Barriers to Innovation in Rural Enterprises: the Strategy of "Doing Nothing"

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Abstract

Causes, types and size of obstacles preventing the spreading of innovation within and among rural enterprises can be of very different nature and can be translated into more or less severe difficulties in developing and implementing innovative processes in a rural area as a whole. Resistances to innovation, their characteristics and effects have been deeply studied in the literature but empirical observations may highlight how also inertia (reiterated inaction) can play a critical role in hampering innovation diffusion and processes of change. Some crucial operational problems are thus related to the achievement of a correct diagnosis and, if possible, a solution to this phenomenon linked to the identification of the actual and potential sources of inertia at farm/firm level, to the quantification of its main consequences and to the understanding of the reasons why inertia may become a preferable option compared to action.

Keywords: inertia, resistances, innovation, rural enterprises, rural development.

Résumé

Les causes, la nature et la taille des obstacles qui empêchent la diffusion de l'innovation au sein et parmi les entreprises rurales peuvent être différents et se traduire par des difficultés plus ou moins importantes pour le développement et l'application des processus innovants dans une zone rurale. Dans la littérature, de nombreux ouvrages sont consacrés à l'étude des résistances à l'innovation, leurs caractéristiques et leurs effets, mais des observations empiriques contribuent à mettre en évidence comment l'inertie (inaction réitérée) peut jouer à elle un rôle crucial dans la diffusion de l'innovation et des processus de changement. Par ailleurs, si on entend établir un diagnostic correct et trouver, dans la mesure du possible, une solution à ce phénomène, des problèmes considérables se posent sur le plan pratique, essentiellement liés à l'identification des sources réelles ou potentielles de l'inertie à l'échelle de la ferme/firme, à la quantification de ses principales conséquences et à la compréhension des raisons pour lesquelles l'inertie devient une option préférée à l'action.

***Mots-clés**: inertie, résistances, innovation, entreprises rurales, développement rural.*

1. Introduction

The solution of static conditions and production stagnation in a rural area are often linked to the injection among local firms of more innovation (in products, processes and management) and new technologies resulting from robust contacts between centres of innovation generation and their potential beneficiaries. The creation of positive conditions capable to activate innovation flows towards a given rural area and its local agents, with the opening of channels of information, contacts and relations with research centres through which knowledge can easily flows, is considered a prerequisite for an efficient and effective local development strategy based on innovation. All this paves the way to many questions about those conditions and mechanisms hampering or distorting the involving processes of change in environmental, economic and social terms. In particular, this issue highlights the limits of those strategies that are too focused on technical biases with scarce or no consideration of the relations between technical and production points of view and the specificity of a rural context and the local agents operating within it in terms of existing mind sets, culture and practices. Too often, theoretical models and technical approaches "on paper" clearly show practical limits in fitting with concrete issues of the real world providing scarce contributions in motivating farmers and other rural agents towards innovation: a more direct contact with the practical dimension in which these agents operate can on the contrary put into evidence the emergence of a wide set of issues and needs which may stimulate or, reversely, constrain the innovation diffusion. This is the reason why a deeper analysis of the problem of the resistances to innovation may become a critical key-issue towards the identification of local development strategies capable of defining and implementing robust and effective networks able to tie up and integrate different agents who can exchange knowledge and innovation (Cannarella and Piccioni, 2006).

Within this perspective, any process of change and knowledge circulation can stimulate different forms of resistance as "normal" physiological phenomena of adaptation and knowledge re-modulation: to some extent, resistances are physiological components in these processes sometimes assuming positive corrective effects and critical elements that are useful to acquire correct information on innovation definition and implementation (Maurer, 1996; De Jager, 2001). They embody dynamic re-action behaviours while in other circumstances the difficulties in developing and implementing innovative processes can be caused by different types of obstacles impeding the diffusion of innovation in a rural area and among local agents. Together

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with resistances, inertia can act as a severe source of impediments and failure of innovation with relevant implications in psychological, organizational, social and economic terms. However, it is essential to distinguish resistance from inertia even if they can be interlinked by possible complex cause-effect feedback chains: resistance is characterized by dynamic *re-actions* to change while inertia expresses a (prolonged and reiterated) in-action. Especially for organizations, inertia describes an indefinite time passing during the transition phase from a status condition to another induced by innovation: inertia becomes the longest possible period of time related to the initial status.

The problem of resistances to innovation have been deeply analyzed in literature (Waddell and Sohal 1998; Piderit 2000; *Harrisson* et al. *2001;* Oreg, 2003; Hartmann-Sonntag *et al.* 2004; Castellacci *et al.* 2005; Oreg, 2006): nonetheless, many questions still remain open about causes and mechanisms of the presence and persistence of widespread inertial behaviors among economic agents in a given area. How can inertia be identified at farm/firm level? What are the actual and potential sources of inertia at farm/firm level? How are its main consequences? Why is inertia preferred to action? Which are the available tools and strategies to possibly stop inertia at farm/firm level?

The aim of this study is to identify a theoretical framework for these forms of inertia useful to relate the solution of this problem to the chances of improving the potential diffusion of innovation in rural areas for the creation of local networks based on knowledge exchange between local agents.

2. Sources of inertia at firm level

Usually, a firm has not a sort of a natural inclination to innovation and to timely reply to external shocks and modifications under competitive conditions: empirical observations can confirm that, in the real world, many firms often cope with adaptation processes with difficulties and changing strategies or structural forms or administrative procedures are difficult, expensive, risky and time- consuming processes (Cannarella and Piccioni, 2003). Economic literature (Rumelt, 1995; Bazerman, 2005) defines inertia as *a lack of firm's plasticity* materializing a relevant persistence of existing forms and functions. Should these structures and functions be effective, inertia is cost-efficient and maybe beneficial but if firm's structures and activities are inefficient, inertia and the persistence of inefficient structures and practices can seriously hamper the introduction of innovation and changes and can deeply alter firm strategies and configurations. Inertia appears as a symptom of certain deficiencies, which can derive from: a) pathological routines, b) frictions and c) discouraging mechanisms.

a) Inertia and Routines

The problem of inertial firms is often related to the concept of routine (Nelson and Winter, 1982; Grant 1991; Becker and Knudsen, 2001) adversely affecting the firm's capabilities towards innovation absorption, good practices transfer, organizations' memory, learning processes, etc. Routines are defined as patterns being repetitive and persistent, collective, non-deliberative and self-actuating, process-related, context-dependent, embedded, specific and path dependent. They materialize tools to co-ordinate and control, economise on cognitive resources, reduce uncertainty, lead to inertia, provide stability, act as triggers and embody knowledge. Inertia is considered one of the main routines' effect, capable to persist even in case of evident negative performances (Rumelt, 1995; Hirshleifer and Welch, 1998), resulting from routines capability to generate stability (Nelson, 1994): inertia can be thus considered as an excessive pathological stability. An inertial behaviour becomes a preferable option (Nelson, 1994; Feldman and Rafaeli, 2002) when certain inertial routines produce results just a little above the average without activating conscious cognitive problems required to identify forms of alternative action and of quickly crystallizing practices and procedures hampering the adoption of changes. Repetitiveness without much change (Cohen *et al.,* 1996; Nelson and Winter, 1982; Coombs and Metcalfe, 2000) makes routines stable and reliable by giving rise to predictability. The climax of inertia is emphasized by monotony, absence of particular events and smooth performance generated by the routines' non-deliberative nature: routines are self-actuated, virtually carried out in an automatic manner, without any form of awareness or explicit attention (Dosi, Nelson and Winter, 2000; Lazaric, 2000).

Any firm implements repetitive specific production methods and these methods are routines which also detain a coordination power (Nelson and Winter, 1982; Dosi, Nelson and Winter, 2000) deriving from their capability of maintaining a quite high level of "simultaneity" and of permitting the execution of a rather long sequence of interactions, providing forms of regularity, unity and systematisation to a team, by allowing the simultaneous execution of many activities and providing team components with an anticipated knowledge on the other components' behaviour.

Further contributions to stability also derive from the routines' capability in economizing cognitive resources, which are generally scarce by reducing the space for undesired events and bad surprises and by taking advantage from known events (Inbar, 1979).

Thanks to routines, people avoid mental fatigues and save time and efforts in elaborating processes based on scarce information (Egidi, 1996) being capable to cope with complex and uncertain events (Weiss and Ilgen, 1985) and to make choices even when, in a limited time span, the evaluation of all possible alternatives becomes problematic and when the cause/effect relationships are not evident; routines are activated when uncertainty is particularly pervasive. Serious problems arise when this stability prevents innovations from occurring by limiting the firm capability to adjust and cope with changes.

b) Inertial Frictions

In the literature, five main classes of frictions have been identified as sources of inertia (Rumelt, 1995):

A. Distorted Perception
B. Dulled Motivation
C. Failed Creative Response
D. Political Deadlocks
E. Action Disconnects

A. Distorted Perception

Any change process starts with a perception: if the perception is distorted, then changes can be impeded. The main causes of distorted perception are:

Myopia - distorted perceptions caused by wrong opinions on long-term issues or on the effects of long-term investments. Inertia may result from "myopically" incorrect evaluations and scarce consideration of the firm's mid/long-term operations.

Negation - the denial to take into account information which collides with one's expectations, thus creating distorted perceptions: this phenomenon may result from an excessive self-esteem, from an over estimation on one's own capabilities or from panic.

Grooved thinking - a group's point of view (Janus, 1972) is imposed as a "standard" opinion. This kind of behaviour usually generates metaphors and prejudices seriously limiting the development and diffusion of creative thinking.

B. Dulled Motivation

Even if perception is correct, a firm may find difficulties in the management of a transformation processes because the need for changes is not seen with enough intelligibility. The lack of motivations can be rational or may detain irrational causes. The main motivational constrains are:

Direct costs of transformation - innovation may provoke increases in the possibility of organizational failures and the related processes destroy consolidated operations and imply a large number of expansive interventions. All this can determine rational obstacles towards a transformation process at individual, group or sector level.

Cannibalization costs - when a successful innovation erodes advantages or profits of methods or practices consolidated within the firm, it activates cannibalization processes. Inertia results from the attempt at preventing cannibalization.

Cross-subsidy comforts - drives to change are inhibited when costs in a problematic situation are compensated by advantages and profits deriving from other activities. Problematic situations are directly *financed* when an entrepreneur tolerates losses in a certain activity without activating changes (inertia), being these situations balanced by gains obtained in other successful activities.

C. Failed Creative Response

Even in case of correct perceptions and adequate motivations, transformations can be blocked by complexities or by inefficient replies when coping with difficulties.

Speed and complexity – if the market context decides and operates very quickly and the scenario appears too complex, slower firms may opt for inaction.

Reactive mind set - changes may be hampered when individuals tend to believe that firm problems are "natural" and unavoidable. Very common reactive mindsets are those according to which firm problems are caused by sector trends rather than internal difficulties.

Inadequate strategic visions - even when analysis and choice have been made, the selected direction, and above all its articulation, could be so incorrect to block the change process due to hypocritical approaches.

D. Political "cul de sac"

Changes in firms imply something more than command and impose changes: changes are effectively and concretely carried out thanks to the efforts of certain influential persons within the firm.

Department policies - a firm manager will very rarely make decisions about changes involving his department/office/position restructuring, reshape or dismantling. The result is inertia.

Incommensurable beliefs - during a process of change, if individuals or groups disagree on the problems nature or the strategies required to solve them, combining these diverging visions and opinions becomes a time-consuming task. In case of time constraints, this problem in the group decision-making process might drive to inertia.

Vested values - individuals and departments have a strong emotional affection towards certain products, services, policies, practices, etc. This kind of ossified and deeply rooted values can generate severe obstacles to change.

E. Action Disconnects

This dimension involves those forces hampering the practical action. Even if perception is correct, analysis and choices are correctly made and problems of internal policies are solved, changes could be blocked for the following causes:

Leadership inaction - innovation involves alterations in organization and structure, modifications in practices and processes and shift power. If the leadership fails in this mission, change will be blocked.

Embedded routines - complex processes require the implementation of operational routines which may become ossified habits as time goes by: this sclerotic routines can be solved through economic incentives but certain repetitive and standard work patterns may show a stronger inertial force than any other form of financial or practical incentive.

Problems in the collective action - initiatives can be blocked by a wide variety of problems in the collective action such as the problem of the "first mover": on several occasions, even in presence of incentives to support innovative processes, staff members do nothing and wait for someone else taking the first initiative by producing an in-

ertial equilibrium. In other circumstances, wrong incentive schemes could push staff members to standstill even in case of a first mover's activation. The most difficult problem related to the collective action is linked to "culture". A dysfunctional culture can, for example, impede changes when competition and contraposition prevail over cooperation among the firm departments and staff. Culture highly depends on mutual expectations, that is why it cannot be easily changed: a culture resisting a transformation process could thus become an unsolvable source of inertia.

Capabilities gap - changes can be blocked by the gap between the tasks a firm should achieve and its internal available capabilities. This condition may create a tension within the firm that, in normal conditions, may be beneficial supporting a transformation process but a too prolonged and profound stress can become a source of discouragement and obstacles to change.

c) Discouraging Mechanisms

The presence of some discouraging mechanisms within the context, in particular related to choice selection, contributes to generate exogenous incentives to inertia creating blocking effects and making the "strategy of doing nothing" a preferable option. Studies (Iyengar and Lepper, 2000) have criticized some consolidated principles of applied psychology according to which the wider the spectrum of possible options the better the choice. In particular, this research emphasized how individuals have increasing difficulties during the decision-making process according to two main problematic biases.

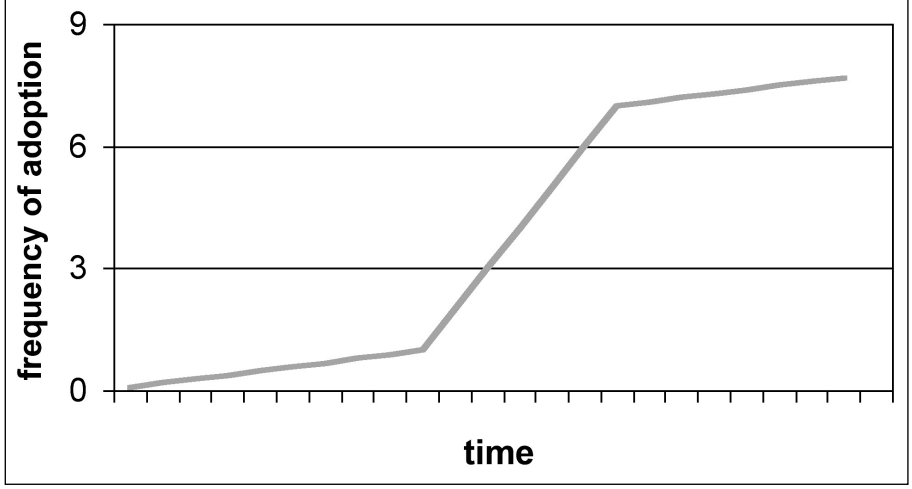
1 Discouraging mechanism (quality bias): making a choice based on complex decisions (or perceived as such) - when choice complexity increases, individuals experience forms of internal conflict and, as consequence, they delay the decision, look for further alternatives, decide inappropriately or do not decide at all (inertia) (Hendrick, Mills and Kiesler, 1968; Wright, 1975; Shafir and Tversky, 1992; Beattie et al., 1994; Osnos, 1997; Dhar, 1997; Dhar and Nowlis, 1999; Schwartz, 2000). In case of difficult decisions to be made, individuals spend a long time analysing pros and cons of various aspects and of the available information on different options. In some circumstances, this long introspection activity can produce negative effects driving to sub-optimal choices and negatively modifying the individual behaviour towards modalities and approaches to complex problem management and solution. Thinking for too long could reduce the choices and decision quality: this long time lag could reveal inertial characteristics. A tendency to inertia can be also stimulated by decisions requiring high skills: in some circumstances, individuals prefer to transfer the decision responsibility to others (the so-called "experts").

2 Discouraging mechanism (quantity bias): high number of options with high attractiveness degree for each single option - Selection, evaluation and information integration are influenced by the number of available options: individuals tend to simplify their decision-making processes on the base of few simple ideas, concepts and data. An information overload could push to make the entire decision process as more efficient as possible. Contexts based on limited options seem to be easier to manage than those based on a wide but psychologically excessive number of alternatives. The presence of a wide spectrum of choices initially appears very appealing and tempting but it may ultimately become discouraging by also pushing to inertia (no choice). Individuals, even if appreciating a broad range of alternatives, feel the responsibility in distinguishing a good choice from a bad one within a too wide spectrum of options, i.e. the wider this spectrum, the harder the distinction. The choice overload phenomenon is exacerbated in contexts where: the costs related to (or perceived to be related to) a bad choice are clearly evident and massive and/or time and efforts requested to compare options and collect information necessary to the decision making are (or are perceived to be) significant.

3. The role of inertia in hampering innovation diffusion

The trends in innovation adoption (ideas, opinions, practices, methods, technologies, etc.) or the innovation degree distributed throughout a given population in the time course can be described by the S-shaped cumulative curve (Rogers, 1995; Henrich, 2001) (*figure 1*).

Figure 1 – *S-Shaped Curve of innovation adoption.*



This curve assumes that few individuals will make up the first adopters' group, the majority will adopt innovation within an intermediate period and few individuals (with a limited innovativeness) will lag behind adopting innovation

later on driving to the identification of different categories on the base of the adoption behaviour:

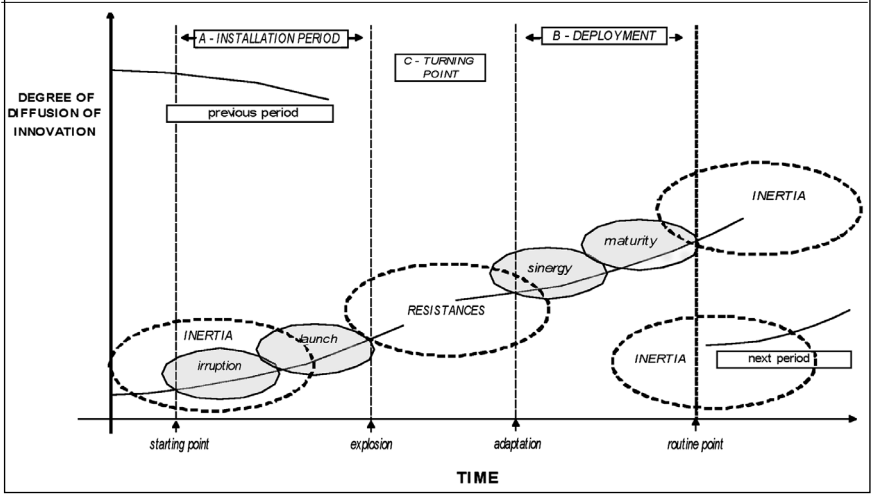
- innovators – rather isolated individuals showing the ability to understand and apply complex technological/non-technological knowledge, to cope with high risk and uncertainty about innovation (very low risk aversion) and to stimulate the flow of innovation in a firm. They are inclined to adopt innovation on the base of limited evidence;
- early adopters – better integrated individuals showing the ability to understand and apply technological/non-technological knowledge, to cope with intermediate risk and uncertainty about innovation (low risk aversion) and to trigger the critical mass when they adopt an innovation;
- first majority – they adopt innovation just before the average members of the group and interconnect the next large group to innovation. The innovation decision-making period for this group is relatively long but innovation is adopted with deliberate willingness. Intermediate risk aversion;
- late majority – they adopt innovation just after the majority for economic need or through peer pressure. This group is sceptical and cautious and it does not adopt a new idea unless most of the others have done so. This group desires that most of the uncertainty and risk of innovation is removed before they are ready to be adapted (high risk aversion);
- Stragglers – they take decisions about innovation according to what has been previously done by primarily interacting with those having traditional values. Stragglers tend to be suspicious of innovation and of change agents. Their inertia and resistance to innovation can appear somehow irrational but it may be entirely rational from their point of view, as they must be sure that a new idea will not fail before the can adopt it (very high risk aversion).

In particular, inertia may push innovation to failure, thus affecting the innovation *implementation* phase (Schalk *et al.* 1998; Repenning, 2002; Pavitt, 2003; Lapointe and Rivard, 2005) within the firm for deficits in personal "commitment", "engagement" and "involvement" (*figure 2*), i.e. those elements playing a critical role in determining the intention and resolution to achieve a determined goal through the adoption of a mature innovation characterized by a scarce or unenthusiastic use of innovation in individuals with respect to the level that is necessary to generate the innovation benefits even in the presence of financial incentives (Klein and Sorra, 1996).

This phenomenon may affect an entire sector with the creation of pathological concentrations of inert firms based on some reverse mechanisms of innovation diffusion. Being innovation diffused through the population thanks to conformism (*number of individuals* who have opted for that innovation or tendency in individuals to acquire the most common shared mental representation as element of social learning) (Henrich 2001) and/or to prestige (*who* has adopted that innovation or imitation of particularly competent, successful and prestige subjects without thinking if these behaviours can influence or not the positive outcome of the imitative models or the imitator's praxes) (Henrich and Gil-White, 2001), also inertia, as any cultural pattern, can be transmitted through conformism or prestige increasing the frequency of its adoption.

The possible presence of de-motivating mechanisms may increasingly facilitate the diffusion of inert behaviours and shared passive performances inclined to stability. This stability can be eroded through financial incentives meant to stimulate innovation injection and support first adopters to achieve a critical mass to self-sustain and spread innovation on its own. However, in the presence of cultural inertia, these incentives cannot properly work because this form of inertia is often triggered by extra-economic causes (risk aversion, deep-rooted values, ossified habits and routines, etc.), pushing the achievement of the critical mass to a too high or unreachable level. This can be translated into a particularly long initial phase of the S-shaped curve quantified in the limited number of adopters hampering the achievement of a certain "critical mass" and the related innovation propagation. Inertia and resistances provoke sub-optimal process performances characterized by a massive and pathological concentration of agents among late majority and/or stragglers with progressive erosion in the innovativeness degree of the entire process.

Figure 2 – Resistances, inertia and innovation processes.



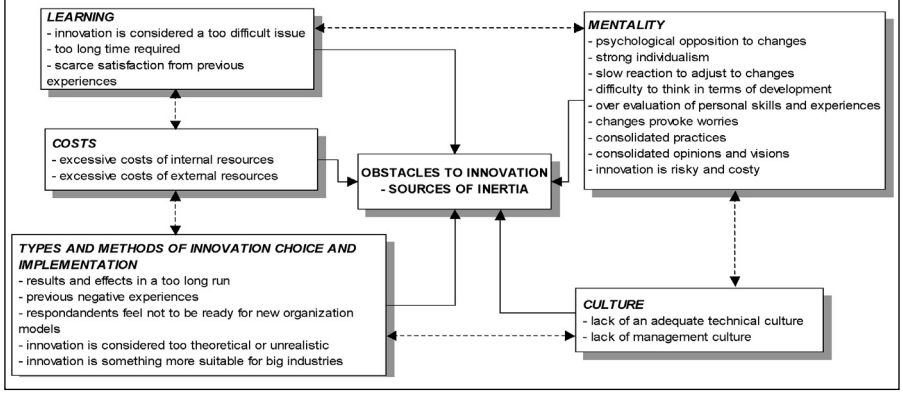
4. Discussion: the problem of inertia

The previous analytical framework has been used to empirically verify the presence of inert attitudes and behaviours at firm/farm level as critical factors hampering the real diffusion of innovation. Through a questionnaire and above all many informal talks, a survey has been conducted to highlight the respondents' reaction towards innovation, their attitude towards inertial mechanisms, their practical

every day behaviour also at the working place and the impact of some organization activities. The present survey has been carried out in the rural area involved in the research activities of the project "Development Dynamics and Increases in Competitiveness of Rural Areas" (DICRA), resulting from an agreement between the Research Team on Development and Innovative Processes at the Institute of Chemical Methods (I.M.C.) of the National Research Council of Italy (C.N.R.) and the Municipality of Vitorchiano (a village of 4,000 inhabitants in the province of Viterbo, about 100 km north of Rome in Central Italy). Given the presence of strong "emotional" features in the survey, the resulting information has been used to articulate some empiric-based observations and deductions rather than to develop rigorous statistical conclusions.

The survey involved 15 local enterprises in agriculture, small scale industry and tourism services and retail: sets of factors of inertia, mainly resulting from some recurrent verbal expressions, have been organized, structured and correlated in a diagram outlining a global overview of inertia at firm level (*figure 3*).

Figure 3 – Obstacles to innovation and sources of inertia at firm level.



The survey also highlighted the common idea that the context for business is considered too complex because of the presence of too many (often obscure) norms, regulations and permits required to start up new innovative activities. In many respondents' opinion, the presence of too many incentives, schemes, subsidies, programmes from different public institutions and agencies for local development is seen as a source of complexity contributing to nourish confusion requiring time, money and experts to properly decide and to make this scenario simpler. The context is considered not easily manageable not only in technical, but also in psychological terms.

Furthermore, the distribution among the innovation adopters' categories evidenced a large incidence of prudent conservative firms in agriculture and in other rural sectors with a prior tendency to imitate rather then innovate and, not rarely, with more inclination to imitate conservatives rather than innovators. Many firms are likely to be managed and composed by stragglers or late adopters; they are characterized by a scarce presence of innovators, poor growth strategies based on innovation and the presence of practices, routines and organization patterns devoted to preserve the status quo. These conditions are at the basis of many difficulties reported in starting and implementing contacts and links between research centers and local firms characterized by a general low interest and scarce involvement drawing S-shaped curves characterized by extremely long first tails.

The weighted measure of the frictions affecting change within the firm drove to the identification of the main causes of inertia at firm level: all sources of inertia had an influence on hampering innovation but in particular the presence of deep-rooted values gained the highest score as main and more frequent source of inertia at innovation formulation and implementation stage, involving both incremental and breakthrough innovations. These deep-rooted values are a relevant factor in determining forms of "cultural inertia", expressing a shared *unwillingness* (fear to change, consolidated and ossified interests, cultural and mental factors) in addition to the *inability* (organizational problems, difficulties in decision making processes or incapability in perceiving opportunities and need to change) to change and pushing forces change towards "soft options".

5. Conclusions

The understanding of the rationale of the strategy of "doing nothing" has ignited our initial questioning about the possibility to identify the features of a peculiar phenomenon often translated into a poor rate of innovation adoption. Inertia at firm level, a separate phenomenon from resistance to innovation, often appears as a simpler tool, in economic, technological, management and psychological terms, when compared to unknown consequences of innovation capable to produce satisfying results just above the average. At the stage of research to date, some tools and strategies to detect this phenomenon have been identified for a diagnosis of the problem, but the identification of possible solutions is still an open issue also for the presence of the traits of cultural inertia which may weaken many conventional operative approaches and forms of innovation communication based only on technical, sector or financial factors. The existence of these forms of inertia can also contribute to explain the insurgence of severe obstacles to innovation diffusion even in advanced economies or in contexts where innovations are easily accessible thanks to the presence of subsidies and other economic incentives. Being a distinctive phenomenon, inertia requires different and multi-level approaches able to interrupt crystallized routines and to reduce time lags: reducing complexity in business appears another relevant issue also for its linkages with the capabilities of local entrepreneurs to manage innovative and change processes.

The possibilities to reduce the too large dimension of the

group of late adopters and stragglers in the too long tail of the S-shape curve in the innovation adoption are likely to be linked to the shift from conformist cultural transmission to a prestige-based transmission with the identification of pivotal individuals, showing more interest in innovation, opinion leadership and larger social networks. The stimulation of imitation and positive-word-of-mouth (PWOM) processes among less confident farmers and rural entrepreneurs may also provide further contributions in helping firms/farms to escape from inertia with the creation of positive conditions to activate innovation and channels of information, contacts and relations with research centres as prerequisite for an efficient and effective local development strategy based on innovation.

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