

CULTURAL TRAITS OF OPEN INNOVATION

A written and expanded version of the speech by Piero Formica at the 4th International Forum on Research and Technologies for Society and Industry

Innovation to shape the future

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Professor Piero Formica is Senior Research Fellow at the Innovation Value Institute, Maynooth University, Ireland
www.ivi.ie

FIGURE 1

Where is Culture hidden in the sea of words, sailed by ships named 'Strategies and Structures', 'Models and Diagrams' of Open Innovation (OI)?

Still, Culture is the protagonist of collaborative forms that have evolved.

Today, the European Union's Open Innovation Strategy and Policy Group, which unites industrial groups, academia, governments, and private individuals to support policies for OI at the European Commission, embraces the OI2 paradigm: 'The creation of OI ecosystems where the serendipity process is fully-fledged'.

FIGURE 2

We should then reflect on a comment attributed to Peter Drucker, the management thinker who considered himself a historical writer: 'culture eats strategy for breakfast' and, we might add, 'structure for lunch'.

Thanks to culture, we have the opportunity to enjoy the favours of Athena, the goddess who, among her many attributes, presides over strategy. Why missing that opportunity? It is not that reckoning with culture is so painful as not to dare venture out; the reckoning is painful because we dare not taking the risk – would say Lucius Annaeus Seneca.

FIGURE 3

With this in mind, I travelled with colleagues from different countries along the cultural paths of Open Innovation. The journey is summarized in the book just published by Emerald Group Publishing: *Exploring the Culture of Open Innovation: Towards an Altruistic Model of Economy*.

Below I will mention the main stages of this journey.

FIRST STAGE: ALTRUISM

FIGURE 4

Open innovation is such that 'if I win, you win too,' and vice versa. Baking a bigger cake is preferable than taking a bigger slice of the pie. The snake of the competition gives way to the 'reversed 8', a sign of the infinite game of co-opetition (a mix of cooperation and competition).

The invisible hand of Adam Smith's *The Wealth of Nations* intertwines with a visible handshake from the Smith author of *The Theory of Moral Sentiments*.

SECOND STAGE: FROM STEM TO STEAM

FIGURE 5

Today's imperative is to run in the STEM field – that is to say to instruct in the intellectual gyms of Science, Technology, Engineering, and Mathematics. If it were not for the fact that, as happened with the steam that unleashed sailing, the rise of Artificial Intelligence and Digital Transformation bring to the strings the Know How To Do (KHTD), which is born with new life only by coupling with Knowing How To Think, Imagine and Understand. A being together that requires familiarity with Art. STEM changes to STEAM, where 'A' is the Art that breaks with the tradition of incrementalism. Innovationists take over from incrementalists.

Let's listen to Steve Jobs:

It's in Apple's DNA that technology alone is not enough – it's technology married with liberal arts, married with the humanities, that yields us the result that makes our heart sing, and nowhere is that more true than in these post-PC devices.

FIGURE 6

A step back in history.

The interweaving of humanities, social sciences and natural sciences characterizes the University of Maynooth. Founded in 1997, the University is both the youngest and one of the oldest institutions of higher education in Ireland, tracing its origins to the foundation of the Royal College of St. Patrick in 1795.

It was there that Father Nicholas Joseph Callan (1799–1864), professor of natural philosophy, demonstrated the transmission and reception of electrical energy without wires with a device that is now known as the electrical transformer.

Professor Callan is best known for his work on the induction coil and for having built, at the time, the world's largest battery: his work contributed to the fertility of innovative entrepreneurship during the Industrial Revolution. Discoveries, inventions and innovations have flourished in hybrid contexts such as the College of St. Patrick where an invisible thread tied together theology, philosophy, art and science—a legacy that the University of Maynooth has renewed, enriching it with new contents.

FIGURE 7

Among the innovative infrastructures of Open Innovation, we find the co-working spaces. These spaces take us back to the Renaissance workshops that I illustrated in my book on the entrepreneurial renaissance published by Springer in 2017 (*Entrepreneurial Renaissance: Cities Striving Towards an Era of Rebirth and Revival*), and an article in the Harvard Business Review (*The Innovative Coworking Spaces of 15th-Century Italy: Where technological advances meet aesthetic beauty*, HBR.ORG, April 27, 2016).

FIGURE 8

Among the most famous Renaissance workshops was that of the Florentine Andrea del Verrocchio (1435–1488)—sculptor, painter and goldsmith. In the midst of painting, sculpture, mechanical engineering and architecture, pupils were educated in the various artistic and scientific professions and completed their studies by giving life to their business ventures.

Verrocchio's workshop gave free rein to a new class of entrepreneurial artists—eclectic characters such as Leonardo (1452–1519), and those of the caliber of Botticelli (1445–1510), Perugino (c1446/1450–1523) and Ghirlandaio (1449–1494).

The Renaissance *bottega*, the 'ancestor' of today's innovative co-working spaces, was, therefore, 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.

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

FIGURE 9

The concept of community is evolutionary. An outstanding example is the case of Olivetti, which in the course of its transformation leaves the STEM world behind and makes its own the STEAM thought with the *Community* political manifesto promoted by the founder's son, Adriano Olivetti.

In pursuing his entrepreneurial plan, Camillo Olivetti, who in 1908

founded "Ing. C. Olivetti and C." in Ivrea, Italy, was so determined that he accused the Italian bourgeoisie of being dangerously unbalanced on the side of humanistic culture at a time when industrialization was advancing steadily. So wrote Camillo Olivetti in his article on "The spirit of the mechanical industry" published in 1937 by the magazine "Tecnica e Organizzazione":

'The education of our bourgeoisie has a merely anti-industrial foundation. We are still the sons of the Romans, who left the industrial works to the servants and freedmen

and who looked upon them with little regard, so much so that they handed down to us the names of the most mediocre proconsuls, and of the poets and histrions, who enlivened the Roman decadence, but they did not even remind us of the names of those supreme engineers who built the roads, aqueducts and great monuments of the Roman Empire'.

THIRD STAGE: HAND & HEAD

The meeting between the hand and the head features the OI communities.

FIGURE 10

'There is a tremendous amount of craftsmanship between a great idea and a great product', argued Jobs. By attending the course of the Trappist monk Robert Palladino, he seizes the opportunity to combine the art of calligraphy with the style of typefaces that has made his Mac stand out. This led him to give Apple the imprint of a technology enterprise that goes hand in hand with the liberal arts and the humanities.

FIGURE 11

The digital revolution celebrates the figure of the craftsman whose 'hand-working' and 'thinking head' are intimately connected, as argued in Richard Sennett's essay 'The Craftsman', which takes up and critically comments on 'The Human Condition' by Hannah Arendt. Thus, the Renaissance workshop is re-evaluated.

FIGURE 12

Here, experiments in making physical things provided information then processed by the mind and translated into innovations.

The digital factory is the place of return to the craft prior to the age of mechanization inaugurated with the first industrial revolution, which generated a bottleneck between making and thinking – a mental impairment, in Sennett's words, that takes the learning away.

As in the original Renaissance workshops, the cross-fertilization in Pomini's laboratory of different abilities, skills and knowledge transforms a feather into an innovative design feature – a lamp that

is a real art object.

FORTH STAGE: 'MOZART EFFECT'

An innovation community is all the more open as it pursues the art of music.

FIGURE 13

It has been dubbed "Mozart Effect" (Campbell, D. *The Mozart Effect: Tapping the Power of Music to Heal the Body, Strengthen the Mind, and Unlock the Creative Spirit*, HarperCollins, 1997) the greater and better understanding of the orientation and distance of relationships that is obtained by listening to the music of that great composer.

Exposure to the art of music would, therefore, be an invaluable opportunity to build bridges between communities seemingly distant from each other.

In the mental gymnastics mode, experimentation must accurately report everything that made the exercise invalid, not only what is believed to have gone well. Stealing the words from Einstein, we like to think that the experimenter says, "It's not that I'm so smart, it's just that I stay with problems longer".

FIFTH STAGE: THE ART OF CONVERSATION

The instigators of open innovation have much to learn from the art of conversation that flourished in the 17th and 18th centuries, with serendipitous salon discussions that affected the verbal face-to-face transference of tacit, uncodified knowledge.

The philosophes of the Enlightenment exalted the art of conversation as a culture of imagination, exploration, experimentation, and creation, in a dynamic balance between introspection and open-mindedness, which touches the most sensitive chords of human inventiveness projected onto future events.

FIGURE 14

In the new Theatre of Economics in the second decade of the 21st 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 comes to light, which – as Benedetta Craveri, an Italian literary critic and writer, has described in her incomparable essay 'The Age of Conversation' – in the 17th century had its centre in the Chambre Bleue of the Hotel de Rambouillet under the auspices of its owner, Madame de Rambouillet. 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. 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.

FIGURE 15

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 (as we've already seen), clubs, scientific and literary societies, and coffee houses (the prototype is the *Café Procope* founded in 1686) – 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.

FIGURE 16

Mutual improving through conversation was a Franklin's aim. In 1727, at age 21, he formed a discussion group, the *Junto Club*, pursuing the ideals of knowledge and freedom that distinguished the most famous Parisian salons of that time. Learning by conversing involved a dozen of friends, who met on Friday evenings. As to the team spirit and shared goals of mutual collaboration within the group, so 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".

FIGURE 17

As Jenny Uglow (*The Lunar Men: Five Friends Whose Curiosity Changed the World*. Faber and Faber, London, 2002) recounted brilliantly, in the in second half of the eighteenth century an informal group of experimenters, including gifted amateurs, provincial manufacturers, non-academic practical types, few with

university education, founded the Lunar Society of Birmingham, so called because their meetings, which took place between 1765 and 1813, were held on Monday, nearest the full moon. Driven by curiosity in the workings of the natural world, Lunar Society members were responsible for a wave of innovation set in motion by the discovery of oxygen (Joseph Priestley, 1733-1804), the fine-tuning of the steam engine (James Watt (1736-1819) and the modern commercialization of pottery (Josiah Wedgwood, 1730-1795). Their achievements include fossil classification, telescope manufacture, and the creation of sparks of electricity. Lunar men lived art in its broadest meaning, encompassing the natural world. Uglow writes:

'In the time of the Lunar Men science and art were not separated: you could be an inventor and designer, an experimenter and a poet, a dreamer and an entrepreneur all at once without anyone raising an eyebrow.....when people spoke of the 'arts', they did not mean only the fine arts but also the 'mechanic arts'.

FIGURE 18

Let's look at the space-time of three great protagonists of revolutionary changes: Harrison in Yorkshire, Arkwright along Debyshire, Lancashire and Nottinghamshire, and Watt in East-Central Scotland.

John Harrison (1693-1776) was a carpenter passionate about the mechanics of clocks he worked on in his spare time. Richard Arkwright (1732-1792) began working as a barber and wig manufacturer, but showed great interest in spinning and carding machinery that turned raw cotton into thread. We have already said about James Watt, an instrument maker at the University of Glasgow. Three personalities with a strong practical sense and united by a passion for discovering new paths to tread. Their actions mapped out a shortcut that allowed innovation to travel faster from one point to another. In the fourteen years between 1761 and 1775, Harrison's marine chronometer (successfully tested in 1761), the patent of Arkwright's first automatic spinning machine (1769), and the development of Watt's steam engine (1763-1775) contributed to changing the configurations and performance of the leading industries of the time. Harrison, Arkwright, and Watt unlocked the doors to that phenomenon which the French economist Adolphe Blanqui (1798-1854), followed by the British historian and economist Arnold Toynbee (1852-1883), dubbed 'Industrial Revolution'.

FIGURE 19

In Bologna, an informal community of knowledge sharing supported the industrial cluster formation of the packaging machines. Blue-collar workers and technicians gathered in cafés where, playing

cards at small tables, they engaged passionately with each other in discussions on technical advancements and the new business models that could be adopted in their companies. These interactions gave birth to new companies in new market niches.

SIXTH AND FINAL STAGE: THE POSSIBILIST

Open Innovation Demands 'Possibilists'.

The Possibilist is a creative ignorant, focused on observation and curiosity for change, who lays down new, unprecedented paths – for invention, innovation or entrepreneurship.

While the realist lives in the present perceiving only what is today, the Possibilist is a fanatic who is projected into the future accepting ignorance as a first step on a voyage of discovery, taking his lead from Socrates' well-known thought that, 'The only true wisdom is in knowing you know nothing' (see Piero Formica, *The Role of Creative Ignorance*, Palgrave Macmillan, 2015).

If the realist is *Homo sapiens*, therefore able to think intelligently about the present, the Possibilist is also *Homo sentiens*, given her emotional predisposition to appreciate subjective experiences that project her into an unpredictable future, which can be constructed with the determinedness of acting extraordinarily.

FIGURE 20

The quality of the Possibilist is to generate an idea that instils so much courage to initiate it and so tenacity to "stick with that idea until you see the seed of that idea shoot through the dirt surface of impossibility. Then comes the period where you will need to water and fertilize that idea until the day finally arrives when you get to harvest the fruit of that idea" (<https://www.motivationalmemo.com/the-life-of-the-possibilist/>).

Ultimately, the Possibilist opens up unprecedented vistas, being elsewhere as compared to the perspective unfolding from the present time.

The Possibilist practices serendipity, a word coined by the historian, man of letters and Whig politician Horace Walpole, and 'controlled sloppiness' advocated by microbiologist and Nobel Laureate Salvador Luria. So acting in an open innovation community, the Possibilist provides useful insights into how to find interesting things and reap unexpected benefits while searching for something entirely 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.

FIGURE 21

Culture takes time to establish itself. Its greatness develops only at long intervals.

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.