

## piero formica

### **The Two Essential Entrepreneurial Types**

INNOVATION & ENTREPRENEURSHIP DIGITAL  
ARTICLE by Piero Formica

One is rarer than the other.

AUGUST 05, 2015

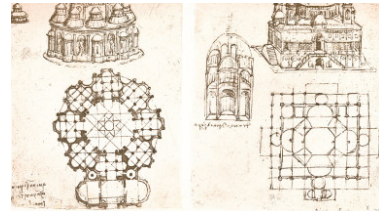


### **The Innovative Coworking Spaces of 15th-Century Italy**

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Where technological advances meet aesthetic  
beauty.

APRIL 27, 2016



### **Why Innovators Should Study the Rise and Fall of the Venetian Empire**

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The future will always be different from the  
past.

JANUARY 17, 2017



### **Bologna Shows How a Business Cluster Can Stay Vibrant for Centuries**

GLOBAL BUSINESS DIGITAL ARTICLE by Piero Formica

Prosperity is the byproduct of education and  
advances in technology.

OCTOBER 26, 2017



INNOVATION

# The Two Essential Entrepreneurial Types

by Piero Formica

AUGUST 05, 2015



In my research on innovators, I like to draw the distinction between “path finders” and “path creators.” Rarely does the metaphor seem so apt as in the case of Federico Bastiani. He is the originator of the “social streets” movement now spreading across Italy, so the innovation he created literally involves a path: the street in which he and his family live in Bologna.

Bastiani grew up in a small town in Tuscany, where people knew and helped their neighbors. When he moved to the city he was disheartened by how little social connection he had to the other residents of his street. His solution, in 2013, was to create a Facebook page called “Residents of Via Fondazza—Bologna” which he promoted by posting flyers in his neighborhood. Quickly, people began to connect with it, and soon the page became a place for

neighbors not only to get to know one another but also to arrange to help each other in various ways. As one article reports, people were soon “giving free piano lessons, lending washing machines, providing tips to newcomers about services in the city, giving away leftover food when going on holiday, holding street birthday parties,” and more.

But Bastiani and the others he had engaged in this project didn’t stop at the end of their own street. They publicized the success of the model and created a website to guide others who wanted to do the same. As of January 2015 there were at least 330 other social streets established in Italy, and more than 360 in other parts of the world.

We could say, then, that Bastiani is a path creator, and the enterprising people in the other cities, making progress with access to his story and approach, are path finders. Both are essential entrepreneurial types, in the commercial as well as the social sector, but the former is much more rare than the latter. The difference between them is not how boldly venturesome they are, but the extent to which they rely on preexisting knowledge.

Path finders are map readers. They very reasonably rely on already-discovered ways to do things as they seek new opportunities. The steps they take are valuable but not usually surprising (to themselves or others). They accept that they will face and have to manage risk when they set out to build something new.

In contrast, path creators avoid best practices, rules, and existing rights of way. They don’t need the comfort of roads already traveled and don’t filter their visions through the judgments of others. Innovation, for them, is a form of disobedience; they revel in the uncertainty and unpredictability of creating solutions that are *sui generis*. As I describe in *The Role of Creative Ignorance*, their open-mindedness is key to their ability to come up with new and better approaches, and sometimes cause fundamental alterations to what is understood about the world. They can be terrifically disruptive, depending on the institutional, entrepreneurial, and social contexts in which they act.

Given all this, it is interesting to consider in which direction today’s advances in information and communications technology are taking us: Are they encouraging more path finding or more path creating? As early as the 1960s, Peter Drucker told managers that the thorniest problems they faced in applying technology were not of a technical nature, but human ones. This remains true. If we want technology-fueled progress, we should be figuring out how to help humans use technology to open up new territory, not just to map

the territory we know in ever greater detail.

Either is possible, for example, with big data. Path finders value big data for its power to fill in as many details as possible on their knowledge maps, allowing them to identify the most reliable steps to take. By contrast, path creators see the extra layers of detail offered by big data as the enemy of creative ignorance. The appeal of big data for them is the chance to see patterns that disprove the assumptions that come with acquired knowledge. As the great Italian physicist Enrico Fermi put it, “If the result confirms the hypothesis, then you’ve made a measurement. If the result is contrary to the hypothesis, then you’ve made a discovery.” Of course it was data that allowed Galileo Galilei to discover, contrary to all received wisdom, that the Earth moves around the Sun. The defiant statement attributed to him even as he was forced to recant his finding—*Eppur si muove* (“And yet it moves”)—could be the battle cry of all path creators.

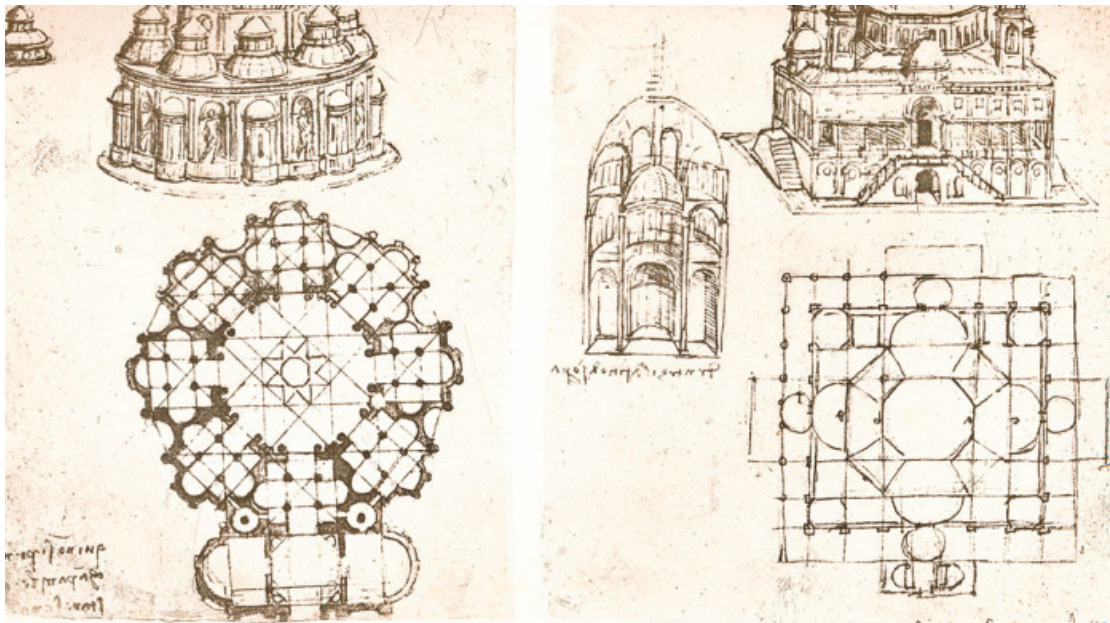
When someone like Federico Bastiani takes a modern technology like an online social networking platform and finds in it a way to enrich the physical reality of a neighborhood, he is using it for path-creating purposes. To get more innovations like social streets—technology-supported solutions that add so much to human life that they turn into movements—I would argue we need more than technologists taking technology to the next level. We need humanists, deeply attuned to what would make their lives and their neighbors’ lives more fulfilling, and unconstrained in imagining how to use an ever-evolving toolkit to deliver it.



# The Innovative Coworking Spaces of 15th-Century Italy

by Piero Formica

APRIL 27, 2016



Coworking spaces are on the rise, from Google's "Campus" in London to NextSpace in California. Much has been made of these shared workspaces as a brand-new idea, one that barely existed 10 years ago. But the way they function reminds me of a very old idea: the Renaissance "bottega" (workshop) of 15th-century Florence, 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.

The Renaissance put knowledge at the heart of value creation, which took place in the workshops of these artisans, craftsmen, and artists. There they met and worked with painters, sculptors, and other artists; architects, mathematicians, engineers, anatomists, and other scientists; and rich merchants who were patrons. All of them gave form and life to Renaissance communities, generating aesthetic and expressive as well as social and economic values. The result was entrepreneurship that conceived revolutionary ways of working, of designing and delivering products and services, and

even of seeing the world.

Florentine workshops were communities of creativity and innovation where dreams, passions, and projects could intertwine. The apprentices, workers, artisans, engineers, budding artists, and guest artists were interdependent yet independent, their disparate efforts loosely coordinated by a renowned artist at the center — the “Master.” But while he might help spot new talent, broker connections, and mentor younger artists, the Master did not define others’ work.

For example, Andrea del Verrocchio (1435–1488) was a sculptor, painter, and goldsmith, but his pupils weren’t limited to following his preferred pursuits. In his workshop, younger artists might pursue engineering, architecture, or various business or scientific ventures. Verrocchio’s workshop gave free rein to a new generation of entrepreneurial artists — eclectic characters such as Leonardo da Vinci (1452–1519), Sandro Botticelli (1445–1510), Pietro Perugino (c. 1450–1523), and Domenico Ghirlandaio (1449–1494).

What can those who want to create more innovative and collaborative workplaces today — whether that’s a better office in a traditional organization, a coworking space, a startup incubator, or a fab lab — learn from the workshops of the Renaissance? The bottegas’ three major selling points were turning ideas into action, fostering dialogue, and facilitating the convergence of art and science:

Turning ideas into action. Renaissance workshops were not just a breeding ground for new ideas; they helped ideas become reality. Likewise, today’s innovative workplaces need to be equipped with everything people need to turn their insights, inspirations, and mental representations into new products and ventures. Coming up with new ideas is hard enough, but the real challenge for many organizations is figuring out how to exploit them and turn a profit.

Fostering dialogue. Ferdinando Galiani, a Neapolitan economist of the 18th century, argued that markets are conversations. The quality of the network — that is, the combined intelligence of people and organizations with different skills and abilities — plays a critical role in innovation.

In Renaissance workshops, specialists communicated with each other consistently and fluidly, facilitating mutual understanding. The coexistence of and collision among these diverse talents helped make the workshops lively places where dialogue allowed conflicts to flourish in a constructive way. The clash and confrontation of opposing views removed cognitive boundaries, mitigated errors, and

helped artists question truths taken for granted.

Today, we often recognize the need for these kinds of illuminating conversations without really making space for them in our organizations, either because organizations are too afraid of conflict or because people are simply too busy to try to expand their understanding of each other. But Renaissance workshops offer proof of how important it is for collaborative workplaces to draw on sources of opposing ideas and controversial opinions.

Facilitating the convergence of art and science. While often remembered as primarily artistic today, in truth the Renaissance workshop was transdisciplinary. This helped create a holistic approach to creativity, which stands in opposition to our own organizations, in which people in different specialties are often separated into silos.

For example, during the Renaissance nature was seen as a convergence of art and science, as in the famous "Vitruvian Man" drawing by da Vinci. Many of today's most exciting business opportunities are similar meetings of technological advances and aesthetic beauty. Bringing these disciplines together fosters mutual learning through experiments that lead to business opportunities.

Whether you are running a coworking space or trying to get your own organization to be more creative and collaborative, think about some of the ways you might follow the example of a Renaissance workshop.

# Why Innovators Should Study the Rise and Fall of the Venetian Empire

by Piero Formica

JANUARY 17, 2017



Most organizations would be happy to last for centuries, as the Venetian Republic did. From 697 to 1797 AD, Venice's technological acumen, geographic position, and unconventionality were interlocking advantages that allowed the Most Serene Republic to flourish. But when change comes suddenly, it can turn strengths into weaknesses and sweep away even thousand-year success stories.

Venice's military technology and the city's pivotal location on the main trade routes of the time gave Venice several strong, mutually reinforcing advantages.

The Arsenal, an advanced naval munitions factory that anticipated by several centuries the production-line method of manufacture, was the beating heart of the Venetian naval industry. From the thirteenth century on, the Arsenal nurtured creativity and spurred innovation and entrepreneurship in the construction of its galleys.

The city's geographic location helped it to defend itself from both



land- and sea-based invaders. This location, consisting of a series of islands in a marshy lagoon, also pushed it to develop a (then unusual) trading and moneylending economy, since there was little land to support agriculture. And its position at the top of the Adriatic Sea allowed it to become a vital trading hub, connecting the East with the West via the Mediterranean.

If, as Michael Porter wrote, competitive advantage stems from how “activities fit and reinforce one another....creating a chain that is as strong as its strongest link,” then strategic fit is something that the Venetian Republic had in spades.

But, like a lot of successful entities, Venice reached a point where it focused more on exploitation than exploration: Venetian traders followed existing paths to success. Entrepreneurs chose not to move away from traditional pathways. Established practices and preferences became more popular than exploration and speculation. Merchants and traders played the game of incremental innovation by focusing on efficiency and optimization. Determined to grow their own fortunes rapidly, they pressed their feet to the accelerator rather than charting new courses.

But toward the end of the 16th century the world was changing in ways that would make Venice less relevant. The Arsenal’s focus on galley ships made sense when the Mediterranean was the most important trading waterway. Alessandro Barbero, professor of medieval history at the University of Eastern Piedmont, in Italy, notes that the galley remained for a long time the favorite vessel of Venetian navigators. But the invention of seafaring galleons allowed countries bordering the Atlantic to set up new trade routes that did not flow through the Adriatic.

This age of exploration triggered the beginning of Venice’s decline. One huge advance in technology — ships that could survive at sea for months, even years — weakened Venice’s competitive advantage and the strategic fit of its competencies.

The rise of the seafaring galleon meant Venice was suddenly disadvantaged by its location at the northern extremity of the Adriatic Sea. Moreover, its Arsenal was no longer at the cutting edge of naval technology. Venice’s economic importance had sharply contracted by the time Napoleon invaded, bringing the Venetian Empire to an official end.

What’s the lesson for entrepreneurs and innovators today? The stronger the assumption that the future will function as today does, the greater the gravitational force of the status quo. Organizations set in their ways slow down and never strive for new horizons. They

are doomed to wither.

If you don't want to be caught by surprise, you have to recognize that the future will be different from the past. The future 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. If your current business is like a carefully tended garden, with neat beds and high walls, that's not enough. The next opportunity (or threat) may lie outside those walls, at the messy intersection of sectors and markets.

Entrepreneurs and innovators resist "success as usual" syndrome, exploring emerging technologies and new business models. They try to keep the big picture in mind and are wary of being too efficient and too optimized. This perspective helps them promote unconventional ways of thinking, solving problems, and challenging the status quo. They know the goal is not to chase a fixed horizon but to understand when and how the horizon moves as they approach it.

# Bologna Shows How a Business Cluster Can Stay Vibrant for Centuries

by Piero Formica

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Today when we talk about business “clusters,” we’re usually talking clusters highlights the importance of adaptation to keeping a cluster vibrant, and the about the technology industry in Silicon Valley, the financial sector in London or New York, or automakers in southern Germany.

But clusters go back much further than these examples. “Businesses have clustered into networks of various sorts throughout history,” writes the U.S. National Commission Entrepreneurship. “The medieval guild system was a primitive networking exercise”.

The most successful, enduring clusters are not stagnant. A look back at long-lasting clusters highlights the importance of adaptation to keeping a cluster vibrant, and the catalysts that keep it moving

forward.

“He that will not apply new remedies must expect new evils; for time is the greatest innovator,” [stated](#) Francis Bacon. Nowadays, when a multitude of businesses are confronted with the leap from “dumb” products to creating [smart, connected ones](#), and cities and regions are trying to make the leap from manufacturing to services, relying too heavily on past successes will only lock those clusters in the past.

An example of a cluster that has avoided what I call this “lock-in syndrome” is Bologna, Italy, one of the most remarkable and long-lasting clusters of history. Though many people know it for its packaging machinery cluster, they may not realize the deep historical roots of this industry, or how much it has evolved over time.

As with many clusters, a university sits at its center: founded in AD 1088, the *Studium* of Bologna was the major educational innovation of Europe’s second millennium. Europe’s first academic university was the epicenter of the guilds of wandering students (*clerici vagantes*). Spanning geographical barriers and shrinking the world of education, the resulting exchange of ideas between students and professors in a climate of freedom generated interactive spaces for knowledge creation, dissemination, and sharing. Those spaces were reservoirs rich in memories from which lessons for cluster formation would be extracted later.

About two hundred years later, towards the end of the thirteenth century, we start to see the first Bolognese silk mills, which became a major industry. The major innovation lay in an extraordinary machine already in use in Lucca, about 150 kilometers southwest of Bologna. This round, mechanical spinning machine was capable of twisting dozens and dozens of threads at the same time. The innovation of the Bolognese silk makers was to operate the Lucca machine with a hydraulic wheel, instead of by hand. Thanks to this technological innovation—[made possible by](#) Bologna’s canals and ample supply of water—by the 15th century, Bolognese mills had expanded from small-scale production to busy factories that took up three or four floors. [Long before the Industrial Revolution](#), Bologna used this combination of hydraulic power and technology to bring silkworm farming to Europe at scale. Bolognese yarns were sold to the doges of Venice or exchanged for spices and salt, and they were also exported to the large international markets, to France, Germany, England and even to the East.

But when Industrial Revolution did arrive, it shook the Bolognese silk industry. In Bologna at the end of the 18th century, changing

consumer tastes, labor costs, and production technologies all led to the contraction of the industry. The result was a deep and prolonged recession.

Nonetheless, today, the Bolognese “Packaging Valley” stands out internationally for its ability to meet the specialized needs of manufacturers throughout the world. Firms in the cluster design, manufacture, and assemble packaging machinery for a wide range of products, such as baked goods, confectionery, beverages, tea, tobacco, pharmaceuticals, and chemicals. They are known for demonstrating a special sensitivity to the market needs of the specialized manufacturers who use their services. Systems and machines are tailor-made to fit the specific needs of their customers, using innovative techniques and new packaging materials.

How did the city make the leap? Scholars and historians trace it back to several vital turning points. One key moment came when two pro-business academics—Giovanni Aldini, professor of Experimental Philosophy in the University of Bologna, and Luigi Valeriani, professor of Public Economy in the same University, visited the new technical and professional schools in France, Great Britain, Germany, and Belgium, learning the best practices of the new technical education and training on offer in Europe. The fruit of their travel was first the gestation and then, around 1844, the foundation of a technical school named after them. They advocated a mix of in-company “learning by doing” training and formal training, and offered new mechanical qualifications. The Aldini-Valeriani School thus acted as the incubator of a number of new firms, with a good number of students who subsequently choosing to start their own packaging companies.

Several of the graduates of the school went to work for ACMA (Anonima Costruzioni Macchine Automatiche), a packaging company founded by accountant Gaetano Barbieri in 1924. Their first major customer was Gazzoni, a local pharmaceutical company that made a powder called Idrolitina, which added sparkle to drinking water. Dextrous female workers measured the powder by hand, before stuffing it into individual paper packets. In the early 1920s, as a result of a growing market for Idrolitina, Gazzoni decided to automate the packaging process. From 1927 onwards, ACMA’s [Bruto Carpigiani](#) designed the packaging machines, one of many mechanical inventions he created. ACMA and Carpigiani are today both viewed as instrumental in the development of Bologna’s packaging machinery sector, and in the 1930s, a number of other additional machine packaging firms were founded by ACMA-influenced workers, technicians, and machinists.



This story shows that while clustering is an organic process involving a self-organized, self-sustaining, and self-reinforcing formation of interconnected businesses, this process does not start without a catalyst of some kind. That catalyst is what starts the “cluster reaction.” The catalyst might be a handful of skilled individuals, local entrepreneurial pioneers, or academic excellence—in different situations, all of these have acted as catalysts. In the case of the packaging machinery cluster in Bologna, all three played a role.

But the catalyst won’t have much impact without a hospitable environment. In Bologna, an informal community of knowledge-sharing supported the “cluster reaction.” Blue-collar workers and technicians were used to meeting 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.

Moreover, a cluster can never be static. It was the novel innovations of silk machines and tertiary education that gave rise to Bologna’s local excellence in mechanical engineering, but as the world changed, Bologna also had to adapt. Today, with the rise of smart, connected machinery, Bologna’s packaging machinery cluster is changing again, this time from “industrial” to “cognitive”—its future again hinges on inventive entrepreneurs and educators responsible for new innovations. And again, both entrepreneurs and educators will have to share the responsibility. [As argued by William Baumol](#), the education of the incremental innovator leads to mastery of the *already available* paths of scientific knowledge and methods. Breakthrough inventiveness requires unorthodox approach to education that favors the freewheeling exercise of the imagination.

That in itself will take a certain kind of breakthrough. In Baumol’s words, “We know little about training for the critical task of breakthrough innovation.” This is a time for reinventing learning with the full involvement of Renaissance thinkers, as Steven Shapin, historian and sociologist of science at Harvard University, has defined those people who conceive of innovative ways of understanding education, breaking revolutionary paths, and moving away from dominant teaching orthodoxies.

Vibrant cities rely on clusters that can adapt; and cluster adaptability in turn hinges on learner-centered education, an “idea space” where the ideation process leads to useful knowledge both in business and society. Value is created in the crucible of dialogue, through interactions between interdependent people whose

adjacent ideas give rise to related entrepreneurial activities.

Dynamic clusters might seem to spring up by a happy accident meeting a prepared mind. The role we all have to play in keeping cluster dynamics alive is in *preparing* the mind to look forward.

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Professor Formica received the Innovation Luminary Award 2017 from the Open Innovation Strategy and Policy Group for his work on modern innovation policy.

Professor Formica has extensively published in the fields of knowledge economics, entrepreneurship and innovation. His most recent published works include: *The Experimental Nature of New Venture Creation: Capitalizing on Open Innovation 2.0* (Springer, 2013), co-edited with Professor Martin Curley (former VP Intel Co.), *Stories of Innovation for the Millennial Generation: The Lynceus Long View* (Palgrave Macmillan, 2013), *The Role of Creative Ignorance: Profile of Pathfinders and Path Creators* (Palgrave Macmillan, 2014), *Grand Transformation towards an Entrepreneurial Economy: Exploring the Void* (Emerald Group Publishing, 2015), and *Entrepreneurial Renaissance: Cities Striving Towards an Era of Renaissance and Revival* (Springer, April 2017).