

Technology and the City: the Case of the MoSE Project in Venice

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Abstract:

This paper analyses a conflict over the decision-making process in the case study of the project MoSE, a system of draw dams now under construction in Venice, Italy, to prevent the flooding of the city. In 1998, before the beginning of the system’s construction, two different scientific committees, one made up of international scientists and one belonging to Italian Ministry of Environment, gave two opposed assessments of the project which led to public controversy. Through argumentative analysis of press articles from the local Venetian newspapers and drawing on Actor Network Theory literature and methodology, the analysis explains why the project MoSE was successful despite the strong critics addressed to it. It is suggested that the success of a technology is not only a matter of its technical features, but more broadly a matter of stability of its network of alliances within heterogeneous elements.

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Introduction: The Safeguard of Venice as a Public Issue

Venice, November, 3rd 1966: the tide, instead of starting to withdraw itself, following the usual cycle of 12 hours (6 raising and 6 descending), continues to flood the city. At 5 o'clock of the following morning nothing changes: the lagoon is not able to exit the water to the sea. All through Italy an intense perturbation is causing major damages, but in Venice the situation is getting particularly severe. At noon of November 4th, together with the new tidal wave the emergency clearly reveals itself. The waters are getting more and more high. Telephone lines are broken, no electricity and no heating is still working anymore. Venice, in the complete dark waits for the last flow of the day, but again the water doesn't go down. Changing every rule, in the moment in which the water should start to descend, it started to raise again. In the historical centre of the city people begin to fear for the weak foundations of the old buildings, but at 21pm, against every forecast, the tide starts to lower down. It reached for the first time the height of 75 inches over the average sea level.

This brief vignette describes the event that brought the safeguard of Venice to be a public issue at various levels. From that moment on local, national and international institutions started to debate about what to do to save one of the "most loved" cities in the world from being flooded by the forces of the sea. After some years of debate, technical experts, scientists and politicians agreed to build a system of draw dams called "MoSE" (an acronym for Experimental Mechanical Module, but sounding like the Italian name for bible hero Moses who divided the seas), a project thought to divide the Venice Lagoon from the sea. These dams, now under construction are supposed to stop the exchange of water between the lagoon and the sea at the three points where they communicate (see picture 1), in the case of a very high level of the tide, as it happens three times every year as an average.



Picture 1 - The three series of draw dams under construction in Venice

The systems of dams is made of 80 modules, which actually are huge containers. In normal conditions they rest, filled with water, at the bottom of the sea. Air can be pumped inside them when there's a very a high tide and in this way they can temporary lift to stop the exchange of water between the sea and the lagoon (see picture 2), preventing the sea tide to enter the lagoon.



Picture 2 - A cross-sectional view of the system of draw dams

The project went on a lot of disputes and controversies about its real effectiveness, about its enormous costs (something like 4 billions Euros) and its environmental impact in a delicate system as the lagoon is. But in 2003, after an almost 40 years debate, Silvio Berlusconi, former Italian Premier, let the construction sites start.

The 1998 controversy

Project MoSE underwent several controversial moments, both during its design phase (started in the late Seventies) and even after the beginning of its construction in 2003. I performed an analysis of the press coverage in the local newspaper “Il Gazzettino” to find out which of these moments was most notably a public issue in the print media. As an indicator I took the number of articles published and considered the different peaks of coverage.¹ The analysis showed that the most covered event was a controversy about the results of the evaluation of the Environmental Impact Commission (VIA commission) that issued its report in December of 1998, rejecting the MoSE project. The controversy was caused by the fact that a few months before, another commission, made up of international experts working in Institutions such as the MIT or the Centre for Environmental Studies in Amsterdam had approved the project. This different evaluations of the project were primarily the result of an ongoing struggle between the Ministry of Infrastructures, which was projecting the MoSE through its dealer, the “Venezia Nuova” consortium, and the Ministry of Environment, for which the project had a lot of critical issues concerning its environmental impact.

The following quotes witness the different points of view of the two commissions:

¹ The analysis of the press coverage on “Il Gazzettino”, was carried out through a research of the newspaper digital archive from 1988, year of the presentation of an experimental module of the MoSE and 2006. The results for the VIA event was of 105 articles analysed. For reasons of space I do not report the complete table, but I can send it via email under request.

“The MoSE project is the only one which can really protect Venice from the high water”

International Experts Evaluation, July 1998

“The MoSE project is a lame one which does not guarantee the environment of the lagoon”

VIA Commission Evaluation, December 1998

These two views, even if they were compared in the media coverage of the issue, regarded different facets of the problem of Venice and its lagoon. The first was addressing the problem from the engineering point of view. International experts, even if with some recommendations, approved the project of draw dams from the point of view of its technical design. The VIA commission, instead, evaluated the MoSE's impact on the environment from the point of view of its effects on the morphological structure of the lagoon. So, actually, the two commission were talking about two different, even if obviously related problems. They reproduced at the level of the expertise the ongoing struggle between the Ministry of Environment and the Ministry of Infrastructure for having the right to work for the safeguard of Venice.

Starting from this, the purpose of this paper is to investigate why the project MoSE resisted the opposition of the VIA commission and was finally approved even if the commission was strongly critical about it. The story tells us that the Italian State decided to believe to the Commission of International experts. After a year the VIA actually went to administrative court and judges decided that it was not valid due to formal problems. The Government then decided not to recur against this decision and *de facto* accepted not to consider the negative outcome of the VIA procedure.

The investigation of the strengths of the project MoSE, which led its closure to resist to the menace brought from the VIA will be carried out through the analysis of argumentation in the press articles, in a frame derived from the *actor-network theory* (ANT).

Actor Network Theory (ANT) and controversies

Actor Network Theory has its origins in the social studies of science. Seminal work in this field was carried out studying the work of scientists in laboratories to explain the social construction of scientific facts (Latour & Woolgar 1979, Latour 1987, 1988).

The main point about actor network theory is that as sociologists, we are no more allowed to explain our observed phenomena by the exclusive use of some external “social factor” such as race, political identity, class or material interests. What we need, instead, is simply to “follow the actors” and to analyse the network of alliances which makes up an ensemble. In the context of ANT humans and non-humans have the same degree of inclusion in accounts, since an actor is not someone who acts, but is anything who is made to act.

Probably the most important ANT concept is translation. Translation is the process of creating an actor-network and as Callon and Latour (1981) define it, translation is made of “all the negotiations, intrigues, calculations, acts of persuasion and violence, thanks to which an actor of force takes, or causes to be conferred on itself authority to speak or act on behalf of another actor of force”. So translation is the process by which an actor becomes indispensable to other

actors, because it can speak on their behalf. Once the actor has acquired this right through the process of translation, it becomes an “obligatory passage point” for the others (Callon 1986). One of the main feature of an actor-network is that it is not made to last forever and that there are ongoing attempts to undermine its stability by other actors who are looking to become obligatory passage points.

If we look at the controversy about the MoSE, we can therefore see that the VIA commission, by giving a strong negative evaluation of the MoSE, attempted to undermine the role of the Project MoSE as obligatory passage point for the safeguard of Venice. The new translation that was in this way proposed was: “the MoSE project is not the salvation of Venice, because it can be dangerous for the environment of the lagoon”. But unfortunately for the VIA commission, the MoSE project was tied to the salvation of Venice not only through its environmental properties, so it has been not enough to denounce the environmental damages to undermine its basis. The MoSE was close to be a *black box*, that is something which no longer can be questioned. Its strength was and is made of a lot more associations, the ones that constitute its actor-network. Which were these associations? The controversy about the VIA evaluation, as we will see, let them all emerge to react and strengthen the consistency of the MoSE. As Latour (2005) writes, actually, controversies are the place when one can effectively see the work of group formation. If nothing happens, a given network is simply lying there and is quite invisible. But in the case of the controversy about the VIA negative evaluation, this menace forced the MoSE allies to pack together and to reinforce their ensemble to let the MoSE overcome this difficulty, and still rest to be an obligatory passage point. It’s probably pointless to say that the place where the sociologist is able to find these forces acting is the media, as main expression of contemporary public sphere. The next paragraph will introduce the theoretical tools used to analyse the press articles about this issue.

The argumentative analysis as a tool to let translations emerge

In analysing the articles to understand how the MoSE project was able to defeat the VIA commission evaluation argumentation analysis seems to be a particular useful tool.

According to Toulmin (1958) the term “argumentation” refers to a verbal or written activity which consists of statements which have the goal of allowing or refusing a certain opinion, in the attempt to persuade an audience. In working out his model, he was mainly interested in informal logic and in the study of logic. He believed that a statement couldn’t be considered universally “true” or “false”, but had to be evaluated in the context in which it operates and in it reference to daily activities. So the validity of a statement is its ability to be embedded in a systems of moral values and in the economic and cultural context in which it is used.

Starting from these premises, the structure of an argument can be analysed through a series of factors which contribute to maintain its rhetorical strength. The key element of argumentation is the “warrant”, which is made of reasons or rules which assure the legitimate use of data and conclusions drawn in the argument. The warrant has a crucial role, because it has to be socially shared and find space in social and moral rules of the society it is addressing, otherwise the audience would refuse it.

My purpose with this paper is to interpret the warrant in public arguments used in the MoSE debate as translations in the sense of ANT. If an actor is rejecting the VIA commission evaluation, it shall use a warrant and express its translation of the project MoSE, making

public and visible the elements of the MoSE's network of associations. This work is similar to the one suggested by Hajer (1993), who sees disputes about public policies on technology as controversies on the social meaning attributed to those technologies, inserted in network of actors which form discursive coalitions

Therefore in the following paragraph I will show the elements of strength in the network of which the MoSE is a part, underlying also which type of arguments each relevant actor is putting to guard the MoSE from the VIA commission attack. This is a task that I consider to be a critical one, because it shows how actually of a network of power is formed, maintained and supported through social and technological elements which are tied together in a network.

Guarding the MoSE

Politics and technoscientific expertise

A first way to let the MoSE win the controversy was to address the relationship between politics and expertise, obviously a crucial one. In this sense some supporters of the MoSE use the "science for policy theory" in addressing the issue. From their point of view the MoSE constitute the true example of perfect knowledge stocked and ready to be used to save Venice, while the VIA commission evaluation represents the clear example of a bad and politicized expertise, or even worse, a non-scientific way of considering the problem. In this way the MoSE became the obligatory point of passage for scientists and technicians who really intend to save Venice and use their knowledge for this purpose. The following quote by three engineers working for the "Venezia Nuova" consortium (which is building the MoSE) best exemplifies this view:

"Frankly, being convinced that the issue is to be analysed only in scientific terms, it's hard to believe that there is a so strong opposition between the authors of the studies and the projects on one side, and the evaluating commission on the other. And since conclusions mirror the scientific culture and the planning skills of their authors, it seems legitimate to ask who is right and if in each side there's the same level of scientific skills. Unless, and this is the unpleasant feeling we have, the reasons of science, and therefore the fate of Venice and its lagoon, are being polluted by politics. Since it's quite unlikely that the results of activities, of studies and researches conducted until now have to be considered all wrong, as today appears from the VIA evaluation report, wouldn't it be more natural, since we are talking about a project, to ask for more analyses instead of totally rejecting it?"²

More in this sense comes from a former major of Venice, Nereo Laroni, who considers the MoSE to be synonym of real science and therefore translates it as a boundary object to discriminate between scientists and non-scientists:

"One of the reason why the first Republic ended was because technical decisions were subjected to the political ones. What

² L. Trischitta, M. Fabris, A. Garzon, "Le ragioni della scienza inquinate dalla politica", Il Gazzettino, 12-21-98, p.23

happened in this last days to the MoSE project is the clear demonstration that if this is was true yesterday, it is still true today: what was suggested to save the city by the world-leading experts was vanished by a group of trainee wizards”³

Also MIT experts were mobilized in the debate. Here’s a quote about their reaction, based again, on the role of scientific expertise in political decisions:

“We have the feeling that the evaluation is based on non valid technical analyses. It is clear that decision was only a political one”.⁴

Italian culture

The second move for the supporters of the MoSE project was to consider it as the obligatory point of passage for a new way of considering Italian political culture. In our country there’s a strong rhetoric dealing with the incapacity of the State to innovate and to decide about public policy themes, and the 40 years controversy in Venice was considered to be the best example of this issue. In this way the MoSE is translated as the only way to solve this problem about indecision by mobilising a cultural element and therefore addressing all the public that want things to change in this direction.

This view is best exemplified by this quote by Giancarlo Galan, President of the Veneto Regional Government:

“It is the typical Italian no: we waited for 32 years and invested hundreds of billions, asked the five world-leading international experts to have an advice which confirms that the MoSE is the only tool to save Venice and then a commission which was supported by an environmental Ministry says ‘no’. It has been decided not to save Venice, at least for the moment, namely for the next 5, 10 or 32 years, or for the next 2, 10, 200 scientific researches.”⁵

Another interesting quote is by the vice president of the regional Government, who shares Galan’s view and addresses directly Ronchi, the Ministry of Environment:

“We wait in suspense the omniscient ministry Ronchi to offer alternative solutions, be not the advice to buy boots to gift Venetians for Christmas”⁶

³ Nereo Laroni, “Scelte tecniche calpestate dagli interessi della politica”, Il Gazzettino, 12-15-98, p. II

⁴ Gli USA. “Senza Mose Venezia allagata”, Il Gazzettino, 1-27-99, p.6

⁵ Giancarlo Galan, in Vittorino Franchin, “L'ex ministro Costa: 'Capolavoro di indecisione, è un giorno triste’”, Il Gazzettino, 12-31-98, p. 3

⁶ Bruno Canella, in “Canella: ora una proposta che non siano gli stivali”, Il Gazzettino, 12-11-98, p.4

Another variant of this point of view was to address the bureaucratic procedures and the lack of reliability of the Italian State in the International community. This is clear in a quote by Paolo Costa, former Ministry of Infrastructures and former Major of Venice:

“Our incapacity to analyse, the game we play at inventing new procedural tricks. Nothing new. If the idea to have the international experts’ opinion had a sense, it was to have an external view, a neutral one. And, instead, here it is the *papocchio* point of view. How can a citizen of the world understand a government which sets the rules and then doesn’t respect them: it is unreliable to world’s eyes.”⁷

The problem of Venice

From the previous quotes what is to be considered as probably the main translation which ties the MoSE to the safeguard of Venice already emerged: the fact that it is supposed to save the city from flooding. But even the flooding of the city as a phenomenon is very complex and critics of the MoSE say that the project is not the right solution for the problem. The VIA commission stated that the real issue was to morphologically rebalance the lagoon, due to the strong modification it had underwent in modernity (one example of this is the digging of deep canals to let huge oil ship pass through Venice and go to the port of Marghera), and not to build dams. So the supporters of the MoSE had to give arguments to affirm again the fact that the MoSE actually prevented the city from flooding.

This is reflected in what stated by the “Venice Wants to Live” Committee, which is attempting to address the point from an economic perspective:

“The economic loss caused by the high water is often underestimated, even if it is precisely the flooding of the city that constitutes the main reason why a lot of firms are moving to the mainland. The high water causes damages to the physical structures of the city and of the lagoon, to which we have to add discomfort for the city’s population and for economic actors. A daily loss of 400 Euro was calculated for each operator and for the city it has been calculated a total loss between 17 and 100 millions every year. We need to do something, and we need to be something with an acceptable balance between costs and benefits, as anyway the International Experts report stated. We are surprised that after 32 years after the flooding, there are people who is continuing to consider Venice as an oasis to defend from humans, when it is a city constructed by humans for humans.”⁸

With the same tone, but more concentrated on the general public’s level and on public participation, is the opinion put by Terzo Luppuri, president of the commission for the Special Law for Venice and member of the city council:

⁷ Paolo Costa, in Roberta Brunetti, “Costa: una trappola, violati gli accordi”, *Il Gazzettino*, 12-11-98, p.5

⁸ “Chi produce vuole il Mose”, *Il Gazzettino*, 12-19-98, p.II

“The VIA evaluation presents a new strategy, which is supported only by a small group of Venetian scientists and which has been criticized by scientists from all the world. And meanwhile Venice continues to be flooded and if we do not do anything, its fate will become soon irreversible. From survey carried out by print media, it emerged clearly that the city is tired to live with the high water: the majority of the population is in favour of the project MoSE. But, visibly, these are citizens who have not the right to be listened. I hope, since the problem now it’s only a political one, that the government will find a solution, considering also the opinion of the Venetian population.”⁹

Conclusions

As we have seen, the attempt made by the VIA commission to put under question the project MoSE caused the reaction and the mobilisation of the network of associations of which the MoSE itself is part. The VIA tried to undermine the translation, made by the International Experts Committee, that the MoSE was the only project able to solve the problem of the high water in Venice. But the environmental critics to the project failed, because as I have showed through the analysis of the argumentation in the press articles, the MoSE is part of a strong network made of heterogeneous actants, such as International Scientists, Survey researches, economic data, cultural assumptions about the politics in Italy, politicians etc., which supported it and revealed how it was strongly associated with them through different translations. So, for the establishment of scientists and technicians (the engineers working for it and the scientists from MIT), the case of the MoSE represented the classical vision of an independent science which is not corrupted by politics, while the VIA commission’s work was considered politicized and even not accurate. For politicians supporting the MoSE, it was a way to exit from the swamps of hesitant Italian politics, while for a the “Venice Wants to Live” committee it was considered the solution for the main economic problems of the city. So, even if the VIA commission addressed a central theme regarding the MoSE – its real effectiveness as a technological artefact in “saving Venice” - a number of alliances mobilized and allowed the MoSE to resist this menace and finally brought to his approval, as history tells us. This confirms the power of the network of associations of the MoSE in terms of its capacity to remain stable even if some central aspects of its technical features were criticized. In the articles analysed only an environmental organization, such as WWF, used explicit arguments in favour of the VIA commission’s evaluation: this was definitely not enough to contrast the alliances of the MoSE. Analysis showed also how public arguments about the MoSE were used as rhetorical tools to capture the favour of an audience, and how at the same time they revealed the network of association which supported the MoSE during the controversy. What we can conclude, therefore, is that a project can’t be contrasted by simply addressing some technical features or by questioning its role in relation to one translation of its network, even if this is the main translation that links it to the problem that the artefact is supposed to solve.

⁹ Terzio Luppardi, in “Una diga che divide i partiti”, Il Gazzettino, 12-12-98, p.III

After the 1966 flood, Venice became a *matter of concern* (Latour, 2004) and a debate started about what to do to save the city from its growing structural degradation caused by the increasing high tides. The MoSE emerged as the answer. Its success was not only due to its technological features, but, I would say mainly, to its capacity to build a network of powerful alliances and translations among heterogeneous elements. This is the way that led it to become *the* solution and not one solution among many others.

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