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“Lost in Transactions”: Overcoming a Market Failure Through Embeddedness and Network Structures

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- **Summary**

When it comes to economics, what substantially matter for an individual is how to maximize his own welfare. Think about Robinson Crusoe: he used to live alone on a desert island and had to choose each day how to split his time and deploy his energies into several activities in order to maximize his welfare. Should he build up a hut where to sleep, should he go fishing, or perhaps he would be better off in going hunting? To decide he must had recalled the marginal condition of Walras/ Jevons, according to which he should have been carrying on all these activities until one more hour spent on each of these would have produced the same extra benefit. Thus, whether he found easier to capture a deer instead of catching a fish, he should go hunting.

Until you are alone on a desert island, this should be the way (economically speaking) in which you are supposed to live your life. But then it comes (hopefully?) Friday. Crusoe and Friday are able to exchange “commodities” for their reciprocal advantage. And that’s all: Crusoe is not bothered that Friday has a larger and more beautiful hut; neither he is by the smoke that comes out from the fire Friday burns up. Robinson just cares about himself and about what he has. That is the desirable condition for any economist: an atomistic rivalry.

Yet the world is not a desert island, and no one is Robinson Crusoe. People do care about others, they ruin each other to achieve prestige, wealth, recognition. In this sense, spillovers are unavoidable hence they are everywhere: building a house could damage your neighbours as you potentially obstruct their view. Smoking could hurt the health of people around you. If you listen to music at high volume, your roommate will not be able to sleep.

That means that, as Arthur Pigou highlighted in his book, “The Economics of Welfare” (1920), the invisible hand which used to equilibrate the market is scarred: even if the free market is able to generate prices
according to which companies and consumers could break even private costs and benefits, this does not apply to social costs and benefits. As the existence of negative externalities has demonstrated, the market has failed.

Thus, to overcome this failure, Pigou\(^1\) proposed simple ways that go from taxation and fiscal regulation to public supply of services. He, in a word, suggested to turn to Government intervention, in a way to internalize the externalities.

However, this solution was not at the time completely accepted: in the mid XX century, an English economist, named Ronald Coase, criticized Pigou’s findings.

First of all Coase suggested that is not always the case that Government can benefit from internalizing an externality: it may happen, in fact, that the cost of this action is higher than its advantages.

Secondly, and most important, according to Coase, externalities are not univocal. They are, in fact, reciprocal: he reported the example of a farmer and a peasant living in neighbouring lands. When the farmer put out his cattle to pasture, it may happen that his cattle will destroy the peasant’s crop. On the other hand anyway, the contrary is also true: if the law forbids the cattle’s pasture, in order to safeguard the peasant, the farmer will be damaged. \(\text{	extquotedblleft The nature of the choice is clear: meat or crops\textquotedblright.}\)

However, according to Coase, this dilemma could be easily solved. To him, the answer was simple: both meat and crops. Why?

Because when the price system is costless and the issue involves few individuals, an agreement between private parties could be easily achieved. That means that, whether is the peasant or the farmer to be liable for the damage, the two could agree to a shared solution, from which they will both ‘benefit’.

I said (or better Coase said) ‘when the price system is costless’: but can it happen in the real world? Could it actually be that negotiating will not cost

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time and money? Are contracts for free? In the real world, can we actually claim that transaction costs are zero?

Not at all: surely in a dispute between a single peasant and a single farmer searching costs will be reduced to a minimum. But minimum is not nothing. And then, if the farmers were more than one? Would it cost the same to let them agree with the neighbouring peasants?

The answer is straightforward. Think about global warming. In this case ‘Coase Theorem’ (as it was later defined by George Stigler\(^3\)) has little significance: who will be damaged is not born yet. That means that in these cases and, moreover, when a wider portion of population is involved, private parties could no more agree.

Hence was Pigou right? Is Government intervention the only way to achieve somewhat of an equilibrium between social benefits and costs?

Not at all also in this case: we don’t need no Institutions, would have the Pink Floyd sang. It may happen, in fact, that the welfare maximization for an individual claimed at the very beginning of this summary does not depend on liability. And, even if it did, it is not always easy to determine where this liability should be placed. Think about noise pollution in the airports. It is believed to be caused by the airplanes: but if around were no ears to be bothered, the problem would not have occurred. But given that there are, the harm could also go in the other direction (say from the ears to the airplanes). Then who to tax? The ears or the airplanes?

Therefore, in the end, if Pigou was wrong Coase was at best detached from reality. The price mechanism is in fact more important than he thought, as this ultimately influence the way in which a firm decides if to undertake within itself a particular activity, or to rely on the market to perform that function: “The choice between the firm and the market organization is neither given nor largely determined by technology but mainly reflects efforts to economize on transaction costs”\(^4\).

Thus, given their importance, how to minimize them?


According to Oliver Williamson, organizations were born to achieve this goal: surely, in order to reduce their costs, Williamson himself found useful to match different transactions with three broad types of Government structures:

![Figure 1- Matching Governance Structures with Commercial Transactions](image)

We will not deal with transactions that are non specific, recurrent and occasional, as in this case (as shown in the table above) market would be the most efficient solution. We will neither deal with transactions that are semi-specific and occasional as for these ones, the involvement of a third party (namely Governments) may suffice.

We will in fact concentrate on the kind of transactions that are medium-highly specific (in the table idiosyncratic) and recurrent: for this specific case, Williamson found two solutions. According to the first one (bilateral governance), there is no need for the parties involved in an exchange to rely on a third party. When the two actors continuously deal with each other, they should have interest in not cheating the partner. Thus, if this situation is verified, they could simply come to mutually advantageous agreements.

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The second one deals mainly with transactions that are highly specific, both for the physical and human assets involved. For these kind of transactions the mode of organization becomes that of vertical integration (or unified governance, as in the table), when economics of scale can be easily achieved in house, through structures that are hierarchically based. In this case, there will be no need to close agreements with other parties: a firm will reach maximization of profits on its own. Surely, and this is fundamental, vertical integration will be worth doing if the administrative costs of organizing between firms are lower than the transaction costs associated with the market.

Oliver Williamson’s attempt to minimize transaction costs using governance structures which best fit specific investments’ characteristics could probably be considered successful, as he paved the way in recognizing a market failure that could not have been ignored. However, there are yet other dimensions to be analyzed in order to have a complete understanding of this gap between firms themselves, and between the firms and the market around them.

Uncertainty is one of these dimensions: for Thompson, “an organization’s primary task is coping with the uncertain contingencies of the environment”. Uncertainty can be of different kinds: primary (related to exogenous conditions, not a voluntary non disclosure of information), competitive (arising from threat of potential entrants or substitute products or actual rivals within the industry) and supplier (based on the exchange partner with whom the firm is tied).

The other dimension is the ‘bounded rationality’ that characterize individuals. That essentially means that the decision maker is not always able to choose the alternative that will yield the highest level of benefit, as he often acts impulsively.

Think about a hunter: if he happen to stand in front of a ferocious lion, he would surely not lose time in writing down on a paper how to give his bullet

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the best trajectory. He would (and we would too) hazard a solution to the problem as soon as possible, without bearing the risk of being torn apart by the problem (in this case, the lion), before having found what would have been the best solution.

He would, to be clearer, just shoot the lion.

And that is what regularly happens in the everyday life. Contingencies on one side, and our emotional hemisphere of the brain on the other make us often take ‘irrational’ decisions.

Moreover, individuals act opportunistically. This concept is well explained by the so-called game theory\(^7\), that clearly demonstrate how, when two agents deal with each other, no matter what the other agent does, it is better to act opportunistically, ensuring each own best advantage.

Hence, to summarize, because individuals act opportunistically and have limited rationality, for transaction that are highly specific, that happen frequently and involve uncertainty about their outcome, what would Williamson choose, market or non market?

Non market, thus hierarchy. Hierarchy would have been the answer.

If hierarchy is plan A to minimize transaction costs, as always there is also a plan B. From Durkheim\(^8\) to Marx\(^9\), century of researches have demonstrated how social relations could help maximizing an individual’s welfare. From sociology to finance, numbers of papers have highlighted how social capital is pivotal in the value creation.

To be clear, a brief definition is worth doing: the benefits coming out from engaging in a cooperative behaviour between each other, that is social capital\(^10\).

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\(^8\) Durkheim, É., (1897), Le Suicide: Etude de Sociologie, Les Presses Universitaires de France, Paris

\(^9\) Marx, K., (1867), Das Kapital, Kritik der Politischen Oekonomie, Hamburg, Verlag von Otto Meissner

Thus, the main argument is that, once trust is built and cooperation happens, opportunism is alleviated, if not defeated. Then, in turn, once there is trust, uncertainty is obviously minimized: social capital is, in fact, built on obligations (if X does something for Y, and X trusts Y, he will expect in the future his exchange partner Y to reciprocate the favour, a payoff that creates an obligation for Y). Moreover social capital enhances the flow of information: it is commonly known that information is costly, and the minimum cost which has to be sustained to obtain information is attention. Unfortunately, attention is a precious resource that is not widely spread. But here come social relations: why spend time and efforts in gathering the final trends about these summer outfits, turning over the pages of thousands of fashion magazines, when my best friend has a ten years experience in being obsessed with all sorts of stylists, fashion shows, models and so on? She can easily tell me whether I am completely out of time with this or that dress, without the need for me to spend hours in trying to get that information.

But let’s be cautious: albeit its advantages, stuck in a reality that has always in store for everyone negative things together with the good ones, also social capital has its bad alter-ego. This can range from economic inefficiencies to inequality, from preventing innovation to corruption. In fact, as Waldinger says: “The same social relations that enhance the ease and efficiency of economic exchanges among community members implicitly restrict outsiders”.

Then, it is not always true that, once trust is enacted, the pursuit of common wealth is always sought (that is easy, just think about Mafia). Then, if trust and social capital act on the flow of information, enhancing it, it is important to remember that, when good information are shared, bad information are shared too. And bad news make individuals “vulnerable to group wide shocks” (think about the latest financial crisis).

‘Guanxi’ perfectly entails these characteristics: a Chinese ‘structure’ (completely intangible) made up of obligations, favouritism and thus,

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corruption. No specific code, no rule, no punishment if not belonging to the ‘guanxi’ network: but the outsiders, of course, will not be able to enjoy the same benefits of insiders.

This brief excursus on possible drawbacks of social capital was necessary as we know, all that glitters is not gold. And as everything comes with a cost, it was important to weight possible disadvantages in walking the route towards a reduction in transaction costs.

However, to recall the main argument: if social relation can alleviate opportunism and uncertainty and enhance the flow of information, is hierarchy always the way?

Here we are: network is the way; the structure made up by linkages between its parts, thanks to which each actor is connected to another one through a dyadic relation.

The born of the idea of networks, albeit seems new, actually traces back to Leonhard Euler, a Swiss mathematician and physicist, who in 1736 was able to propose a solution to the problem of the ‘Seven Bridges of Konigsberg’.

Konigsberg’s city was crossed by the Pregel River; the river, with its tributaries, divided the city into two islands, the connection of which was granted by the presence of seven bridges.

The main issue for Euler was to be able to have a walk throughout the city, passing each bridge, and to come back to the starting point, without crossing a bridge twice. Well, he found that the only way to make it happen

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was if the bridges were eight, instead of seven: and in fact in 1875 a new bridge was built and the problem solved.

However what Euler discovered was much more than the necessity of building another bridge: his thoughts carried the basis for the so called ‘graph theory’ which in turn is where network structures find their roots.

The mathematician in fact, is acknowledged to have conceived those bridges as part of a graph that is basically a set of nodes tied together by links.\textsuperscript{13}


\textbf{Figure 2- Seven Bridges of Konigsberg} (Source Wikipedia)
As it is noticeable in the picture above, Euler highlighted four nodes A, B, C and D (each one representing an area of Konigsberg’s city) and seven links (the lines between the nodes, representing Konigsberg’s bridges). In this case, the nodes B, C and D have each one three links, while A has five. What he proved was basically that if more than two nodes have an odd number of links (as in this case, where there is no single node with an even number of links), one node cannot be both the starting and ending point of a route. But then another bridge is built between B and C, and thus the odd nodes becomes two. There is now a way for an individual to walk throughout Konisberg crossing each bridge once and coming back to the starting point.

However, what his insights had demonstrated, for our purpose, is that the structure built around individuals, and the subsequent links it creates, is not to be considered as a detached entity: each link, in fact, have an effect on the others and thus on the whole structure in which people are embedded. As

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one more bridge has given the Konisberg’s inhabitants new routes to walk throughout, one more link can open up new possibilities for the individuals belonging to that network.

But then, specifically, how these networks are created? In order to give an answer to this question, it is necessary to jump back in XX century, and to the theories of two Hungarian mathematicians, Paul Erdos and Alfréd Renyi. In 1959, in fact, they gave birth to the so called ‘random network theory’:

Imagine to organize a party, hosting a hundred people who do not know each other at all. As human beings are directed towards socialization, they will probably soon start to getting known to each other, creating small groups of two or three person. Then, as human beings are also used to get easily bored in talking to the same person, they will later switch to other groups in the party.

![Figure 4: The party](image)

From the figure, it seems evident that, albeit an invitee does not know each person of the party, through these links there will soon be an unique network that includes all the guests.

Hence, what is needed in order to create a large cluster joined by many individuals is one link. One link to stay connected. One link to be part of the whole. One link to navigate away from the islands, and become part of the continent.

But what are they for? What these linkages and networks are for?

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They contribute to the value creation; they enhance the flow of information and allow to create and effectively sustain competitive advantage. They play a pivotal role in the business strategy of an organization, enabling firms to make the difference; without a set of related entities, a firm loses its identity. Without a consistent network, from whom to learn, from whom to grow, a firm cannot go so far.

Firms are not merely the result of a production function: they cannot walk their way to profitability and success without considering who stands at both sides of this route. What stands around is often more important that what firms have inside themselves, particularly because what they have around is not ocean, is not desert.

They cannot be entire of themselves because, after all, no firm is an island\(^{16}\).

After all it has been discussed until now, it seems that the old structures of hierarchy can be overcome by modern network structures. However, a failure of vertical integration has not been claimed. This model, in fact, has its advantages: it can be a way to strengthen a firm’s core business model, it can lead to superior control, to advantages in product differentiation that competitors may not be able to achieve, it can reduce the risk of opportunistic behaviour from other firms with which it deals for the procurement of raw materials or components. On the other hand, this structure bears also within itself several disadvantages: it may lock firms into obsolete practises, it may make impossible for a firm to manage flowing volume of goods within the value-added chain when demand is not predictable, it may give rise to anticompetitive effects.

What it is argued here, is just that vertical integration can be left behind; not because it has failed, but merely because better structures and better solutions exists: and these solutions are, of course, networks.

If what it has been stated until now is true, than it would be impossible to claim the perfection of network structures. In fact, paradoxically, the positive effects that they bring are actually positive until they reach a threshold, after which embeddedness may derail economic performance: that is when the other extreme is reached, leading individuals to be too much dependent from their social ties. The same process that, within networks, allow firms to find each time the best fit with the environment, may lower their ability to adapt.

According to Brian Uzzi\textsuperscript{17}, embeddedness may become a liability under three conditions: a core actor of the network leaves the structure (the firm will be in this case subjected to higher risk of failure than if it had diversified its ties); markets become over-rationalized (because of stronger institutional forces and specific arrangements); the network is characterized by too much embeddedness (becoming ossified and out of step with the demands of its environment).

Therefore, the optimal way to link to a network would be one that is halfway between arm’s length ties and overembedded network:

Like almost everything in life, the main issue to be concerned with is not ‘how many’ but instead, specifically, ‘which kind’, ‘how’.

Quality is a prerogative also in social capital, in relationships, in trust, in embeddedness. When there is no quality, there will be no positive effects; on the contrary, it may happen that negative consequences arise.

Once an integrated network has been created, and thus qualitative linkages have been established, firms can benefit in toto from these structures. Here lies the shift of this thesis: starting from the assumption that market are not perfect, as in primis transaction costs have highlighted failures, the goal is for firms to fill this vacuum. Thus, whenever in the past an acceptable solution was proposed (namely vertical integration),

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‘acceptable’ is not what we are looking for. We (as both individuals and firms) need the best.

Well, that is the argument: vertical integration is not the best for firms, neither in fighting transaction costs nor in achieving competitive advantage.

To me (and to many authors) networks are the best. Within a network, there is rich soil for social capital to grow; there is place for trust, cooperation and then, development. Within a network, social capital can flourish, thus contributing to the value creation: it has been argued, in fact, how the key of social capital stands exactly in the location an individual can enjoy in a network, together as in the strength of his ties, together as in the efficient allocation of his resources.

Within networks, complementarity is likely to be experienced and together also competitiveness is enhanced.

And many countries have understood the lesson: nowadays, clusters of firms are actually shaping a new era in economics; the global business environment is in fact moving away from multi-level hierarchies that were centrally coordinated toward structures that are far more flexible and dynamic than the traditional pyramid-shaped organizations.

Thus, within a business panorama that is becoming more and more volatile and a pace of change that continuously increases, the only way to succeed for firms is to become agile, creative, responsive and alert. They must be able to learn and then adapt, to self-organize but also to decentralize their activities, to be more bottom-up, instead of the merely top-down, monolithic and hierarchical structures of the XX century.

We are nowadays a century ahead, and we must, as firms, let the old business paradigms go, and be ready to embrace new operating strategies in dealing with the pressing short-term issues of the today’s demand.

“Call it a clan, call it a network, call it a tribe, call it a family: whatever you call it, whoever you are, you need one” – Jane Howard
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