# A Journey through Manufacturing and Supply Chain Strategy Research

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## A Journey through Manufacturing and Supply Chain Strategy Research

A Tribute to Professor Gianluca Spina





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#### Foreword by Giovanni Azzone

I met Gianluca Spina for the first time in the end of the 1980s, just after he graduated in Electronic Engineering at Politecnico di Milano. Ever since then, we have been colleagues, at the Department of Management, Economics and Industrial Engineering and at the business school, and close friends.

This makes it very difficult for me to distinguish between the man and the scientist, as I shared most of my professional and personal life with him. Luca was so active and so full of ideas for the future that I am still unable to fully realise that he will not be able to apply them in practice or see the results of his actions.

However, as men of culture and science, we do know that our role in the world is not measured by the time we spend here, but rather by the effects of our ideas. And I am very happy that some of Prof. Spina's ideas are collected in this book, with commentary from the most important scholars in the field of research into manufacturing and supply chain strategy.

The papers show the leading role that Prof. Spina covered in the field over more than 20 years, since the early 1990s, when he, with Emilio Bartezzaghi, started his research at Politecnico di Milano. They also clarify the approach employed by Prof. Spina, to combine a sound strategic framework with a wide empirical basis, and always keeping in mind the *social role* of his studies, where the results should not only be of academic interest but should also have the aim of increasing the competitiveness of real manufacturing companies.

They also show how Gianluca was a key man in the network of international researchers promoting the development of new paradigms for European manufacturing and, above all, his capacity to create a strong group of clever scholars. These scholars—from Raffaella Cagliano to Stefano Ronchi, from Giulio Zotteri to Federico Caniato, to name a few of the better known—will be the biggest legacy that Gianluca and his passion has left to our world.

Giovanni Azzone Rector, Politecnico di Milano

#### Foreword by Cristina Masella

I met Luca many years ago, at the start of our careers. We were on the second floor of the Electronics Department, "shoved" into offices that were a bit too small and (at least mine) very untidy, but with the advantage of being close together. What I remember about those days were the expeditions to the EurOMA conferences, schools and AiIG conferences, and the enthusiasm and energy with which we faced every new project.

We progressed through the university together and shared many important moments in our careers, but until 7 years ago, Luca for me was "only" a close colleague whom I admired for his vision and lucid analyses. This changed on the day when he asked me in for a meeting and, playing an exclusion game that I learnt to know well, convinced me—in agreement with his life-long friend Giovanni Azzone—to stand for Director of the Department of Management Engineering. I, therefore, want to talk about the Luca Spina of this last period and my co-existence with him in my "tsarina" role (which is what Luca called me as a joke).

Luca was naturally very intuitive, he was capable of seeing far ahead and, when he took a decision, he travelled much faster than most of us. He found my prudent approach extremely irritating, and often over-influenced by the contingent situation. There were countless episodes of attrition between us. Over the years, however, we learnt how to reconcile his impetuousness and my prudence, his vision and my policy of small steps. I am sure that, without his drive, today we would not be the School of Management that we have become.

Luca was a natural leader, and this often meant that he took on a dominant role when decisions were being made, in particular, when he was taking on a project. I can remember, for example, during the time when he was President of AiIG, his work to spread the culture of research of quality within our academic community, or the long process of transforming the MIP consortium into a consortium company, or again, the evolution of SoM's organisational structure, which, I am sure, is behind many of our results.

Luca was intelligent, stubborn and prickly with incredibly strong work and business ethics. We totally agreed on these points. Possibly because, underneath,

we were not very different. This led to us having a very high level of confidence: "our" moments came during the EFMD Conferences for Deans and Directors. During these two highly intensive days, we used to discuss—while respecting our mutual responsibilities—wrong decisions, errors made, counter-productive behaviour, unmet targets. And we obviously returned to Milan full of good proposals and with a bundle of projects. He running, I trotting.

This, and many other things that cannot fit into this introduction, transformed a dear colleague into a friend to whom I owe so much of my recent professional growth.

Cristina Masella Head of the Department of Management Economics and Industrial Engineering Politecnico di Milano

#### Foreword by Andrea Sianesi

I started knowing Gianluca in 2001–2002.

In those days, Emilio Bartezzaghi was President of MIP, Gianluca ran the Master in Business Administration and I had just returned to Politecnico after a short interval at LIUC. The first project that I was involved in was to study, with Gianluca, and then launch, the International MBA.

Thinking back to what MIP was then and comparing it with today is the best way to understand what Gianluca has helped us to build over 15 years, many in a leadership position, leaving his own highly personal imprint.

Gianluca belonged to that tiny platoon of colleagues who, right from the beginning of this century, strongly believed in the power of internalisation as a tool to grow and survive competition. Until 2003, no courses were taught in English, while today, at MIP, we have 11 international Master's programmes and most of our students on Master's courses are from other countries.

Gianluca was a firm believer in meritocracy and in quality *above all else*, with no compromise. Today, the School of Management has embarked on a new journey towards our remaining accreditation, AACSB, after having successfully gained recognition from ASFOR, AMBA and EQUIS.

EQUIS, in particular, was a challenge that Gianluca pushed strongly and he spent an incredible amount of time on the process. Even daring to think about such a difficult process 10 years ago, when there was only one international programme at MIP and all our faculty were Italian, indicates how much Gianluca believed in the school's process of development, a journey that was so cleanly mapped out in his mind that he knew exactly what strategic actions had to be taken.

Internationalisation was one challenge, digitalisation was the next. The term *Smart Learning*, which outlines the direction of MIP programmes (and not just theirs) over the next years, was invented by Gianluca. *Smart Learning* is certainly his greatest achievement and our inheritance, determined by his ability to see far ahead. While, 15 years ago, internationalisation may have seemed a great novelty for us, although others had understood its immense potential, it was different for digitalisation. With Gianluca, MIP took on the role of innovator, and because of him, the school is now among the first movers globally in this area.

Finally, Gianluca firmly believed in the process of management and management methods. Being the driving force to get people to develop, whether researchers or MIP staff, challenging them by giving them increasingly more challenging positions, tasks and responsibilities, is a great quality, and he showed this in abundance over the years we spent together. I think that the time we spent together also helped me to grow.

I did not really know Gianluca the researcher, but I knew Gianluca the research group leader extremely well. Through the joint work carried out between our respective research groups, in 2009, Politecnico di Milano was able to activate a Supply Chain Management stream in the MSc and then we started looking at the key sectors for our country, such as fashion and luxury goods, in a totally new light.

I did know Gianluca my friend very well. With him, when skiing together at Gressoney, whenever we could, we have been working out any disagreement or difference of opinion, and, with him, I spent, who knows how many hours, discussing things that seemed like dreams then, and are the reality of MIP today.

Andrea Sianesi Dean, MIP Graduate School of Business Politecnico di Milano

#### Foreword by Francesca Bodini Spina

I met Luca for the first time when he was still an engineering student at Politecnico di Milano. We never could have imagined, then, that Politecnico would have played such an important role in his entire life and a little bit in mine as well.

His was a long journey, initially a difficult one, when he decided to stay at Politecnico before they even had a Ph.D. programme. How could I ever forget that little office facing the Giurati sports centre which he and Roberto Verganti, both still very young, shared with two already established professors, Emilio Bartezzaghi and Adriano De Maio? His journey then gained speed, incredibly so when compared to normal academic progress, following the success and development of the course in Management Engineering. Luca spent, who knows how many nights and how many weekends writing papers, thinking about publications, totally immersed in his work. Tired? Sometimes. But his determination and passion never languished, because he was doing what he loved.

We married at this time, and alongside his professional growth, our family also grew. The words that come into my mind are: happiness, dedication and his—and our—project. Together we created this wonderful life's project, allowing both of us to grow, personally and professionally, and our family too, with the arrival of Pietro and Annachiara.

And along this journey, Politecnico was always with us, joined later by MIP, the business school in which Luca believed so strongly ever since the days of Via Rombon, becoming, ultimately, its President. He was not alone in his journey. His life was filled with people, his parents, Giorgio and Anna, his sister, Fabiana. and brother, Leonardo, our children, Pietro and Annachiara, and his inseparable friend, Alessandro, and there were so many others. I can think of his teacher, Emilio Bartezzaghi, and his students, Raffaella Cagliano, Stefano Ronchi, Federico Caniato and many of his colleagues who became our friends, like Giovanni Azzone and Andrea Sianesi. And the great MIP and AiIG families.

He always told our children that in life, dedication and passion are everything, and if they are missing, you may do many things, but you will not go far.

Francesca Bodini Spina

#### **Preface**

This book is intended to be a tribute to Gianluca Spina, and to his intense and inspiring work as a researcher, professor, dean, colleague and friend.

Gianluca was Professor of Business Management and Organisation and Supply Chain Management at the School of Management of Politecnico di Milano. He was an active scholar in the field of manufacturing and supply chain strategy, highly involved in international communities and networks such as EurOMA, POMS and IPSERA and a reference point for the Italian Management Engineering Association (Associazione Italiana di Ingegneria Gestionale—AiIG). He was also the Dean of MIP Graduate School of Business for a decade, and become very active in the international communities of management education, in particular European Foundation for Management Development (EFMD).

Very sadly, Gianluca passed away on the 21 February 2015 in a tragic skiing accident in his beloved mountains.

While trying to make sense of the loss that all of us felt, we thought that the best way to do so was to put together a testimony of the legacy that he left to us. For those who did not have the chance of meeting and knowing him as well as we did, this is the opportunity for absorbing some of his teachings and learning by his example.

We, therefore, decided to write this book, collecting together a number of papers that Gianluca had published with his close friends and colleagues in renowned, international journals. We then asked his friends and colleagues to review them, adding their commentaries to try to extract the key messages and values that continue to be valid many years after their publication.

We used the following selection criteria. First, we tried to give the sense of Gianluca's research journey over the years, and to present the main research streams that distinguished his work. We also selected papers with highest impact on the research community (measured through the number of citations received). Finally, we tried to include the most important research collaborations that Gianluca had established in Italy and abroad. Following these criteria, we selected seven papers, and we then asked a number of scholars in the field, who are among his closest friends and colleagues, to review and comment on these papers.

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From our side, in the first chapter of the book, we prepared a summary of Gianluca's research journey set out in parallel with the key developments in the field of manufacturing and supply chain strategy. We have also outlined the very important contribution that Gianluca brought to management education, which, in his approach, was always closely intertwined with his research activity. In addition, we have tried to set out the key values which we think inspired Gianluca in all his work, summarising the legacy that he left to us.

The book also contains forewords by Giovanni Azzone, Rector of Politecnico di Milano, Cristina Masella, Head of the Department of Management, Economics and Industrial Engineering, and Andrea Sianesi, Dean of MIP Graduate School of Business. We asked them to write these forewords not only because of their institutional roles, but mainly because of the close friendship that linked them to Gianluca. And a foreword has been also prepared by Gianluca's beloved wife, Francesca

We would like to remind here also our colleagues and friends of the GIGA Group (Gianluca's research group at the School of Management)—and, in particular, Roberto Verganti, Mariano Corso, Matteo Kalchschmidt, Tommaso Buganza and all the younger group—who also shared with us these inspiring years with Gianluca.

We hope that we are able to convey through this book all the values, inspiration, energy and enthusiasm that all of us experienced throughout the long journey that we had the good fortune to travel on with Gianluca.

Emilio Bartezzaghi Raffaella Cagliano Federico Caniato Stefano Ronchi

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- Bartezzaghi E., Spina G. e Turco F., (1992), The Impact of the Just-in-Time Approach on Production System Performance: A Survey of Italian Industry, International Journal of Operations & Production Management, 12(1), 5–17.
   Emerald Group Publishing
- Spina, G., Bartezzaghi, E., Bert, A., Cagliano, R., Draaijer, D., & Boer, H. (1996), Strategically flexible production: the multi-focused manufacturing paradigm. *International Journal of Operations & Production Management*, 16(11), 20–41. Emerald Group Publishing
- Cagliano, R., and Spina, G., (2000), Advanced Manufacturing Technologies and Strategically Flexible Production, *Journal of Operations Management*, 18(2). Elsevier
- Spina G., Verganti R., Zotteri G., (2002), A model of codesign relationships: definitions and contingencies, *International Journal of Technology Management*, 23(4), 304–321. Inderscience

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Cagliano, R., Caniato, F., Spina G. (2003), E-business strategy: how companies are shaping their manufacturing and supply chain through the Internet, *International Journal of Operations and Production Management*, 23(10), 1142–1162. Emerald Group Publishing

- Brun, A., Caniato, F., Caridi, M., Castelli, C., Miragliotta, G., Ronchi, S., Sianesi, A., Spina, G. (2008), Logistics and supply chain management in luxury fashion retail: empirical investigation of Italian firms, *International Journal of Production Economics*, 114 (2), 554–570. Elsevier
- Spina, G., Caniato, F., Luzzini, D., Ronchi, S. (2013), Past, present and future trends of purchasing and supply management: An extensive literature review, *Industrial Marketing Management*, 42 (8), 1202–1212. Elsevier