been in rapid decline. 'Taxation with representation' has not arrested that decline because there has been a significant loosening of the bond of trust between elected officials and the electorate – with the latter feeling that the slogan 'No Taxation without Representation' – instrumental in convincing the American settlers to light the fuse of the American Revolution – is becoming relevant once more.

Only by immersing ourselves in the open innovation culture can we reverse this drop in the levels of confidence. Just as companies must open their doors and cultivate ideas even with their competitors, municipal administrations will need to engage in cooperation with citizens. The feasibility of such a move depends on whether and to what extent a local authority shows itself ready to invest in order to allow anyone – expert or not, but the bearer of good ideas – to participate in the implementation of projects that will enhance the transparency of

administrative processes and connect the government to citizens by allowing them to take part directly in the decision-making process.

To date, citizens, although enabled to engage in interactive communication with their municipal administration, find it difficult to do so, constrained by the inhibiting factor of the bureaucratic and top-down structure that typifies such administrations – the heritage of values and technologies, objectives, methods and tools paradigmatic of past industrial revolutions. Borrowing terminology used to describe the evolution of the Web, version 1.0 of local government – that is, the use of information and communication technologies in public administration affairs – has not melted the bureaucratic iceberg. Nor does it seem to have been succeeded by an open and collaborative version 2.0 (Meijer, Koops, Pieterson, Overman, & Tije, 2012), in the absence of both a widespread digital culture and incentives that encourage citizens to be active in matters of general public interest. The more promising version 3.0 looks beyond the technology and the top-down design of general guidelines that lead to one-size-fits-all solutions. Government 3.0 places citizens at the centre of policies aimed at meeting their collective and public needs. In Government 3.0, citizens are involved in the design of specific projects by which they can experience how to deliver customized services that help raise the general well-being of the urban community.

Open Innovation for Altruistic Purposes

The expression 'open innovation' embraces three variables placed at the service of the community for its common good: (1) civil society with citizens who are the true protagonists of active citizenship, (2) economic society with its market leaders and (3) political society with its different institutional entities.

In the equation of open innovation, creativity plays a decisive role. It is creativity that opens the window of innovation on unknown landscapes. In a world far from perfect, creativity favours the imaginative idea that springs up from the bottom and embarks on a long journey, during which expectations take shape, as Keynes argued, in a fog of uncertainty. The top-down experience, by contrast, relies on a calculated risk during a brief journey. By its very nature, creativity leads to entrepreneurial behaviour that is conducive to a revolutionary longshot. This is how social wealth is created: such behaviour, attributable to transformative entrepreneurs, generates prosperity which is retained

precisely where it is produced, instead of being captured by those in positions of power in society and in the markets.

Equally notable is the role of polychromatic culture, because it is marked by transdisciplinary and international distinguishing features. Thus, it can break down the high and often insurmountable barriers that separate disciplines, languages, countries and ethnicities. To be truly effective, such a culture must go hand in hand with sympathy – in other words, with an inclination and instinctive attraction towards people, things and ideas – to counterbalance those human attitudes that relate more to personal interest than to the common good. As Bernard Lewis (1995) writes, the Islamic world of the High Middle Ages, despite being a polychromatic culture, showed more of a closed attitude than openness to the (re)-invention of printing with moveable type during the fifteenth century in the context of the monochromatic culture of Christian Europe. That closed attitude prevailed in order to protect the interests of the scribes and calligraphers who were powerful members of society. From one round to the next of human history, this is a phenomenon that we see repeated in many different places, often in the far corners of the world.

Today, selfish interests that are in opposition to emerging lifestyles, entrepreneurial models and technologies continue to hinder open innovations for altruistic purposes. Those innovations jeopardize privileged positions, whose holders claim 'acquired rights' once and for all. At stake are positional goods and services (Hirsch, 1976), those which (since not everyone can access them) confer social status and higher incomes on those who possess or have access to them. The scribes and calligraphers of the Medieval Islamic world have their epigones in the many positional professions fighting against technologies and organizational designs that give access to innovators.

Open Innovation at the Junction between Planning and Individual Freedom

Behind the planning of innovation lies the institutionalization of research. Both predetermine work schedules that narrow the scope of researchers and innovators. Geoffrey E. R. Lloyd, Professor Emeritus of Ancient Philosophy and Science at the Needham Research Institute of Cambridge University, has argued:

> [...] the more that research is institutionalized, the less room the individual may have for genuinely innovative ideas. The more the programme of research enjoys the blessing and approval of the authorities, the greater the pressure to conform to it. The obvious danger then is that the programme 'degenerates' […], with individuals finding it increasingly difficult to introduce new ideas, let alone to suggest new directions for the programme itself. (Lloyd, 2002, p. 126)

In the wake of Lloyd's research, open innovation is circumscribed by two cultures: that of ancient Greece, geared more towards the freedom of research; the other, prevalent in ancient China, weighted more towards institutionalization ('state support' in Lloyd's words – Lloyd, 2002, pp. 137 and 146).

Institutionalizing the innovation, and then submitting it to bureaucratic procedures and subduing the ability of individuals to the will of their leaders, runs the serious risk of producing stagnant results – the very opposite of what open innovation is intended to achieve. A community lacking the 'authority of the canons' (Lloyd, 2002, p. 135) is congenial to open innovation, so that cognitive conflicts can arise from dialogue with no strings attached.

In such an environment, the bearers of antagonistic ideas compete with each other to assert their personal prestige but, at the same time, to enhance cooperation, so that antagonism does not lead to stagnation. The selfishness of competition coexists with the altruism of cooperation. In this context, the protagonists of open innovation are motivated by an awareness that, if they act in isolation, their ideas may end up being overwhelmed. Defection from cooperation would, in fact, reduce their margin of manoeuvre.

The Egoist's Stick and the Altruist's Carrot

Open innovation is not a fixed star in the universe, akin to the Ptolemaic system with a set of rules at its centre for opening the door of the enterprise to a variety of forms of cooperation with the outside environment. As in the Age of Enlightenment, open innovation is a culture that confronts the greatest challenges of our time.

In the Age of Enlightenment, transcending geographical, political, linguistic and cultural boundaries, the 'Republic of Letters' – a community

of intellectual and scientific innovators – was behind the culture of an open system of ideas. The intellectual beacon of those thinkers and innovators was not the pessimism of the philosopher Thomas Hobbes (1588–1679), who branded human nature with the word 'competition'. Their perspectives brought them closer to the optimism of the philosopher and physician John Locke (1632–1704), who shed light on the cooperative nature of human beings, combined with goodwill towards others. The ideas travelled rapidly, moving between pure science and the practical work of artisans and engineers. As the economic historian Joel Mokyr (2017) noted, the oscillation of ideas between the two poles allowed the carpenter and clockmaker John Harrison (1693–1776) to manufacture the first consistently accurate marine chronometer, thus solving the longstanding problem of measuring longitude with precision which, for as long as it had remained unsolved, had been the cause of many lost lives and serious economic damage.

Today's open innovation should similarly be understood as a culture that mines our social tendencies. Cooperative efforts clear the forest of selfishness in the economy and society, promoting the free and rapid flow of ideas. Without barriers, scientific and intellectual exchanges foreshadow the process of cultural integration, which leads to knowledge creation and the subsequent fruits of innovation hanging from the tree of science and technology – to be reaped not only from the lowest but, also and especially, from the highest branches, with wider spillover benefits.

Imagination gives life to ideas by drawing from the well of received education and on the basis of experience to date. In the absence of deliberate actions, ideas end up as dead letters and, as Steve Jobs said, result in regrets. Turned into actions with a useful purpose, ideas leave the realm of fantasy. This process of ideation (ideas in action) can be started and completed in isolation – the 'one-man show', the solo agent surrounded by firewalls – or by opening ourselves to external contexts and realities, an approach that allows for superior results by combining in different ways our own ideas with those of others. An open culture of conversing enables a way of thinking that allows participants to have their say on equal terms, in a non-confrontational, non-status, friendly manner. All participants set their own agenda based on their passion. Thus, new knowledge is created from questions that arise during these conversations – a process that invariably leads to surprising learning and outcomes. It is here that open innovation comes into play, as a culture so effective that it reduces transaction costs incurred in the ideation process.

The keywords of open innovation are not 'utilitarianism' and 'efficiency', but 'imaginative knowledge' (knowledge devoid of imagination is limited[1]), 'creative ignorance', and hence 'unlearning' to start a new cognitive process and 'experimentation'. Open innovation that embraces the unknown unknowns follows a path with a sharp curve towards a new knowledge with increasing returns – for, at the outset of the journey little is known but, as the travellers proceed on their way, their knowledge increases at an accelerating rate (until they are exposed to too much knowledge of the same kind and so enter the world of diminishing returns).

Through open innovation exercises, there is a multiplayer game of idea sharing and proliferation: a couple of well-honed ideas might lead to dozens. Capturing the cognitive diversity of participants, open innovation is a culture that persuades groups of people to commit themselves to the goal of growing the economy better as a prerequisite for growing bigger. It is also, as has already been noted, a culture that breaks down the selfishness that raises insurmountable walls in defence of our *hortus conclusus* ('enclosed garden'). Consequently, broad and sound links are forged among those innovators who are willing to accept a general responsibility to discover innovative solutions to problems that arise from examining the world outside ourselves.

In the field of innovation, there are complex configurations of distinctive, differentiated ideas and principles with many points of intersection. Some of these ideas and principles are expressions of individualism, in moderate to extreme forms, which relegate people to relationships within their narrow family circle. Other ideas and principles flow from spontaneous collaboration among people who are favourably disposed towards altruistic practices. In fact, equally legitimate, individualism and altruism have merited close scrutiny in the history of thought. One need only think of the many scholars who made selfish and altruistic attitudes the subject of their reflection from the seventeenth to nineteenth centuries – among them, John Locke (1632–1704), Bernard Mandeville (1670–1733), David Hume (1711–1776), Jean-Jacques Rousseau (1712–1778), Adam Ferguson (1723–1816), Adam Smith (1723–1790), Edmund Burke (1729–1797) and Alexis de Tocqueville (1805–1859).

[1]In an interview published in *The Saturday Evening Post* in 1929, Albert Einstein remarked, 'Imagination is more important than knowledge. Knowledge is limited. Imagination encircles the world' (Viereck, 1929, p. 117).

In a closed environment, innovation takes shape through 'the astounding belief', to borrow words attributed John Maynard Keynes (1883–1946), 'that the most wickedest of men will do the most wickedest of things for the greatest good of everyone'. In contrast, in an open environment, innovation is shaped by people and organizations whose nature is altruistic and who are therefore biased towards cooperation, less selfish and more likely to share. According to David Sloan Wilson (2015), an evolutionary biologist, in communities in which selflessness is strongly woven into in the social fabric, the altruistic groups get the better of selfish groups over time.

In a community constrained by individualistic behaviour, the managerial and financial hands of selfishness grab the stick. In an open environment, the entrepreneurial hand of altruism holds a carrot cultivated in the community garden. The stick symbolizes competition of the 'I win, you lose' kind. The carrot represents those opportunities that create new markets for the benefit of all: 'I win, you lose' gives way to 'we win together'.

The Real Art of Conversation: The 'Spirit of Rambouillet' and the Supremacy of Intelligence

The EU's Open Innovation Strategy and Policy Group (OISPG), according to its website,[2] 'unites industrial groups, academia, governments, and private individuals to support policies for open innovation at the European Commission […] Our philosophy embraces the Open Innovation 2.0 paradigm: creation of open innovation ecosystems where the serendipity process is fully-fledged'. The concept of OI2 was introduced in a joint paper by Intel and the European Commission (Curley & Salmelin, 2013) as an evolution from a single collaboration between two organizations to one across an ecosystem, often involving all actors in the ecosystem.

From serendipity – a word coined by the historian, man of letters and Whig politician Horace Walpole (1717–1797) and illustrated in all its historical course in Merton and Barber's (2004) *Travels and Adventures of Serendipity* – to the 'controlled sloppiness' advocated by microbiologist and Nobel Laureate Salvador Luria (1912–1991;

[2]https://ec.europa.eu/digital-single-market/en/open-innovation-strategy-and-policy-group

Luria, 1955), open innovation can provide useful insights into how to find interesting things and reap unexpected benefits while searching for something completely different and to develop an awareness that the process of innovation cannot be minutely planned and that elusiveness and impalpability are part and parcel of it. To this end, the instigators of open innovation have much to learn from the art of conversation that flourished in the seventeenth and eighteenth centuries, with serendipitous *salon* discussions that effected the verbal face-to-face transference of tacit, uncodified knowledge in the form of intuition, insight and hunch, developed through metaphor and discourse (Nonaka & Takeuchi, 1995; Stacey, 1996; Stewart, 1997).

In writing about society and conversation in *Les Caractères ou les Mœurs de ce siècle*, published in 1688, Jean de La Bruyère (1645–1696) thought that

> …the true spirit of conversation consists more in bringing out the cleverness of others than in showing a great deal of it yourself; he who goes away pleased with himself and his own wit is also greatly pleased with you. (La Bruyère, 1885, p. 109)

A conversation in this sense is a dance performed by turning over a topic with partners. The conversationalists' versatility is demonstrated by a willingness and ability to change. Conversation thus becomes collaboration, and those who have learned to collaborate and improvise prevail, as Charles Darwin (1809–1882) famously argued in his theory of evolution (Darwin, 1859). Collaboration eliminates the background noise that occurs when ideas collide with each other, and in so doing, it recognizes the signals that indicate the means of solving the issue discussed.

The art of conversation is therefore a social infrastructure as intangible as it is visible in the innovative results achieved through the expansion of the intellectual activity of its participants. The most enlightened decision-makers demonstrate an ability to conceive work simultaneously in physical and abstract terms. Aiming to usher in a new golden age through the promotion of innovation, for example, Emperor Hadrian (76–138) used concrete for the first time to erect buildings of a kind never seen before – such as the dome of the rebuilt Pantheon – while also investing in the art of conversation by encouraging discussion, debate and the exchange of ideas among poets, philosophers and scientists.

The 'concrete' of our day is to be found in intangible assets, the foundations of an open innovation culture. The art of conversation is a societal good that should be numbered among those assets. That art, with its beginnings in the *salons* of the seventeenth and eighteenth centuries, denotes an open innovation ecosystem as the home of a new Enlightenment.

If we are to confront and solve our common problems, the art of conversation, which inspires uncodified communication and collaboration, is essential. The struggle against terrorism, the challenges posed by an aging population, the improvement of healthcare, protecting and caring for the environment and new energy sources are just some of the many pressing problems that require collaborative solutions.

In the new Theatre of Economics in the second decade of the twenty-first century, *homo oeconomicus* – the selfish individualist striving to maximize his or her utility – is no longer the protagonist. *Homo socialis*, whose propensity to altruism and spontaneous socialization is a crucial added value for the common good of society, has arrived on the stage. Thus, the age of a renewed civilization of conversation is inaugurated, which – as Benedetta Craveri (2005), an Italian literary critic and writer, has described in her incomparable book *The Age of Conversation* (2005) – in the seventeenth century had its centre in the *Chambre Bleue* of the Hotel de Rambouillet under the auspices of its owner, Madame de Rambouillet, and then, in the following century, in the *salons* of Madame de Tencin and Madame Geoffrin, where the primacy of intelligence sought to eradicate social differences. Conversations were a powerful stimulant for thinking, listening and speaking. The French economist and 'encyclopedist' Abbé André Morellet (1727–1819) – recalls Craveri – saw in the art of conversation practised in those *salons* a common investment that enriched everyone involved in alert and vivid discourse. In the *salons*, according to Morellet (1777), conversation engaged the attention of the participants: they entertained and instructed one another, compared their ideas with those of other creators, investigated the connections among different ideas and in that way developed them beyond their own initial conceptions. In doing so, they broadened and deepened the field of knowledge. This was a new way of building mutually beneficial long-term relationships, which highlighted the personality of the actors involved.

In the French Enlightenment, or Age of Reason, alongside the sumptuous Parisian *salons*, 'coffee houses' also became meeting places for discussion and debate and the consequent exchange of ideas underpinning advances in science and engineering and social theory.

As Formica notes in *Stories of Innovation for the Millennial Generation* (Formica, 2013, p. 123) the introduction of coffee, as a social drink to be taken in company, was volcanic in its effect: 'With customers such as Voltaire, Diderot and Fontanelle, Le Procope [the first "literary café" in Paris] became the cradle of literary, philosophical, scientific, political and artistic events.'

Hereafter, the supremacy of intelligence begins to emerge, becoming established in low-context communities – wide-open social groupings characterized by the strength of weak ties among members on an equal footing – where interpersonal collaboration across multiple boundaries (cultures, functions, rivalries, geography) releases unconventional effects and creates an atmosphere conducive to the dissemination of broader and fresher insights from newcomers.

In Brussels, commencing in 1911, the industrialist and philanthropist Ernest Solvay organized meetings, held every three years, of the greatest physicists of the time. Their exchange of ideas sparked cognitive conflicts that triggered a process of far-reaching scientific advances in physics. A decade later, in Bologna, workers and technicians formed open innovation communities, playing cards together in cafés after work rather than exchanging business cards at conferences and other formal meetings. Those communities led to the emergence in Bologna of a highly competitive cluster in the packaging machines industry.

In the spirit of Rambouillet and the evolutionary events that followed, conversation is a means of education for the world of open innovation, a world that values interaction and complementarity and the merging of diverse energies into a common effort to disrupt the 'certainties' inherent in the status quo. Such disruption becomes possible if we attune our intelligence to that of our interlocutors. In doing so, we begin a process – returning to Craveri's (2005) analysis of the culture of conversation – in which participants in the discussion discover qualities in themselves of which they were previously unaware. This 'revelation' distinguishes and distances open innovation from innovation that remains locked in one's own intellectual cell. According to Craveri (2005), revelations that emerge from conversation fire the imagination and inspire new and surprising thought.

Exchanges, whether intellectual, commercial, societal or otherwise, extend over time and are driven by the desire for reputational credits. Special interests are subordinate to the common good. Through the pooling of intelligence, each participant can gain more. The fertility of encounters and intersections helps ideas to flourish, raises their quality through the competition between different insights and opinions,

enlarges existing markets and enables the emergence of new ones, and leads to greater social efficiency. Underlying such fertility are the principles of ethical behaviour and cosmopolitanism promulgated by Immanuel Kant, Joseph Priestley and Benjamin Franklin, and pursued by the selflessness of *homo socialis*, in stark contrast to the monetary incentive of globalization that carries with it the insupportable inequalities that arise under the rationality of *homo oeconomicus*.

It is in such a theatre that the performance of the 'open innovation and altruism' double act puts to shame resistance to change, with its dismissal of the egoists' approach of living locked inside the boxes they have built for themselves.

The 'spirit of Rambouillet' is a sower of values and preferences for the growth of interpersonal trust that gives everyone involved the opportunity to exchange information, to propose ideas freely, and to address criticism. That same spirit uproots the weeds of purely opportunistic personal behaviour; behaviour which, sitting behind the wheel of the juggernaut of the market system, steers that system towards decay and self-destruction.

Culture and the CEO

Often the CEO and his or her executive team are seen as the stewards and curators of the culture in an organization, and their behaviours, as distinct from documented values and procedures, set the tone and the culture that is lived and experienced by the organization. However, the culture in a company is sometimes so strong and focused by the operational environment that even the CEO cannot influence it. Intel is perhaps one such company: it ships over a billion high-tech computer parts each year and it has maintained such a focus on operational excellence that the ability to cultivate a culture and processes that also support disruptive innovation is difficult to achieve. Former Intel CEO Craig Barrett described Intel's core microprocessor business and processes as a 'creosote bush', which killed all growth initiatives around it (see Reinhardt, 2000). The conditions needed for operational excellence, such as deviation and risk minimization, are exactly the opposite of those required to enable and nurture innovation. Even if a culture needs to change, this can be difficult to put into practice. Consider what Barrett's successor Paul Otellini said (see Kohn, 2013): 'Intel's culture is blessedly not the culture of a CEO, nor has it ever been. It's the Intel culture.'

Intel's culture has enabled remarkable performance, but it has also demonstrated significant resistance to change. While Intel was successful in making the transition from being a memory business to a hugely successful microprocessor business, it failed to make profitable progress in mobile communications (development, manufacture and marketing of semiconductor products and solutions for wireless communications) and mobile (cell) phones, with those two divisions making very significant losses and achieving little market impact. Indeed, such was the sacredness of the culture at the company that, when a Global Innovation Conference was held at Intel in 2006, it was not possible to talk about or challenge Intel's culture of innovation; instead, organizers were directed by the Senior Vice-President of Human Resources to talk only about the 'climate' of innovation in the company.

In an era of very rapid change, adaptability is key and this is intrinsic to an innovative culture. At current rates of change, Mark Perry of the University of Michigan predicts that 75 of the current S&P 500 will no longer be there in 10 years' time (Perry, 2017). This is an unprecedented rate of change and as Hans Vestberg, CEO of Ericsson, has said, 'The pace of change will never be this slow again' (Vestberg, 2016). In Darwinian terms, the key to survival lies in adaptability to changes in the environment. Thus, rather than being something that is static and constant, culture is required to evolve and change.

We should also contrast the differences between altruistic and conventional visions. Paul Otellini, the most successful CEO in the history of Intel, had an altruistic vision: 'This decade we will create and extend computing technology to connect and enrich the lives of every person on earth' (see, e.g., Garrigues, 2017).[3] This was a worthy and notable vision and the alignment of technological and societal needs created compelling momentum and revenue. Contrast this vision to that of Otellini's successor Brian Krzanich: 'If it computes, it runs best on the Intel Architecture' (cited by Burt, 2014). This lacks an altruistic aspect and was probably less motivational to Intel's employees.

Similar to Otellini, the global financial services player Mastercard has an altruistic vision, simply stated as 'A world beyond cash'. This vision incorporates an important aspect of financial inclusion, bringing

[3]Paul Ottelini was CEO of Intel from 2005 to 2012, having joined the corporation in 1974.

banking to the unbanked and raising their level of income and the broader economy. The inspirational Ajay Banga, CEO of Mastercard, has a mantra he often espouses: 'Do well and go good'. These kinds of vision statements are becoming increasingly relevant and popular.

A. G. Lafley, formerly CEO of Proctor and Gamble (P&G), is perhaps the father of open innovation in large-scale corporations. Lafley introduced his 'Connect and Develop' Strategy to P&G to expand their new product ideas.[4] When open innovation is led from the CEO's office, the culture changes. Today, routinely up to 50% of the new products introduced at P&G come from ideas that emanate from outside the company.

The Art of Conversation as Perceived by 'Nation Builder' Benjamin Franklin

Unobstructed by preconceptions, open innovation can harbour ambitions that may at first sight seem too grand. Despite Seneca's statement that *Nec est mirum ex intervallo magna generari* (and it is not surprising, either, that greatness develops only at long intervals), the gestation of highly transformational ideas is shortened by the quality of conversation in the psychological space of open innovation. As mentioned above, the culture of conversation at the root of current forms of open innovation had its cradle in Paris in the seventeenth and eighteenth centuries. Yet, at the crossroads between the Scientific Revolution with its two great agitators, Galileo and Newton, and the Enlightenment, symbolized by the *Encyclopédie* under the direction of Diderot and D'Alembert, the 'spirit of Rambouillet' is not the exclusive prerogative of Europe, with France and England contending for primacy. On the other side of the North Atlantic, members of the generation following the Pilgrim Fathers, generally acknowledged as the first permanent settlers from Western Europe on the East Coast of North America, were committed to ploughing the fertile ground of conversation that contributed to the formation of the United States of America. In the foreground is Benjamin Franklin, a founding father

[4]P&G introduced the Connect and Develop strategy in 2006: see, for example, https://hbswk.hbs.edu/archive/pg-s-new-innovation-model

of the American nation, who was a corresponding member of the Lunar Society of Birmingham (England) – a club of prominent people in science, engineering and other intellectual pursuits at the dawn of the First Industrial Revolution.

Triggering the conversation to change together: this is the purpose that – according to the 'nation builder' Franklin in his autobiography, first published in French in 1791 – can be pursued, bearing in mind that 'the chief ends of conversation are to inform, or to be informed, to please or to persuade', by adopting the Socratic method of the 'humble inquirer and doubter', and, therefore, dropping 'abrupt contradiction and positive argumentation' (Franklin, 2014, p. 23).

Mutual improvement through conversation was Franklin's aim. In 1727, aged 21, he formed a discussion group called the Junto Club, pursuing the ideals of knowledge and freedom that distinguished the famous Parisian *salons* of the time. Learning by conversing involved a dozen friends who met on Friday evenings. With regard to what we now call the team spirit and shared goals of mutual collaboration in the group, Franklin wrote:

> The rules that I drew up required that every member, in his turn, should produce one or more queries on any point of Morals, Politics, or Natural Philosophy, to be discussed by the company; and once in three months produce and read an essay of his own writing, on any subject he pleased. Our debates were to be under the direction of a president, and to be conducted in the sincere spirit of inquiry after truth, without fondness for dispute, or desire of victory; and, to prevent warmth, all expressions of positiveness in opinions, or direct contradiction, were after some time made contraband, and prohibited under small pecuniary penalties. (Franklin, 2014, p. 65)

Franklin pursued 'useful knowledge' – namely, that which can be applied to some use. Its useful purpose is captured through conversations leading to collaborative inquiries in the course of experiments. That is precisely what the EU's Open Innovation Strategy and Policy Group aims to achieve by making experiments, which impel knowledge from the upstream source down to its point of exploitation (see Box 1).

Box 1. From Past to Present

Four key components of peer-to-peer conversation in an open innovation mode to expand human knowledge

- Bringing out the cleverness of others (Jean de La Bruyère, 1645–1696; see La Bruyère, 1885)
- Humble inquiry – asking instead of telling (Benjamin Franklin, 1706–1790; see Franklin, 2014)
- Fully fledged serendipity process (EU Open Innovation Strategy and Policy Group, 2007; see https://ec.europa.eu/digital-single-market/en/open-innovation-strategy-and-policy-group)
- Forcing curiosity into a field that could use more progression (Global Thinkers Forum, 2017; see http://www.globalthinkers-forum.org)

Literature Urges Us to Tackle Inequalities through 'Reform of the Heart'

Literature has always been the muse of the economy. Fairy tales, fables, stories, novels and essays arouse emotions and ideas that affect our economic activity. It therefore comes as no surprise that literature can be a vehicle of reforms. These include the reform of human behaviour, and that is required now in the critical context we face, with severe social tensions caused by large and growing income and wealth inequalities.

The distance seems to increase between the little of many (the poor, those positioned near the poverty line, the disintegrating middle class) and the economic power concentrated in the hands of the few, who multiply their already accumulated wealth by capturing the value generated in the economy and turning it into rents for their own benefit. Those engaged in producing value are subject to the few who take it. In such an environment, the dynamism of the economy is shelved.

Among the various reforms we need in order to counter such inequalities, there is one that no government can process or parliament approve. This is the 'reform of the heart' which represents a decisive move forward along the path of altruism. Reforming the heart to counter 'the mind and the heart terribly corrupt' was the invocation of Madame de La Fayette (1634–1693), cultivating the ideal of sociability, as highlighted by Craveri (2005).

The 'reform of the heart' is a subject that can also be found in the USA of the Roaring Twenties. In another wonderful book, *The Republic of Imagination*, Azar Nafisi questions why Babbitt, the protagonist of Sinclair Lewis's eponymous novel, published in 1922,

> … despite his success, his loyal family, his status among his community, his prosperity and the promises of the future, does he feel so dissatisfied? [...] This is where the heart comes in to help Babbitt find an answer […], to warn him that he does have a choice – there are alternatives to his way of life. (Nafisi, 2014, p. 200)

Specifically, there are alternatives to the rat race *à bout de souffle* in which the Great Predators of value take the lead.

From the Invisible Hand to a Handshake

In today's age of knowledge, the co-evolution of entrepreneurship, science and technology, and behavioural patterns is central to economic and social life. If we examine start-ups from this perspective, for those in the evolutionary phase, we note that their effectiveness depends on their line of sight towards the horizon. Gifted with the intuition of the founders and motivated by their imagination (which, as Einstein said, begins with intuition) combined with enthusiasm, evolutionary start-ups deploy the availability of resources to widen their field of opportunities. The more the field is extended, the more room there is for the creation of novelty and for continuous adaptation. Individual benefit is part of the collective advantage. The selfishness of the efficient agents who make use of all available resources to improve their performance gives way to the altruism of effective agents who share with others their own funds so that they can not only do more but also can do differently. Motivations that go beyond the strictly short-term economic horizon lead the effective agent to engage in cooperative and altruistic conduct. Focused on maximizing economic growth, self-interest fuelled by efficiency has a low ceiling for growth compared to altruism backed by effectiveness.

Science and technology are conquering more and more territory in all fields of human activity. Behaviouralist researchers portray a human being who is not a sort of super-rational robot equipped with all relevant information to maximize its usefulness as a consumer and its profit

if an entrepreneur. Real life, unlike that sketched in textbooks of the mainstream economic culture, reveals a heterogeneity of individuals whose cognitive biases and wide variety of irrationalities lead them to adapt continually, in an evolutionary way, to circumstance and to abrupt changes, leveraging feedback mechanisms.

In adapting to changing conditions, we make use of our own reputation as credit to be used in personal, cultural, social, political and commercial relationships. Reputation has the image of Janus, the double-faced god. One face is turned in the direction of the entrance door of reputation (as others judge us); the other, towards the exit (our offering of reputation). Both directions are subject to an unstable and mutable balance between selfish behaviour and altruistic practice. The needle swings between two extremes. On the one hand, the reciprocal altruistic desire to benefit our fellow human beings prevails – the eagerness at the centre of *De beneficiis*, a work by Seneca the Younger (*c.* 4 BCE–65 CE). On the other hand, the dominant attitude is that of those who, looking after their own interest, are moved by such a strong propensity to selfishness that they cause harm to others and, in the end, even to themselves. In fact, over time their behaviour worsens the health of the community in which they are embedded.

The balance of power would be shifted towards altruistic individuals if selfish people, who hold their personal interests tightly in their hands, were to take actions for their own purposes to forge cooperative relationships that were in the public interest. In short, the invisible hand of Adam Smith's *The Wealth of Nations* should be turned into a handshake, so that human beings as social creatures can regulate their relationships better, as suggested by his *Theory of Moral Sentiments*.

From the Money-and-Taking to the Regard-and-Giving Economy

Between languishing economic growth and exacerbating income inequalities, the money economy is suffering. In contrast, the gift economy seems to have embarked on a promising path. The pioneers of new practices to implement the act of giving are engaged in such different fields as – to name just a few – health, food, social welfare, neighbourhood socialization, urban decay and nascent entrepreneurship. The recruitment and engagement of donors in the online crowdfunding communities have already taken form and become clearer day by day.

That pioneers can count on a large crowd of followers may seem strange. There are many people who have not yet assimilated what Adam Smith highlighted in *The Theory of Moral Sentiments*, first published in 1759 – that the purpose of economic activity is regard for oneself and others. This means more than giving exclusively for reasons of charity and solidarity. As Smith wrote,

> How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it. (Smith, 1761, p. 1)

Unsatisfactory economic growth is alarming because it jeopardizes the improvement of material living conditions. We remain stubbornly anchored to the idea that increasing production is the only imperative; the more products and services that are made available, the better. Yet what makes us better people is something else entirely: it is the regard that puts us in a state of 'well-being', the antechamber of a state of 'well-having'.

For decades now, the largest gains in real income have been for the top 1% of the people – in short, the plutocrats. There has been no income growth, in contrast, for individuals in the 80–85% percentile of income distribution. In a chart by Branko Milanovic (2016), the data take the shape of an elephant, its body represented by the middle class (the loser, grown frail) and its trunk by the rich (the winners), increased disproportionately.

However, the winners as earners of interest, rents, dividends and capital gains – in short, the rentier class – live in sad times. If, when cutting the cake, the few who have already eaten up so much take most of the slices, the purchasing power of the majority is reduced and so the demand for goods and services declines, and the propensity to save exceeds the intention to invest. The result? Interest rates become so low and even negative that the rentier faces ruin. With interest rates below zero, rentiers pay their debtors to grant loans. Selfishness does not bring rewards.

It seems that it is time to face the danger, long ignored, of the elephant in the room. It must be understood that the prevailing behaviours in the market economy do not lead to the promotion of the gift economy. It is a difficult, but not an impossible task to make navigable the river of sharing, with highly educated crews whose members can trust

each other. To do this, we must invest in human and social capital. Exclusion and rivalry (I win, you lose) are still in evidence in the world economy, interweaving partisan interests that stifle competition – the bearer of innovative ideas and projects. The gift economy creates a sharing community where someone with a burning candle says to another, 'Light your candle from mine, whose brightness will not fade as a consequence.' All that remains then is the weaving of the Smithian thread of regard for oneself and for others, which brings the market economy together with that of giving and sharing.

In the 1950s, J.K. Galbraith (1908–2006) argued that in the affluent society 'inequality has ceased to preoccupy men's minds' (Galbraith, 1958, p. 82). With the enlarging of the cake everyone would benefit, obtaining a bigger slice: this was the dominant way of thinking. Today, with a few taking possession of disproportionate gains, the yeast of growth is the economy of regard. What must be borne in mind are the attention, acceptance and recognition of others – all these are investments made possible by social capital that stems from the trust of others nourished by spontaneous sociability rather than by legal obligations. There is more. The economy of regard progresses through the expansion of exchanges away from the market. In growing volume and quality, goods and services do not carry a sign with market and price specifications. Rather, they are transferred as gifts in the economy of sharing, complementary to the economy of regard. Thanks to regard and sharing, the community does not have to fight against gorgons and hydras of pathological economic and social disparities, threatening defenceless creatures on the horizon of the economy. However, this great transformation will remain incomplete while both regard and sharing are scarce resources and are not valued as public goods. The community, not the impersonal markets, has a duty to promote and respond to them.

The economy of regard is not to be identified with charity practised by wealthy rentiers to keep the poorer classes subjugated. In his economic history of pre-industrial Europe, Carlo Maria Cipolla (1993) notes that in industrial society all goods and services have a price, and the disbursement of money is the prevalent way for obtaining a required asset. In pre-industrial Europe, according to Cipolla, the situation was profoundly different: the more we look back in time, the more we note that the gift takes on a significant role in the exchange system – people would give a gift in order to receive one in return. With this perspective, we can identify the historical roots of the great ongoing transformation of the market concept under the combined pressures of the economies of regard, gift and sharing (shortened here to 'economy of regard').

What Makes the Pendulum Swing in the Direction of Altruism?

Since inequalities of wealth and income have returned to the heart of economic debate, economists are confronting one another on the two major themes of egoism and altruism. Is it the case that unbridled individualism characterizes individuals, centred on their personal interests, while attributes such as philanthropy, generosity and selflessness belong to the joint actions of humanity in a spirit of solidarity? Or, on the contrary, is it that individuals are selfless while solipsists are organized into special-interest groups that fragment and tear apart what we call 'community'? There is no unequivocal answer. In the course of events the pendulum swings, and not in a uniform manner, towards one or the other hypothesis. To move the pendulum in the direction of altruism, individuals and their collective representatives should learn how to initiate and operate to its full potential the multiplier of regard, the engine of social progress and economic development.

If the field of competition is open to all, if the same rules apply to all, if everyone shares and practises ethical principles and if, finally, the referee is impartial, then the selection process for the highest places in the competitive ranking urges each group to improve its performance by interacting with competing groups. Practising altruism on a reciprocal basis, resorting to the open exchange of information and mutual learning, will bring an awareness of the value that the multiplier can assume, as we shall see shortly.

An exemplary lesson was imparted by the 'Lunaticks', a pun on Lunatics, and the Honest Whigs, the eighteenth-century industrial revolutionaries in England who traced the path which became known as the Industrial Revolution. As Jenny Uglow (2002) and Steven Johnson (2008) remind us, that variously articulated body of revolutionaries – among them scientists, inventors, entrepreneurs, craftsmen, artists, politicians – shared ideas in an entirely free mode because they were unfettered by interference or influence arising from monetary incentives. The flow of ideas in motion and the consequent influence they exerted on society triggered the multiplier of regard. In a time much closer to the present, as Sheridan Tatsuno (2012) suggests, Silicon Valley's early entrepreneurs, who were mostly inventors without access to significant capital, learned that sharing led to faster learning and growth overall. This sharing culture still exists alongside the venture capital model in

the form of crowdfunding under the new JOBS Act and social networks.[5]

Whether or not the pendulum swings towards equality also depends on the demographic structure. It depends on the pressure exercised by the Millennials, the generation born between 1980 and 2000, that has shown the highest propensity to collaborate, and the counter-thrust that comes today from Generation Z, those born between 1996 and 2011 (Segran, 2016). This generation has been influenced by events emanating from the Great Recession. Confronted with growing uncertainties on the education and work fronts, and the intensification of inequalities on both sides of income and opportunities, the generational cohort following the Millennials leans towards more competitive and less cooperative behaviours.

The Multiplier of Regard

The higher the propensity to altruism and reciprocity (selflessness reciprocated), the more regard multiplies the opportunities for discoveries, inventions and innovations which then generate transformative entrepreneurship. As demonstrated by the theory and practice of open innovation, it is desirable even among competitors to solve common problems by resorting to collective action rather than relying on individual initiative in isolation. Through cooperation, altruism encourages competition on an equal playing field. A case in point is the 'golden handshake' between the enlightened entrepreneurs Enzo Ferrari and Battista Pininfarina (see Box 2).

David Bodanis (2000), in his book on Einstein's famous equation $E=mc^2$, provides us with illuminating examples of the motivations and emotions underlying such propensity. As a result of an unexpected gift received from an unknown bookbinder apprentice, motivated by the excitement of homage and taken by surprise, the English chemist and inventor Humphry Davy (1778−1829) opened the doors of science to this apprentice − a gesture that helped to shape Michael Faraday (1791−1867) into one of the greatest scientists of his time. Faraday's

[5]The Jumpstart Our Business Startups (JOBS) Act was signed into law on 05 April 2012 by President Barack Obama. The Act required the US Securities and Exchange Commission to write rules and issue studies on capital formation, disclosure and registration requirements. See: https://www.sec.gov/spotlight/jobs-act.shtml

Box 2. The Golden Handshake

Adam Smith's invisible hand of the market must be accompanied by an invisible handshake

Over the past five decades, Ferrari and Pininfarina have had the world's best-known and most influential association between an automotive manufacturer and a design house. Battista 'Pinin' Farina was the creator of the Italian style in the architecture of the automobile. In the 1930s, he founded 'Carrozzeria Pinin Farina'. His plan was to build special car bodies.

Though Enzo Ferrari and Battista Pininfarina yearned to work with each other in the early 1950s, there was initial hesitance before the real collaboration started. 'Ferrari was a man of very strong character', Sergio Pininfarina recalls. 'Therefore, Mr. Ferrari was not coming to Farina in Turin, and my father was not going to visit him in Modena, which was approximately 120–130 miles away. So they met halfway in Tortona'.

That fateful rendezvous would alter the world's automotive playing field. 'Everything became extremely easy once they sat down at the table', Pininfarina continues. 'They never spoke about any type of price. Both were very enthusiastic, for each thought "This will be great." It was. "I will give you one chassis, and you will make one car." The first steps were tentative, much like two outstanding dancers being paired for the first time. The initial effort yielded a handsome perfectly proportioned 212 Inter cabriolet that had its official public debut at 1952's Paris Auto Show'.

Source: Andersson, Curley, and Formica (2010).

discoveries in electromagnetism and electrochemistry had major impacts on entrepreneurship. Yet, motivations and emotions show volatility stemming from, respectively, a discretionary nature and transience. So, Bodanis reminds us, years later, after the qualities that would lead to Faraday's success had become evident, the same Davy withdrew his support, accusing Faraday of plagiarism.

Thanks to a sociable and affirmative attitude towards others, and a sympathetic understanding, a teacher recommended that Albert Einstein should attend an unconventional school. That behaviour was a small but important nudge which helped the German physicist forward along the path to his revolutionary theory of relativity. By contrast, not motivated by the need to accomplish something that would take him into a

frightening unknown, the great French mathematician Jules Henri Poincaré (1854–1912) behaved unsympathetically towards Einstein.

The solving of problems by reverting to a cooperative mode characterizes the giving economy, which broadens the range of opportunities to the benefit of all. The objective pursued relates to the effectiveness of collective action – that is, finding solutions that are deemed right because they satisfy the interests of the community. This contrasts with the taking economy, whose main character is the efficient individual who, from the narrow perspective of self-interest, aims to maximize his or her personal utility with the minimum amount of resources deployed. That is to say, inward-looking individuals make efficient use of their ability to extract as much as they can from the value generated by the community – including, but not only, through their contribution.

The value of the multiplier of regard depends on the degree of bias towards subjective vision as compared with the objective reality. Following the research of Vernon Smith and Daniel Kahneman (see Royal Swedish Academy of Sciences, 2002), the field of experimental and behavioural economics can help to align those two visions by bringing together people who show preferences and hence behaviours centred on their subjective vision with others who are motivated by contrasting preferences and conduct.

Today, on the playing field where inequality and innovation face each other, the latter seems to succumb. According to findings for OECD countries, the relationship between innovation measured by the Global Innovation Index and disposable income inequality suggests that the more unequal a country is, the less likely it is to be innovative (Hopkin, Lapuente, & Moller, 2014). In this respect, the ground of economic inequality is the most suitable for experimental exercises. Those who benefit from increasingly conspicuous wealth and incomes interpret growing economic inequalities as the result of their greater skills in exploiting the window of opportunity open for all. In contrast, those who see their assets diminishing attribute the performance of the others to the monopolistic rents extracted with all the power and means at their disposal to influence the institutions responsible for safeguarding an even playing field.

As a result of rules that apply to a few to their advantage, and of others that apply to the majority to their detriment, society is subject to a permanent state of conflict between the privileged few and the disadvantaged many. Cooperative behaviour codes, where material motivations (money that bestows status) and intrinsic satisfaction coexist, can produce a balance between what each of us gives to the community and

what we expect to receive in return. A propensity to altruism depends on maintaining a good equilibrium between the two demands. It should be noted that the kind of altruism tied to reciprocity – when ('shortly') and how much ('on equal terms') you will receive in return – departs substantially from the respect discussed by Smith and plays its part in tipping the balance towards selfishness.

The Open Innovation Grammar

Proposing that the altruistic lever serves open innovation is tantamount to describing altruism as a social innovation put into practice. Inward-looking, selfish organizations minimize cooperative endeavour, and in so doing, stifle open innovation. Altruism opens up a promising prospect for an outward-looking approach to innovation by seeking to draw benefits from cooperation, even among competing firms – the so-called 'co-opetition' model, a competitive and at the same time cooperative approach to collaboration. The cultural melting pot of open innovation and co-opetition is the generative force of new market niches. At the party of the economy there will not just be more guests but also a bigger cake. Through the lens of unselfish attitudes, each and every participant is seen as a team member, rather than as a factor of production,[6] whose abilities to develop critical thinking, communicate, collaborate and chase new opportunities are critical components of open innovation processes.

The open innovation grammar is based on two conceptual pillars. The first: collect major new ideas from both inside and outside the company, taking into account that about 85% of those ideas are produced by people around the world – ideas that would never be available without an open innovation programme. The second pillar is effectively nothing other than 'Joy's Law', named after the co-founder of Sun Microsystems, Bill Joy: 'No matter who you are, most of the smartest people work for someone else.'

Coupled with open innovation, altruism broadens the grammatical analysis with at least three other lexical categories: improvisation combined with gratitude and experimentation. The first is a source of

[6]The Nobel Laureate economist Kenneth J. Arrow raised this point in his criticism of the 'model of the laissez-faire world of total self-interest' (Arrow, cited by Klein, 2013, p. 272).

transformative change that creates value instead of shifting it. The game is being played out not in the field of similarities (copying things that work to make them better) but of differences (doing new things). This is sharply articulated in a comment attributed to the late Oren Harari, Professor of Business Administration at the University of San Francisco: 'The electric light did not come from the continuous improvement of candles […] it was about understanding what the job to be done was and then stepping back to look for solutions to solve this.' Open innovation and altruism together run through routes that are not repetitive, never reaching the same places.

Gratitude is a fluid, not a financial incentive, that lubricates the channels of open innovation relationships. Aggression gives way to listening to and understanding the other players. Gratitude is also a motivator that refrains two players, A and B, from actions of false altruism in favour of X by charging the burden of expenses to C. Thus, gratitude leads to the development of interpersonal relationships according to the natural inclination of individuals to perform tasks based on the pleasure of mutual reciprocity.

The third category, discussed below, is experimentation (which we first mentioned in the section 'Setting the Scene'), which facilitates the learning of a new language centred on value creation.

OI2 Pattern Language

Curley and Salmelin (2017) introduce a first version of an OI2 pattern language, a pattern language being a way of describing good design practices in a particular field. The collective impact of using the patterns in OI2 is to increase the probability of success by means of a digital platform and ecosystem approach. Curley and Salmelin present these initial design patterns as a minimum viable platform (MVP) for OI2 lead digital innovation and to provide a rudimentary taxonomy and vocabulary to allow practitioners to experiment and test these patterns with real-life projects. They also aim to provide a base platform for researchers and practitioners to expand and more fully describe the OI2 pattern language. Using the agile and rapid experimentation approach, it is expected that the OI2 pattern language will be iterated and quickly improved, providing transformational value to governments, industry, academic and citizens/users alike.

As open innovation evolves from an art to a discipline, it is important that there is a common vocabulary for expressing the key concepts

and for connecting and relating them. Design patterns are nuggets of knowledge which help us to remember insights about design, and they can be used in combination to help innovate solutions. The goal of this effort is for open innovation to become a discipline practised by many rather than an art mastered by few. Elemental patterns introduced in the first OI2 pattern language include 'Shared Purpose', 'Designing for Adoption' and 'Industrial Innovation', to name but a few. When these design patterns are combined, they help improve the predictability, probability and profitability of collective innovation efforts.

Experimenting with Open Innovation

Open innovation is an evolutionary experiment, contaminated with noise and error, to be repeated several times. We could talk about an experiment drawn up with extreme care and consisting of many small-scale stages to ascertain in detail the behaviour of the participants and to assess which of the many solutions arising from individual moments appears the one that will best serve the purpose. In short, open innovation is a narrative of a series of experimental moments on a small scale.

Before going on stage in the theatre of experimentation, let's imagine a mental model debated behind the scenes. You are at point **a** of curve **A** in Figure 2 that represents the relationship between performance (**P**) and resources (**R**) involved in your activity. You are more than satisfied with the outcome but not entirely happy. Like Robert Woodruff, President of Coca-Cola Company in the 1920s, you hold the view that 'the world belongs to the discontented'. Willing to do more of the same, you do not stop climbing up that curve. You plan to innovate in order to continue the ascent. Building on knowledge, experience and judgment accrued over time, you are relying on past and present data to extrapolate, with the help of forecasting techniques, the current growth rates into the future. The arrow **T** was and stays pointed upwards. Devising, planning and preparing: focused on yourself, holed up in your cloister, these are the actions you pursue. Through the lens of knowledge, experience and judgment, you glimpse what you want to see. This is the limit of acting introspectively – and the twin face of selfish behaviour.

If introspection and selfishness are the two codes of innovation locked up within the precincts of one's own little world, extrospection and selflessness are the 'icons' of open innovation. Practising altruism also means challenging ourselves through experimentation with

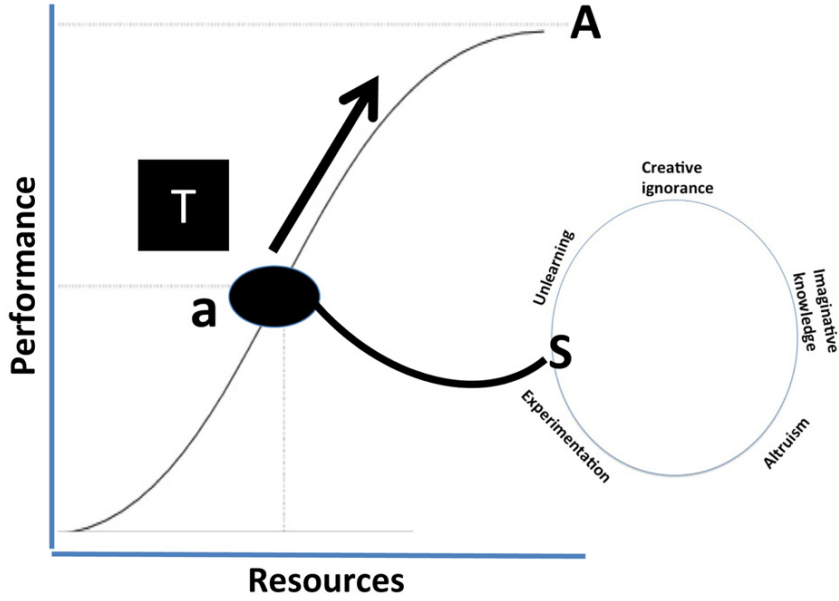

Figure 2. Navigating the Future: From the 'Cloister' of Forecasting to the 'Open Air' of Experimenting.

others – others who differ from us in culture, discipline of study and activity performed – to construct (rather than predict) the future together. This is what we mean by open innovation – an experimental laboratory where many individual interactions, comprising simultaneously competition and cooperation, are directed towards the production of a collective outcome for the benefit of all.

Going back to the starting point **a** in the **PR** curve, rather than an exercise in forecasting, experimentation in an open innovation environment is a game for designing alternative strategies and selecting the one (e.g., curve **S**) that, in the course of interaction, emerges as the best. The **S** curve could be identified as the introduction of proximate methods, products or markets. Or, it could be a shift to a completely new business model. Or, again, it could stand for a breakthrough innovation whose adoption has been made possible through experimentation in an open innovation mode, leading to the better definition of both the problem and its application domain. In all three circumstances, the firm's attitude and action are such as to ensure the identification and attraction of creative consumers. Unlearning, creative ignorance, imaginative

knowledge, altruism and experimentation are the filters for isolating the strategy to be adopted.

Experimentation Stages

Experimentation fosters the creation of value through innovation and prevents its exploitation by those who have economic power to seize all profits for themselves without having taken part in the experimental process of creativity. Every single stage of the experiment is concerned with a different face of the innovation prism. Putting together scattered pieces of accumulated knowledge to improve existing products and processes and organizational and governance structures; the creative

Box 3. The Framework of an Experimental Lab in an Open Innovation Community

The meeting of minds through connectivity and 'contactivity' is the focus (Edvinsson, 2012). People with different backgrounds and expertise are connected so that they can test their business ideas by working together. An individual's choices are thus intertwined with the choices of others ('social influence').

Network relationships are visible to all parties and are guided by performance. The lab's 'temperature' is taken by applying mathematical rigour to the assessment of how personal interactions are affecting its community. Network mathematics quantifies how connected the members of a lab are.

The evaluation process assigns a degree of compatibility to a given idea in terms of its relevance to and connection with the network.

The network learns through exposure to various situations. Signals are transmitted from one business idea to another.

Patterns of business ideas are discovered. This makes it possible to move across adjacent market boundaries. Permutations and combinations of business ideas are possible. See the case of Gutenberg, who replaced the best practices of his time with the process of exaptation, applying to the printing process techniques and instruments used in other industries – from the goldsmith's punch to screw-type wine presses.

Source: Curley and Formica (2013).

recombination of elements from the past;[7] tackling with new products the lowest segments of the market, neglected by incumbents; creating content for a new medium of communication; combining ideas from different fields to conceive something so new that it is not reflected in the pool of knowledge acquired over time: these are some of the many faces appropriate for experimentation (see Box 3).

Experimenting for innovation among peers in open communities creates entrepreneurship that generates shared economic value and social benefits. Participants in an experimental laboratory are agents of prosperity, as we have already discussed. Innovation through experimentation is, in fact, a social product and its distribution is subject to the scrutiny of peers. Thus, as noted above, the resulting wealth is not monopolized by a few holders of economic power unrelated to the experimental process.

Innovation Open to Imaginative Thinking

Butler (2007, p. 91) points out that Adam Smith regarded all scientific models as 'mere inventions of the imagination'. The same may be said of open innovation, an organizational model that draws its lifeblood from the imagination. And it is in the imagination that innovative entrepreneurship is rooted, while the experience gained and imposed from above perpetuates the status quo by resorting to bureaucratic procedures.

Open innovation breaks down the wall behind which those who seek to innovate in isolation or in small closed groups are hiding. From the eighteenth-century Enlightenment to the organizational model of the 'enclosed garden', which we have discussed earlier, scientists, inventors, transdisciplinary and cross-disciplinary experimenters, people from the

[7]Dambrosio (2017) sheds light on the successors of the Venetian gondola. He writes,

> The gondola was first mentioned in a Venetian letter in 1094. And whereas we don't typically see gondolas sauntering through our waterways, elements of the design were taken from ship builders before then, and elements of the design have become foundational to the building of ships, cars, planes, furniture, packaging, jewelry and even clothing today! It is a great example of one of the three fundamental truths about innovation, that all innovations are a 'creative recombination' of elements from the past.

arts and humanities, intellectuals in general and entrepreneurs have cultivated the organizational model of 'weak ties' in small societies, such as those of Lunaticks and Honest Whigs (see section What Makes the Pendulum Swing in the Direction of Altruism?), sharing points of view, insights, principles and values. From the first Industrial Revolution onwards, the need for ever more funds to be devoted to the fusion of science, technology and entrepreneurship has led to the birth of large research laboratories that have paired with big business, both of which tend to be highly bureaucratic.

This 'double big' model has entered a crisis at the onset of the digital revolution, when the rapidity of events clashes with the slowness of bureaucratic decision-making in large managerial organizations. In consequence, we see the multinational company being replaced by the globally integrated enterprise, which takes shape as an entrepreneurial ecosystem. The 'size' depends on the quality of the species cultivated in the ecosystem. A habitat populated by symbiotic species facilitates ever-closer ties with people and organizations that differ from one another in various ways. On the other hand, predatory species conflict with the synergistic process of collaboration. That process translates into symbiotic learning networks, thus giving weight to the words 'sharing' and 'distributing'. Words such as these characterize the linguistic background of an open innovation culture.

In such a new cultural climate, the imagination appears as a 'good enemy', threatening to usher in a new round of innovative thinking, with subsequent entrepreneurial initiatives that defy the status quo. This 'threat' urges people to free themselves from the conservative and bureaucratic mentality that hinders change.

Imagination enables the mind to create mental images in the form of symbols, metaphors and concepts that enrich the assets of tacit knowledge. Our imagination pushes us beyond the visible horizon and it does so by seeking interactions with others, the bearers of different cultures. It is in this melting pot of diversity that new knowledge is modelled, through a careful handling of the fertility of imagination together with the critical spirit and the consequent cognitive conflicts among the participants in the open innovation process.

Innovation with imagination eradicates a disease deeply rooted in the social body. Symptomatic of the disease is the notion that 'something is happening to us'. The future is conceived as a succession of events that swoop down on us. From a diametrically opposite perspective – that we can construct our own tomorrow – open innovation looks towards the future, drawing fresh ideas from the resources of the imagination.

Conventional thinking addicted to customary rules prevents apprehension through imagination. That is why, in the course of history, an avalanche of nonsense has smothered the new thought that overturns existing knowledge and methods. As documented by Petrosyan (2015), the adoption of the Gregorian calendar sparked protest, with opponents arguing that, as a result of the changes of date, migratory birds would no longer know when it would be time to return. The medical faculty of Bavaria feared that the rapid speed of the train would damage the health of travellers. The invention of the gas lamp was rejected because it did not accord with existing scientific knowledge: how could a lamp burn without a wick? Radioactive β decay, discovered by the physicist Enrico Fermi, was thought by many scientists to be far from reality. In times closer to us, consolidated knowledge has conflicted with the discovery of microorganisms in the stomach by Marshall and Warren, the Australian university scientists and recipients of the Nobel Prize in Medicine in 2005.

In an online article for the *Harvard Business Review*, Formica (2017b) uses the case of the Republic of Venice to demonstrate how the smothering action of conventional thinking combined with bureaucratic norms and ways of acting can further strengthen the conservative mindset. Over centuries, Venice combined technical and manufacturing expertise, its strategically advantageous position on the main trade routes and an unconventional innovative culture to become a major centre of trade, finance and shipbuilding. Ultimately, however, success led to failure. 'Like a lot successful entities, Venice reached a point at which it focused more on exploitation than exploration': instead of sailing in the uncharted waters of the future, Venetian entrepreneurs kept to their old routes and so 'established practices and preferences became more popular than exploration and speculation' (Formica, 2017b). Meanwhile, in the late sixteenth century, the world was changing – the invention of seafaring galleons, a massive advance in transport technology, meant that new trade routes became established and Venice lost its centrality; indeed, its location at the northern extremity of the Adriatic Sea turned from an advantage into a disadvantage. And its shipbuilding Arsenal was no longer at the forefront of naval technology. Rapid change sent Venice into decline after centuries of outstanding success because it relied on its past success and its proven ways for future development. Entrepreneurs and innovators must remain persistently open to imaginative and unconventional approaches: the status quo must be continuously challenged. Relying on past success as the model for future prosperity is, as Venice discovered, a recipe for decline.

For open innovators, 'the goal is not to chase a fixed horizon but to understand how the horizon moves as they approach it' (Formica, 2017b).

There is, of course, a need to connect such vision with the potential for implementation. Building bridges between those who have imaginative power and those who translate the imagined into reality is a distinctive trait of open innovation. Science fiction writers have contributed much to this work of intellectual engineering fulfilling the requirements of innovation. From the future of flight envisioned by Jules Verne, Igor Sikorski created the helicopter. Inspired by *Star Trek*, in the early 1970s Martin Cooper, Director of Research at Motorola, designed the first mobile phone. *Snow Crash*, a novel by Neal Stephenson, provided the cue for the conception of virtual reality. The unusual combination of unconventional writers and scientific experts is a ceaseless source of inspiration, bringing imagination onto the stage of reality. From the heights of their experience, experts standing alone lose sight of the entrepreneurial opportunities ignited by a bottom-up imagination that produces what may sound like a puerile idea because it is not the result of judgement based on actual experience. The unknown finds the expert extraneous, unprepared and therefore distressed.

Epilogue: Open Innovation, Our Unique 'Swann's Way'

Incompatible with the still predominant, if old-fashioned business model, open innovation culture finds fertile ground in entrepreneurship modelled by talented individuals who combine science and arts, thus taking wider-reaching actions to develop and experiment with innovation. Entrepreneurial enterprises collaborate with universities and public and private research centres to innovate by designing customized products and services that result from the identification of latent needs, not from the demands alone, of individuals and groups.

Following the lines of thought set out in this chapter, the culture of open innovation is in conflict with business-as-usual. Immersed in the age of industrialization, businesses focused on high prices, profit maximization and the propensity to consume, envisioned as a road to personal happiness and, therefore, as a life goal. The aim of business viewed in this light, together with the consumerist drift, has put talent and scientific progress at stake – both being oriented towards innovation that will generate sustainable productivity over time and the promotion of widespread wealth for the greater common good. Even when the traditional business model has incorporated the concept of cheaper

and better products, innovation has played only a marginal role and has ultimately been commoditized. The restrictions imposed on innovation have been matched by higher concentrations of power and wealth in the top management of companies and in the financial sector. As a result, conspicuous consumption has overbearingly made its appearance on the scene once again, flaunted by wealthy bourgeoisie who remind us of the Gilded Age in late nineteenth-century America, when members of the affluent class believed that rationality lay in acting in their own interests and setting standards to which every level of society would aspire. That class was exposed to the wit and satire of Thorstein Veblen (1857–1929) in his famous 1899 work, *The Theory of the Leisure Class*.

Open innovation is a space for the imagination and representation of changing economic, social and behavioural conditions. The cultural forces deployed in that space explore and experiment together to ascertain what could or should happen. Open innovation is therefore a journey of discovery that redefines its own boundaries in accordance with the transformations that have taken place along the way. We are able to embark on that journey once we have lightened our baggage of past experiences and studies in the cultivated disciplinary field. Once we are ready to look with detachment at our own map of knowledge, with its analysis, quantification and classification – a map that never coincides with the immense territory of innovation – intuition can play its part, allowing us to mix with the other wayfarers, all united by the same awareness, and all come together to open new creative spaces (see Box 4).

Open innovation is, therefore, a creative and revolutionary process – a paradigm shift, which calls into question what is known through study and experience. Economic agents – rational actors and experts who feel the urge to optimize the resources at their disposal – are no longer the main players. Nor do their mastered knowledge maps, which predetermine choices for the future, show the routes we need to follow. The new protagonists are those who, eschewing the rules established by cognitive and conceptual maps, try to imagine incommensurable and competing transformative ideas (Normann, 2001). Imagination is rewarded, not discarded, precisely because it is foreign to the experience gained. Open innovators do not predetermine choices: choices emerge spontaneously in the course of the imaginative process that creates – does not foresee – the future.

As in Proust's *À la recherche du temps perdu*, the taste of a madeleine dipped in a tisane evokes for the narrator Marcel the atmosphere of Combray, the provincial town where he spent many summers of his childhood, so open innovation brings us back to the childhood of our

Box 4. Seven Currents of Thought That Flow through Open Innovation

Various currents of thought make up the threads that weave the culture of open innovation. Here we have chosen seven.

LAO TZU (sixth–fifth century BCE)

The supreme good is like water

Like water, open innovation benefits everyone. It adapts to the ground and irrigates it with altruism. We descend into the well of non-knowledge and come back into the sunlight bringing new knowledge.

JOHN DUNS SCOTUS (1266–1308)

Knowledge born out of actions

Open innovation multiplies actions.

FRANCIS BACON, 1561–1626

Inductive hypotheses

Open innovation makes inductive hypotheses rise to the surface from sources of imagination and creativity.

JOHN LOCKE, 1632–1704

The mind at birth is like a blank slate

The minds of participants in open innovation communities are a blank slate on which they write as they experiment with new ways of communication and conceiving new lines of thought.

DAVID HUME, 1711–1776

Relations amongst ideas are at the basis of human knowledge

Open innovation is a relational field.

PAUL FEYERABEND, 1924–1994

Multiple alternative hypotheses compete with one another

There are circumstances in which it is best to adopt an idea that is opposite to the usual practice. Open innovation is a field where competition and cooperation reinforce each other. Open innovation changes the rules of the game.

'BA' THEORETICIANS (Kitaro Nashida, Hiroshi Shimazu, Ikujiro Nonaka and Noboru Konno)

Living organisms live in the 'ba' space (whether physical, virtual, mental or any combination of these) of non-separation of the self and the 'other'.

Carried along by the current of open innovation, open innovators attract each other, adapting to the conditions of mutual cooperation. In the field ('ba') of open innovation, unpredictable and impromptu creations may emerge from the entrainment process.

knowledge. With the mindset of a beginner we follow the path of our 'love affair' with a new knowledge, our 'Swann's Way', which, unlike the outcome in the novel, pushes us into the arms of a lover – open innovation – who wants to make us happy. As we travel along that path, we free our minds from the deep and circumscribed beliefs that have matured with experience and from the arrogance of success achieved which urges us to prepare for tomorrow with the plans of yesterday. Open innovators walk along their 'Open Innovation's Way' with the spirit of creative ignorance and so learn to unlock possibilities beyond the reach of the expert mind. Learning breaks down conceptual boundaries so that different ideas can be connected, fused and recombined. On the learning path, open innovators reinvent themselves, collaborating and competing with each other. Points of view that conflict with the certainty of experts, and questions that are deemed incongruous and posed by unreasonable people, prove not to be wrong but to be so novel as to trigger innovation processes that will bring transformative change.

For open innovators, the legacy of the Age of Enlightenment has the force of a whiplash, urging them to learn the lessons of its revolutionary social infrastructures – the *salons*, clubs, scientific and literary societies, and coffee houses where topics and problems were subjected to a process of mutation and speciation of ideas, marked by the merging of open competition with cooperation and of personal ambition with altruism. This symbiosis was made possible by the conviction that the exchange of ideas has its *raison d'être* in what each open innovator thinks about the worth of an idea, rather than the presumption that the interlocutors are in extreme need of it.

As this introduction to the culture of open innovation draws to its close, the reader will be aware that the guiding thread has been a utopian vision. We are going through a time of great change. The continuing social and economic upheavals are so many and of such significance that we cannot help but reflect on the value of searching for a utopia, which, in our narrative, lies in finding the cultural means to inhabit open innovation communities.

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