

The Life Cycle of Open Innovation in Tunisian Textile Clothing Industry

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ABSTRACT: *This paper outlines the cooperative game dynamics within the framework of an industrial relationship based on the shared innovation. In analysing the cooperation in the textile industry specialized in the Tunisian clothing, it explains how the innovation, by the risk and the uncertainty it generates, makes oscillate the cooperative game between the dependency boundaries: From the industrial subcontracting towards partnership, by the way of a multitude of hybrid forms and evolving sometimes into a unilateral dependence of the customer by the added value migration.*

By innovating, the Tunisian subcontractor fostered cooperation between its most appropriate customers. He optimized relationships for a long time marked by its unilateral dependency to the partnership. And by holding the added value, he challenged a threatening competition.

Keywords: Cooperation, Innovation, Industry, Partnership, Dependence.

With globalization, enterprises have increasingly recourse to innovation in order to differ. In front of a more and more menacing competition, the innovation has itself developed significantly since it's no longer about innovating the product concerned only, but also about the procedure, in both the organization and the service performed. It is enshrined further more in the notion of sharing and opening which consists in opening the process innovation (HUISING K.R.E. 2011) in order to concentrate on the core of the project. In parallel with this innovation strategic development, the industrial relations have also evolved to become more cooperative and indeed more partnership. In the literature, the relationship existing between innovation and industrial cooperation is due to the ordering customer's willingness to spur innovation. They cooperate with the subcontractor in order to encourage innovation (AOKI M. 1988).

In the following article, we tried to show the contrary; that is to say, how the shared innovation with the service provider incites the ordering customer to cooperate. We traced the cycle of life of the cooperative game according to the dynamics and the innovation shared with the subcontractor. Departing from the analysis of relational strategies between distributor ordering customers and Tunisian textile sector and clothing service providers, we tempted to explain how the Tunisian innovative subcontractors succeeded get their most appropriate European ordering customers cooperate. Indeed, when the textile and clothing sector was ruled by quotas, the cooperation was rare. The non-innovative Tunisian subcontractors maintained capacity sub-contracting contracts for more than thirty years.

With the quotas dismantling, the ordering customers didn't hesitate to leave the subcontractors with whom they have worked for more than twenty years to rush on the advantages in the costs offered by the competitive costs Asian factories. By innovating in the subcontracting service, the Tunisian subcontractors succeeded in recovering their market shares (ERNEZ M. 2014). They required their ordering customers who became their partners to cooperate. The cooperative board game development occurred progressively through advancing the subcontracting industrial relation to co-contracting towards the manufacture of end products. The more the service providers are innovative and more the relation is cooperative even a genuine partnership.

Such an analysis allows revisiting the agency theory in order to show its strengths and its limitations concerning the optimization of the contractual relationship. The case of the Tunisian textile/ clothing sector, where the European ordering customers together with their Tunisian subcontractors built a contractual relationship, -then a

cooperative relationship and finally a partnership relation, focused on the share of the risks of innovation, enables us to demonstrate the importance of the innovation dynamics in the asymmetrical relationship mastering. In this article, we begin first of all the institutional and organizational framework of sharing innovation the Tunisian textile/ clothing sector. Moreover, we will show the moderating role of the shared innovation on the traditional asymmetrical relation. At last, we're going to introduce the cycle of life of the shared innovation industrial relation.

The Shared Innovation in the Subcontracting of the Tunisian Textile/ Clothing Sector

With globalization, the Tunisian textile/ clothing sector renowned to be traditional gets modernized by moving towards the shared innovation. The shared innovation is defined as the process whereby an enterprise is able to call for ideas and expert assessments outside its own walls (JIMENEZ DJ.2011). It is considered throughout a process-based approach, as a system of activities, individuals, enterprises and interconnected functions.

With the sector geostrategic changes, which are linked to the quotas dismantling, the different actors had recourse to innovation to survive the increasingly threatening and competitive international market place.

The region map, traditionally marked by two actors: the developed countries' ordering customers on the one hand and the developing countries' low-cost producers on the other, has integrated a third player that of the innovative producers. The countries like Tunisia, with the European client's geographical proximity, exploited that power to position themselves in an innovative subcontracting offer based on flexibility as a major competitiveness key.

The Innovation of the Distributor Ordering Customers

With the creation development, those of design and fashion, the distributors assume increasing power within the chain. Becoming today principal offering customers, these retailing giants are looking at creating fashion and at imposing it through multiplying collections (ABECASSIS, MOEDAS and al. 2012). Their policies move towards a frequent change of collections. The 4 classic collections reached 9 collections per year. They suggest to their clientele small series, added to the traditional annual collections and which are manufactured within a very short time and reaching today less than a week for a finished product. They are called update products or fashion quick turnover products (COURAULT B. 2005). The distribution and design costs are extremely high what means that according to the fabric quality, the retail sale price varies between three

(basic product) and fifteen times (sophisticated fashion article) its «plant-gate» price (CHAPONIERE J.R 2003). The commercial investments in marketing and benchmarking take then priority over the productive investments.

The ordering customers resort then to the subcontracting in order to balance the differential between charges and capacity (POISSONIER H. 2010). The stocks are quickly becoming obsolete and prevent the distributors from playing on time lags¹. In order not to bear alone the storage hazards anymore, they place orders on small series, as late as possible in the season and use at most replenishment possibilities. These distributors are in addition increasingly vigilant in the face of respect of the very strict standards, which guarantee the sold products' quality. They obey to an increasingly short fashion cycle with creation of products mixing matters, textures and more and more innovating techniques. The technical products develop: slimming underwear, tanning, moisturizing, and improving the blood flow, the stain-resistant materials, and antiperspirant are examples of these new labelled products. The distribution innovation is based on strong and costly management which finds its very essence in a flexible production in small series minimizing the storage costs.

The Innovation of the Tunisian Service Providers

The Tunisian industrialists having geographical proximity to European clients, exploited such a force to build up their competitiveness in the offer, of an innovative subcontracting service based on flexibility and reactivity. An innovative management was implemented in order to manage the production in small series. This innovation dynamics was supported by the State, which set up three programs up until today to help the industrialists succeed in their new innovation strategy: A first program {2004-2007}, a second {2008-2010} and a third one {2011-2016}. These programs started by the organizational as well as service innovation development in the two first phases to finally arrive to the innovation of products (technical and functional) during the third phase requiring more resources and financial stability (BETTAIEB H. 2007).

The upgrading programs were increased thanks to subsidies and to financial facility and to tax credit. The technology was modernized. The structures were gathered on the technological poles creating a differentiated service offering and a unique know-how able to offer an added value to the foreign distribution. The subcontracting innovation occurred progressively from organizational innovations in the direction of process innovation together with product one.

The Dynamics of Shared Innovation

On the Tunisian land, the subcontractors moved in several years to co-contractors and manufacturers of end products while ensuring more and more activities for the ordering customer who increasingly focuses on the distribution (JAIN A. and THIETART R.A. 2007). They create the stocks in an under load period and try to satisfy the demand from these stocks in an overload period. This innovation dynamics builds a relation and exchanges which in time lead to transfer of resources, competences and activities nourished on learning effects involving a higher relational risk.

A Transfer of Resources, Competences, Information and Activities

The race towards competitiveness pushes the relation actors to focus more on the core business and to subcontract the secondary activities. The enterprises engage then into an innovation race. This innovation is fed on transfers or on sharing information, activities and competences with the service provider. The two parts often schedule information meetings to be able to negotiate execution (MARTINEZ-ROSS E. 2000). The creation and production functions require certain dynamics and regular adjustments that push the two parts to perform these actions together. Many tasks are made by the realization of teams developed by the members of the two enterprises both contractor and subcontractor. The service provider can transmit know-how or a particular expertise to the customer: nevertheless, the latter can also transmit specific know-how to the service provider which is necessary for the achievement of a specific task. Overtime, the clients are increasingly demanding and expect from the service provider a greater innovation and proposition capacity. It often happens that the ordering party finance part of the subcontractors' development investments (QUELIN B. 2007). They grant them financial and engineering support, purchase guarantees and sometimes intervene in the services and their workshops.

The Learning Effect

The plant knowledge exploitation rests on its ability to absorb and to apply new knowledge; to stimulate social interactions necessary for generating new knowledge. Through developing its own assimilation capacity, the subcontractor would be able to better capture knowledge and to enjoy more the benefits of the assets and resources provided to the clients. It improves thus its organizational performance (SPITHOVEN A. and al. 2010). The more the learning capacity is high the more the innovation policy is dynamic and efficient then more the organizational performance is competitive.

The learning relation can concern the information exchanged between the customer and the service provider in order to resolve the potential problems linked to the end product by mutual consultation and by exchanging ideas as well as opinions (JIMENEZ D.J., 2011). Such mutual learning achieved by both parts constitutes for themselves specific investments within the framework of another relation nonetheless a guarantee of a higher productivity of the concerned relation.

An Ever Higher Relational Risk

During the innovation process, the uncertainty is increasingly important. It's about an extremely high technological uncertainty to cover expenses related to research activities and development and above all that of the commercial uncertainty mainly affecting the distributors (FREEL M.S.2000). The uncertainty also concerns the relational phenomena of adverse selection and moral hazard.

While subcontracting, the main thing is exposed to the loss of control that could take several aspects: loss of control over the confidentiality of the information transmitted and held by the service provider, loss of control over the actions not directly observable by the client, loss of control over costs, loss of control over the quality and the content or over the time limit for the information transmission, lack of guarantee as far as the service provider (QUELIN B. 2007). He is exposed in this way to relational risk from the beginning of the relation and which increases with the time mediated through the information resources, competences and activities transfers from the principal to his agent.

The radical uncertainty innovation hypothesis allows one to design the fact that the agents are unable to originally plan all the safeguard clauses in order to guarantee their engagements (LIU Y. and al 2010). The unpredictability involved by certain events prevents from referring to a contract without frequent negotiations; that raises the problem of contractual incompleteness. The ordering customer becomes unable to draft a full book of specifications which takes into account the product different technical characteristics and which falls within the service provider competence. The frequent adjustments are very costly and don't permit the contract drafting to be as comprehensive as possible. The risks of opportunism are more recurrent, especially, when the relation entails specific assets.

The Moderating Innovation of the Asymmetrical Relation

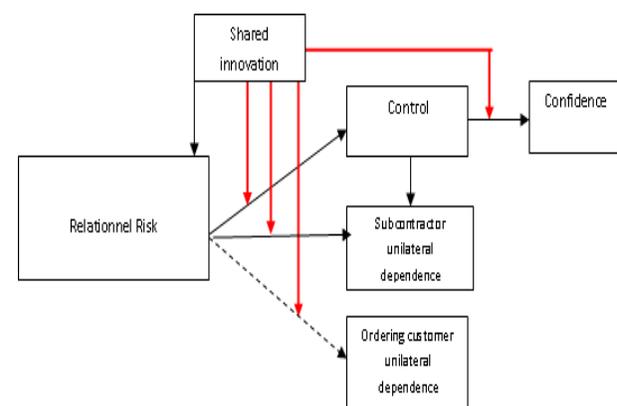
The dynamic nature of the innovation that tends towards further opening or sharing of the innovation with the

innovative service provider, calls into question the management modes implemented by the ordering customer from the selection of the subcontractor at the beginning of the relation. In the industrial environment, the ordering customer prefers in general to maintain control. The loss of control, of competence and operational dependence constitute the main impediments as far as the partner choice (QUELIN B, 2007). Indeed, the subcontracting relation is an agency relationship created on the base to help the head (TINEL B. and al 2008). It is managed by the control with aim of protecting itself from relational risk and facilitating the transfer in order to keep the higher bargaining power in the relation.

The relation is characterized by the domination of the ordering customer and the subcontractor unilateral dependence. As an agency relationship, it provides the head the selection of a person or organization as agent and gives him/it the right to oversee the entrusted activity. While analyzing the impacts of share innovation on the asymmetrical relation, we highlighted its moderated action on the classical management mechanisms of the relational risk in the agency relations:

The shared innovation calls into question the control effectiveness in the risk management in favour of its substitute: the confidence. Through the negotiation game, it creates dependency drift: it increases the ordering customer dependence and lessens the subcontractor one to protect the relational risk relation in a partnership balance of crossed dependency. The shared innovation impact on the asymmetrical relation can be represented as follows:

Graph 1: The modelling of the shared innovation role on the asymmetrical relation:



From Control to Confidence

In a traditional relationship, the control and the confidence coexist. These two substitute variables are also complementary (YANG Z. and all 2011). With a series of control or trial period, the chief becomes capable of assessing his/her service provider's competences. He

or she decides of «the propensity to rely» and chooses thus to delegate to his/her service provider more activities or to leave. The more reassuring and guaranteeing power control remains the option spontaneously privileged by the ordering customers (BARTHELEMY J and KONADA G., 2007). It only gives up its seat to confidence when it becomes impossible (DEMAN A.P., 2009). The reconciliation between the two notions goes through a certain kind of confidence called «calculated» (GOSSE B. and all 2002). According to this logic, the chief grants his/her trust to the subcontracting agent since he has no other alternatives. He/she is obliged to be confident in the face of the control impossibility.

In a traditional relationship, the control is chosen in order to protect the ordering customer from any possible relational risk. With the subcontractor's innovation, the relational risk is no longer high since the ordering customer ignores more and more information concerning the subcontractor's activity. Yet, the control tends to become weaker until it disappeared in favor of its substitute: confidence.

The Dependency Drift towards the Partnership Cooperation

In an asymmetrical relation, the power of the principal is maintained by the control. By having the strongest bargaining power, he places the burden of risks on the subcontractor who becomes in a situation of total dependence. When the innovation is shared, these links are reversed favouring a drift towards a crossed dependence or cooperation. The more the subcontractor innovates, the more his/her dependence decreases and that of his ordering customer increases. In fact, in order to face the loss of control in a high relational risk situation, closer links are required between the different parts. By negotiating game, the cooperation as a dissuasive kindness guarantee of opportunism ends by being practiced (LIU Y. and al 2010). The subcontractor's negotiating power increases and gradually balances with that of the ordering customer to reach a partnership agreement benefiting both parts and efficient against the relational risk involved by the sharing of innovation.

Challenging the Effectiveness of Cooperation

Lastly, the shared innovation fourth effect in terms of relational risk management lies in the fact that, after having benefited from cooperation, the ordering customer who becomes a hostage to the relation, revised downwards the established confidence and commitment. She/he looks for how to get out of her/his dependence. The reasonable assumption which states that the

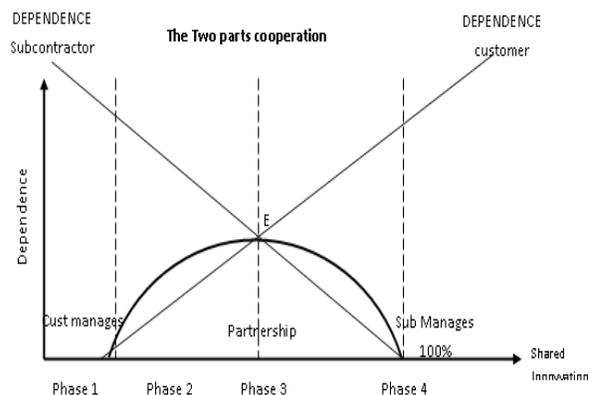
subcontractor who earns more in a relation than what he does out of this relation will be deterred from showing opportunism remains limited.

In fact, the subcontracting decisions aiming at improving the performance and stimulating innovation are taken faster and faster; what could cause the transfer of critical activities being connected with the core business ones towards the subcontractor. The major enterprise becomes hollow (JAIN A. And al 2007). The detention of the added value by the subcontractor, and the imbalance of negotiating power in the benefit of the service provider make sometimes the partnership decline towards the search for alternatives in order to get out of unilateral dependence.

The Relation Cycle of Life Model

The shared innovation moderating effect on the asymmetrical relation allows drawing the relational cycle of life which explains the subcontracting relation development to co-contracting then to end products manufacturing. The dependencies of the parts oscillate at the rate of the shared innovation, searching for a more efficient management, an increasingly high relational risk. The innovation dynamics in subcontracting guides the organizational changes according to a four-phase relational cycle of life as is shown in the following.

Graph 2: The subcontracting relation cycle of life in terms of dependence: Cooperation of the two parts



The Traditional Subcontracting and the Unilateral Dependence of the Subcontractors

At the level of this phase, the innovation sharing doesn't exceed the controlled subcontractor's executive role. The ordering customer creates the specifications, sends the raw materials and works sometimes with many performer subcontractors. She/he chooses the subcontractor who innovates in his/her subcontracting. It concerns an

organizational innovation that optimizes the management of matters, of time limits, of costs and presents a favourable basis to a successful communication (THOMAS NG S.T. and al. 2008). This phase characterizes the trial periods serve a period to assess whether a partner is reliable or not (KARPIK L., 1996). The subcontractor bears alone the risk linked to every innovation liable to encourage the customer give him/her the advantage of responsibility.

At the level of this phase, the price specified by the contract, is fixed, the cost variation risks are supported by the subcontractor (ERNEZ M. 2014). This phase characterizes the relational beginnings marked by the subcontractor's unilateral dependence. The principal is unable to determine the reliability he/she is able to grant to the relational norms. The agreements without renewal commitment maintain the threatening of the subcontractor change and give the ordering customer the greater negotiating power which makes the subcontractor undergo the risks linked to the sub-contracting activity.

At The Innovation Rate Hybrid Growth

The relation gains cooperation progressively according to parties negotiating powers. It goes through a multitude of hybrid relations erasing borders between the different relational forms. It concerns agreements whether hybrid, generic or intermediate ones in search of a relational balance between the parts; such as the subcontracting with consultation, the oblique almost integration, the «know how» agreement by the assignment by a manufacture process from the principal to the agent, the research subcontracting (POWELL W. 1987). The cooperation develops without, however reaching the partnership phase. The agents are no longer subcontractors but rather co-contractors. The ordering customer doesn't totally entrust the activity to the agent. He/she participates in the risk taking but the relation is always more profitable to the ordering customer. In Tunisia, the passage from subcontracting to co-contracting generated 3 to 4,5 higher costs to manage. New risks amounting to 50% of the manufacturing cost were planned (ERNEZ M. 2014).

The contractual relationship evolved towards a more relational approach according to an informal dynamics stimulated by the subcontractor innovation. In search of flexibility, the differential of resources and of competences between the parts increased till the ordering customer has become unable to assess the subcontractor's work and to draft full specifications (BARTHELEMY J. and al. 2007).

The Partnership Maturity

Partnership is defined as the ongoing relationship between two parts involving a long term commitment as well as a mutual sharing of information, of risks and of the relation reward (DUFFY R.S. 2008). It relates to a relational balance in terms of negotiating powers that rest on sharing, confidence and mutual dependence. The fair sharing of risks and of the loan linked to the subcontract activity suppose that everyone satisfies his/her interests optimally in the relation framework. The powers are balanced and the partnership relation is based on consultation. The range of players reaches its maturity. The long-term commitment becomes in general reality by a partnership agreement.

Decline and the Ordering Customer Unilateral Dependence

Beyond the partnership equilibrium, the relation could be destabilized by the migration of the added value. The customer has the choice between many service providers, yet, he/she cannot change for various reasons such as important purchasing volumes, products difficult to produce and essential for the success of the corporate customer (PERKS H. And EVASTON G. 2000). Because of a power asymmetry, the ordering customer becomes the relation hostage. He/she is forced to keep his/her relation at the risk of bearing significant risks and change costs.

The perception of an asymmetrical dependence has the effect of reducing the customer commitment with regard to the relation. It has a negative effect on the relation emotional side: the customer feeling pressured, and not totally free to make whatever choices he/she chooses, he/she will be much less likely to develop positive feelings towards the service provider (GEYSKENS L. and al 196). His/her commitment and his/her confidence decline resulting in a certain degree of mistrust between both enterprises pushing them to limit their cooperation without necessarily stopping to exploit in common the specific assets which could be invested in the relation. Each company can choose to get out of its relationship of dependency with regard to its partner. It still exists, in fact, a fall-back solution for the dependent companies, if they accept to face the consequences as well as the costs (BROUSSEAU E 1998).

Conclusion

This article shows the paradox of the shared innovation risk management. It sentences the ordering customer to undergo a dreaded risk since the decision of subcontracting, that of losing control and that of developing dependency towards the subcontractor. Innovation thus, presents a real dilemma for the organizations indulging in it (SMIDA A. 2006). The

companies that don't innovate are found in front of a competitive uncertainty and are forced sooner or later to leave the market. On the other hand, the innovating companies must face the risks linked to this strategic alternative.

It leads the ordering customer to lose control and forces him/her to cooperate in order to offset a higher relational risk. It permits to optimize the subcontracting relations by favouring the development of a solid and profitable partnership for the two parts of the relation. The case of the textile and Tunisian clothing sector, explains that the subcontracting relation cycle of life is punctuated by innovation. It is characterized by the increase of cooperation agreements and partnership as well as the increase of resources transfers, of competences and of European ordering customers' activities towards the Tunisian. The subcontractor who initially bears alone the largest part of risks linked to the subcontracting activity accomplishes through an innovation in a subcontracting service to incite the ordering customer to entrust him with more and more activities passing from mere subcontractor to co-contractor and manufacturer of end product. He/she becomes with time more experienced and more known, the transaction costs increase, control becomes impossible and gives way to a management through confidence.

The ordering customer is obliged to cooperate with the subcontractor to guarantee his/her partner's implication and honesty. However, when the ordering customer becomes unilaterally dependent of the agent who holds the added value, he/she revises downwards confidence going through calculation and research for the benefit of transfer or breach opportunity cost. As a cooperative play, the relation oscillates between the dependency limits tracing a rational and dynamic cycle of life according to the service provider contribution to innovation.

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