

Italian PM case history, in the Renaissance Age and before¹

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ABSTRACT

First part of this paper has been presented by prof Corini as his *Lectio Magistralis*², mainly focused on the Project Manager role, how it was performed by Filippo Brunelleschi, a prominent architect in the Italian Renaissance age (six centuries ago), in the design and construction of the Florence Cathedral Dome [1]. In the second part a short example about the competencies shown in the same role by ancient Romans, while constructing their Empire infrastructures all across western Europe and beyond it.

BRUNELLESCHI ARCHITECT AS PROJECT MANAGER - DOME OF THE FLORENCE CATHEDRAL

Even before the early part of the Renaissance age (1300-1400) Florence was a very rich city and became a significant (maybe unique) site of fine arts development. This included architectural initiatives: castles, towers, and mainly churches.

At that time the Florence lordship decided to create a new cathedral, more fitted with the city importance, in order to amaze all Europe: the biggest cathedral with the biggest dome in the whole history.

In 1380 the base building was almost completed, but not the dome. All the citizens were pressing in order to finish the job. A public bid was finally issued in 1418, to design and build the dome. At the same time, due to the acknowledged difficulties of the endeavour, a similar bid was issued to design and assemble the equipment required for a safe lifting of dome materials.

Many participants, but no winner: any proposal was considered inadequate. But immediately emerged that Brunelleschi's project was the best (see Fig. 1).

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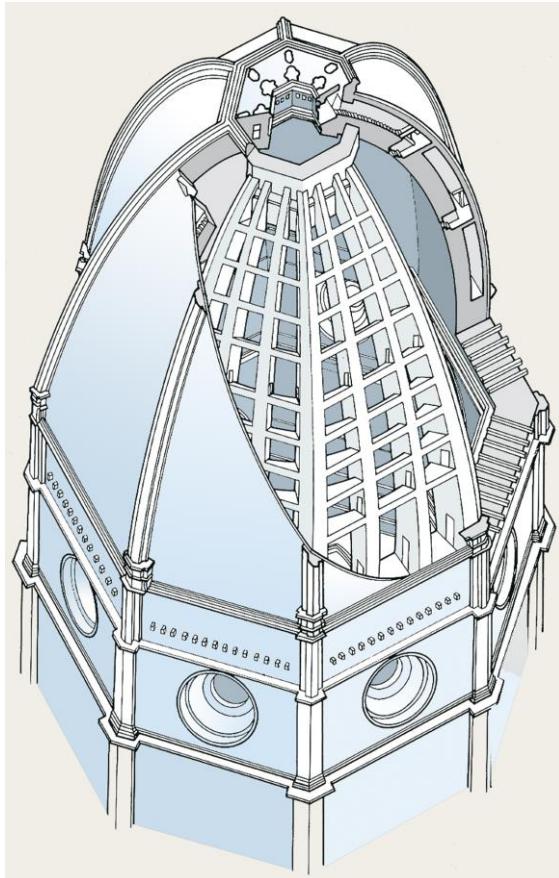


Figure 1: The Dome of the Florence Cathedral: axonometric cross-section (courtesy by Giuseppe Nifosi artesvelata@gmail.com www.artesvelata.it/cupola-brunelleschi/) [2]

But it was so “futuristic” that was almost incomprehensible to the commission members. Therefore, it generated perplexity and doubts and a no-decision approach has been adopted: both Brunelleschi and Ghiberti (another prominent Florence artist) projects were equally appraised and both awarded the role of construction managers. Maybe they thought to mitigate the risks, but (as you know) it was a bad mistake: the project management rule n. 0 was not attained!

Brunelleschi understood it and, just to ignite the problem, decided to stay apart for some days. As expected, workers team somehow mutinied and the project owner understood the mistake, leaving to Brunelleschi the whole responsibility, while Ghiberti had a formal role, only (at last, he was the artist who made the Gates of Paradise of the Florence Baptistery!).

Then he prepared and discussed his offer with the Client, operating as a Proposal Manager. Once the contract was acquired, he was effectively appointed Works Manager (in fact the P.M.), with a top-level investiture. He selected and hired some master builders he personally knew and appointed one of them as his direct interface.

He designed and arranged to be built, with his own interventions, all the "new" equipment necessary for the project: some wooden structures with lifting function more than tens and tens of meters high.

Brunelleschi personally hired a large part of the local workforce, examining the different qualifications and availabilities; which was not easy since the features of the work to be performed were really new and perceived as dangerous. Just at the beginning, most of the local workforce showed unwilling to perform the job. Therefore, he hired a group of very solid workers coming from Northern Italy, thus soliciting the pride of the "Florentines" who returned to the job.

Brunelleschi designed and commissioned the entire complex work safety system and personally followed its compliance. As a consequence, along a period of about twenty years, in a construction site with about 40 workers, in a construction site that mainly developed between 35 and 70 meters above sea level, only one fatal accident occurred.

For the whole duration of the project, Brunelleschi personally managed frequent relationships with an obviously concerned Client, providing data and detailed information in terms of costs, execution times and quality of the work (a progress report forerunner!).

He managed, acting frequently "on-site", the relationship with the various master builders, in order to replan times and resources when necessary to absorb delays, but above all to illustrate the specific details of the project, indicate technical changes in an understandable way for those who worked; they reported that to be understood in "3D", he carved some joints in a turnip! (See the final output in Fig. 2).



Figure 2: The Dome of the Florence Cathedral (Creative Commons licence) [3]

Furthermore, Brunelleschi for the entire duration of the project personally managed relations with those who today we define as stakeholders and, among them, also the common people who crowded the construction site every day and who called "Ser Pippo"

loudly to express the need to finish soon if not, perhaps, also to suggest alternative techniques. Finally, the Cathedral of Saint Mary of the Flower and its Dome, also including the Baptistry and Giotto's Bell Tower, became an icon in the Florence landscape (see Fig. 3).



Figure 3: The Florence Cathedral (courtesy by Petar Milošević petarmslo@gmail.com) [3]

Today it is almost the same, the stakeholders are often many and aggressive, sometimes politicized, but it is often the foreman (team/task leader) who unravels the minor skeins. For the larger ones, at a high level, the Project Manager must intervene, if enough.

JULIUS CAESAR ROMAN BRIDGE OVER THE RHINE RIVER

In the early summer of 55 BC, during Caesar's conquest of Gaul it became necessary to secure the eastern border of the new provinces against Germanic tribes located beyond the Rhine river³. According to his commentaries ([Commentary on the Gallic War](#), 4th book) Caesar decided not to use boats to cross the river, but to build a wooden bridge,

³ https://en.wikipedia.org/wiki/Caesar%27s_Rhine_bridges

in order to show Roman military and engineering capabilities. It was some hundreds m (up to 1,300 ft) long and its width reached 9 m (30 ft). At that site the river is up to 9.1 m (30 ft) deep. Project time was very tight: only 10 days, while project costs were marginal: main material were local lumber, large boulders and ropes, manpower was the “miles” (soldiers) of his legions, maybe supported by cavalry horses. Quality, for that time, was excellent: being the river up to 9.1 m (30 ft) deep, protective barriers against flotsam were included, while the construction system ensured that the greater the flow, the harder the bridge was held together.

This bridge lasted only 18 days because, after passing it with the troops and finding no resistance, Caesar decided to turn back and to cut the bridge down.

But it was only the first one: a second bridge was built again after two years, adopting a similar design. It was built "in a few days", as described in Book 6 his commentaries (6th book). His troops raided the opposite countryside, but without a significant opposition. Upon returning to Gaul, the bridge was again taken down.

In military and politic terms, Caesar's strategy was effective, as he was able to secure the eastern border of Gaul. He demonstrated that Roman power could easily and at will cross the Rhine and henceforth for several centuries significant Germanic incursions across the Rhine were halted. Further, his feat served him in establishing his fame at home.

In project management terms, the triple constraints model was perfectly respected. Moreover, some *soft skills* capabilities were in place, giving to the “miles” the opportunity to show their resourcefulness!

CONCLUSION

Other correspondences with modern Project Managers features could be listed, but we think that what has been described so far is enough to verify the assumption, namely that the Project Manager is also an ancient profession, at least in Italian/EU historical context!

REFERENCES

[1] Corini F. “La nascita del moderno Project Manager e un grande Project Manager di sei secoli fa (Filippo Brunelleschi)”, *il Project Manager*, FrancoAngeli, pages 5-8-n° 51 2022

[2] www.artesvelata.it/cupola-brunelleschi/

[3] Florence Cathedral https://en.wikipedia.org/wiki/Florence_Cathedral

About the Authors



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Felice Corini graduated as an electrotechnical engineer at “Alma Mater” Bologna University. After serving as a Lieutenant in the Italian army corps of engineers, he worked for more than 10 years at *Filippo Fochi spa* Bologna, acting as P. M. coordinator in many important projects in Italy: nuclear plant in Caorso, ammonia plant for Montedison in Ferrara, oil refinery in Augusta Sicily. Long standing trade mission in Iran and Brazil.

Afterwards he spent more than 20 years at *Incomech spa* Milan/Parma, starting as Project Manager for Algerian Sonatrach gasline 42 inch from Hassi er Mel to Borji Menael, and then Commercial manager, General manager and CEO, main shareholder. Important projects included chemical, petrochemical, thermal power plant, turbo gas power plan, pipelines on shore and offshore, GNL reinjection plant, district heating in: Italy, Algeria, Angola, Yemen, Iraq, Russia, Morocco, Saudi Arabia.

At the same time he served as CEO at *Incosevice srl* Parma, providing technical services with super qualified personnel for maintenance, erection supervision, repairs, precommissioning and commissioning of turbo gas compression stations of Nuovo Pignone and General Electric in Russia, Algeria, Europe and for Fiat Avio in Syria. Main shareholder of *Interincosevice gmbh* Zug, Switzerland, performing same activities as Incosevice but with international personnel.

More than 15 years as contract professor in *Project Management* at Parma University-Engineering Dept. Also, contract professor in *Technology for Construction of Industrial Plants*. Recently, he was appointed “honorary professor” at the University of Parma. Felice can be contacted at feli.corini@libero.it.



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Federico Minelle graduated in Physics at “Sapienza” - Rome University, presenting a Master's degree thesis on Artificial Intelligence (AI) research. Afterwards, for more than 40 years he consulted in Business Organization, Information Systems and Project Management. As a partner at Accenture and then as senior partner of Italian consultancy firm *PRS - Planning, Ricerche e Studi*, he managed and monitored significant projects in several industries, mainly in Engineering and Construction (e.g. manufacturing and nuclear power plants, transportation infrastructures) and in Government (ICT and process innovation).

Federico taught for more than 20 years *Business Information Systems* in the Computer Science Dept. of “Sapienza” - Rome University, where he also taught *Project Management & ICT* for the academic master's degree in *ICT Governance and Audit*. At the same time he often lectured about similar topics to Government officers attending SNA (*National Public Administration School*) courses.

He was Editorial Director of the Italian journal “***Il Project Manager***”, developing a fruitful cooperation with the *PM World Journal*. Just after retiring at the end of 2017, he was appointed as Scientific Director of the same Italian journal until mid 2022, where he writes editorial notes, papers and book reviews.

Since 2018 Federico Minelle is an International Editorial Advisor for the *PM World Journal* (PMWJ) and by extension for the PM World Library.

He is an honorary member of *ISIPM (Italian Institute for Project Management)*. In the early 1990s he co-authored 2 books on strategies and management of Engineering & Construction business, edited by the relevant Industry Associations, while more recently he contributed to the “Guidelines for Quality ICT Procurement”, edited by the Italian Government Agency for ICT.

Federico has authored several papers and seminars on Cost/Benefit analysis for ICT Government projects and on PMO functions in ICT organizations. Federico can be contacted at minelle@di.uniroma1.it.