

How can the Institutional Work of artisanal processing units lead to Innovation with Respect to Food? A Senegalese Case Study

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ABSTRACT: The research aims at highlighting the most relevant levers for more accurate actions for innovation in the food industry by artisanal units. In particular, we target to identify through the reciprocal interactions of the various actors, the processes likely to lead the artisanal processing units to adopt innovations of product, process, and marketing to ensure the competitiveness of the products.

Therefore, we focused on the following: how do the institutional processes lead to the innovation of the artisanal processing units? More specifically: what are the institutional logics that support the artisanal units' processes of innovation? Is the institutional work leading to the adoption of new or improved methods of processing and marketing by these units?.

For this purpose, we adopted a qualitative approach by focusing on the case of a federation of women, so-called FEPRODES, in the District of Saint-Louis. Through in-depth interviews and documentary analysis, we focused on the changes and innovations led by the FEPRODES. The discourse analysis is used to grasp the organizational field of the artisanal processing units of local rice.

Results showed that the institutional work allowed women to change the social structure in the rice sector, to be endowed with several strategic resources, and thus, to lead the innovation processes in the rice industry.

KEYWORDS: Institutional change, Innovation process, Organizational innovation, Marketing innovation, Rice industry.

1 INTRODUCTION

We find in Senegal an increasing and significant evolution in the consumption of rice. At the national level, a differentiation can be made out on the ways of consumption of this product. Indeed, local rice is more known and preferred near the areas of production (Casamance and Saint-Louis District), while this product is slightly known in the remaining part of the country. Imported rice is more consumed in this latter part of Senegal¹. This fact is due to both the unavailability of local rice and the lack of policy to promote this local product. Nevertheless, the inhabitants of Saint-Louis have a real inclination for the rice of the valley of the Senegal River, called "Riz de Richard Toll". One finds in the Saint-Louis District many institutions (SAED, AFRICA RICE, BEY DUNDE, CNCAS, ISRA, etc.) involved in the production and the processing of "Riz de Richard Toll". However, their actions and interventions appear insufficient². It is better to focus on a structural competitiveness strategy to meet the expectations of the Senegalese consumers, who are looking for more quality, better taste, and availability of the product³. Indeed, since gaining a competitive advantage by the local production costs becomes harder, it is required to focus on the

¹ <http://fr.slideshare.net/marcelmatardiouf/diagnostic-of-the-filire-rice>

² <http://fr.slideshare.net/marcelmatardiouf/diagnostic-of-the-filire-rice>

³ <http://fr.slideshare.net/marcelmatardiouf/diagnostic-of-the-filire-rice>

consumer's needs⁴. Moreover, the branding of local rice must go further than just the name. It should involve the requirements of quality which must be reflected in the packaging, to allow a better fit with the distribution networks.

The professionalization and the modernization of the actors⁵ make it possible to better grasp the various stages of the definition of the product, processing, distribution, and selling to be competitive⁶. Thus, the processing of the paddy grows locally will confer an added value, which in turn will lead to a long-term competitive advantage⁷. The actual field of rice processing, in constant progression, is currently ruled by artisanal units which manufacture more than 70% of the aggregate output. In the Saint-Louis District, some of these units managed to overlook the others by both offering rice of various types and branding their product.

The research is therefore interested in the following: how the institutional processes lead to the innovation of the artisanal processing units? More specifically: what are the institutional logics that support the artisanal units' processes of innovation? Is the institutional work leading to the adoption of new or improved methods of processing and marketing by these units?

To answer these questions, we call up within the Neo Institutional Theory (NIT) [1, 2] the institutional work [3, 4]. We are interested in the innovation process [5] of the rice processing units through institutional logic defining their behaviors in a specific institutional context [3, 4].

We adopted a qualitative approach [6] by focusing on the case of a federation of women, so-called FEPRODES in French. Through in-depth interviews and documentary analysis [7], we focused on the history, the growth, the entrance in the markets, the gap with the various technological borders, and the interactions between the FEPRODES and its institutional environment. Thus, the interviews carried out within FEPRODES staff members are supplemented by documentary analysis. The discourse analysis [8, 9] is used to analyze the organizational field of the artisanal processing units of local rice.

The paper is structured as follows. After an overview of the institutional work approach and its relevance for the analysis of the innovation processes (2), we describe the methodology (3). We present the results (4) of the research, and we deal with the institutional changes and innovations led by the FEPRODES (5). At last, we conclude with some outcomes related to women's activities and quality of life induced by the FEPRODES' institutional entrepreneurship and institutional work (6).

2 FROM INSTITUTIONAL ENTREPRENEUR TO INSTITUTIONAL WORK AND INNOVATION

Starting from the Neo Institutional Theory [1, 2], several authors proposed to transcend the criticism related to its external determinism. Doing so, we move successively to the institutional entrepreneur perspective [10] and the institutional work [3].

Regarding the chain-linked model of innovation [5], one can see within the innovation contexts, a requirement and relevance of the institutional logics to perform in a given marketplace.

Institutional Entrepreneur as a source of Institutional Change

To overcome the fundamental criticism about Neo Institutional Theory [1, 2] relating to its external determinism, the concept of Institutional Entrepreneur is proposed [10]. This last is defined as an agent which mobilizes resources and supports to transform an actual institution or to create a new one [10, 11]. Thus, "new institutions arise when organized actors with sufficient resources (institutional entrepreneurs) see in them an opportunity to realize interests that they value highly" [10]. The institutional entrepreneur reinstates the function and the intentionality of the agents facing the institutional pressures [12]. Institutional entrepreneurs are generally individuals or organizations with strategic resources or power allowing them to influence their institutional contexts [13, 14, 15, 16].

Others proposed institutional logic like the base of the individuals or the organizations' ability to influence their institutional framework [8]. Defined as a central logic that constitutes a principle of organization and legitimacy, institutional logic [17] is interested in the diversity of the available institutional references, and the possibility that the agents have to refer to each other. Thus, according to their beliefs and rules, the agents organize and give direction to reality [17, 18] while referring alternatively to institutional logic. This enables them to take as a starting point other models to consider [and introduce] new

⁴ <http://fr.slideshare.net/marcelmatardiouf/ae-hiv-1213-pcecgerv>

⁵ <http://fr.slideshare.net/marcelmatardiouf/diagnostic-of-the-filire-rice>

⁶ <http://fr.slideshare.net/marcelmatardiouf/ae-hiv-1213-pcecgerv>

⁷ <http://fr.slideshare.net/marcelmatardiouf/ae-transformer-rice-local1314>

rules of the game [8] in their environment. Institutional change can then be perceived in an "endogenous" way by apprehending the agents like "institutional entrepreneurs" [10].

Indeed, an institutional entrepreneur creates or transposes practices, beliefs or models, and seeks to lead the other agents to adopt them and to accept them like standards [19, 20]. The institutional change consequently becomes a strategic stake which accounts for how the companies organize the markets by fixing the "rules of the game"; the organizational field becomes a strategic space of action, and institutions, as well as transforming the field, become strategic goals; the organizational field is changed to an arena of dialogues and conflicts, of contestation and dealing between agents of different nature and power; to shape institutions or the structure of the field, institutional entrepreneurs undertake strategies which take into account all the agents [8]. In particular, to create institutions, the institutional entrepreneur can exploit political, normative, and cognitive levers (Table 1) in the institutionalization process [3].

Table 1. Various institutional levers

Forms of practices	Modalities	Explanations
Political practices	Advocacy	The mobilization of political and regulatory support through direct and deliberate techniques of social persuasion
	Defining	The construction of rule systems that confer a status or identity, define boundaries of membership, or create status hierarchies within a field
	Vesting	The creation of rule structures that confer property rights
Practices relating to the normative structure of institutions	Constructing identities	Defining the relationship between an actor and the field in which it operates
	Changing normative associations	Redefining relations between sets of practices, and the moral and cultural foundations for these practices
	Constructing normative network	Constructing inter-organizational connections through which practices become normatively sanctioned, and which form the relevant peer group for compliance, monitoring, and evaluation
Practices relating to the cognitive structure of institutions	Mimicry	Associating new practices with existing sets of taken-for-granted practices, technologies, and rules to ease adoption.
	Theorizing	The Development and specification of abstract categories and the elaboration of chains of cause and effect
	Educating	The training of actors in skills and knowledge necessary to support the new institution

This overview based on much empirical work does not make it possible to understand deeply which practices are used at each stage in the evolution of an organization [21]. The institutional entrepreneur perspective is also criticized in the sense that it takes into account, neither the role of the other actors in the institutional processes nor the collective character of the institutional change [22]. A plural approach taking into account the context and all the actors within the institutional process is proposed and so-called the institutional work [3], making it possible to account for the opened, collective and questionable character of the institutional change.

2.1 INSTITUTIONAL WORK, AN INDUCTOR OF INSTITUTIONAL CHANGE

Neo-institutionalism in the organizational theory (or sociological neo-institutionalism) is directed towards fixing the modes of influence of the social and cultural environment on organizations [8]. From this point of view, the strategic capacity of organizations' action within institutional frameworks is not taken into account; by the way, organizations are seen like "lemmings" in their organizational mimicry. An extension of the neo-institutional approach is then developed to take account of the duality of the relationship between organizations and institutions; organizations are consequently seen like agents institutionally embedded but having a true autonomy of strategic action.

The concept of institutional work is potentially able to put forward this ontology of the institutional processes and makes it possible to account for the multiplicity of actors engaged in these processes [22] as well in their complementarities as in their contradictions [23, 24, 25]. Thus, institutional work is mainly the work of the State or a professional category to which the State delegated this power [3]. This perspective aims at developing a better analysis of the various strategies of the institutional actors at the empirical level; the theoretical stake is to start from the continuous actions of the actors to apprehend both the

institutional change and the institutional stability; to this end, three main forms of "institutional work" (Table 2) are distinguished and draw up an indicative list which has to be supplemented by subsequent works [22].

Table 2. Main forms of institutional work

Forms	Actions
Establish institutions	To plead in favor of the project
	To define
	To motivate
	To build identities
	To change normative associations
	To build actors networks sanctioning the non-observance of the institution
	To couple new practices with the old ones
	To work out and theorize the relationships of cause and effect
	To provide to the actors' knowledge and skills required to adapt the institution
	Maintain institutions
To maintain the order by control	
To dissuade	
To value and to send to blazes	
Creation of myths around the institution origin and history	
To embed and push to routine-minded	
Destabilize institutions	To disconnect sanctions and practices
	To dissociate practices and their moral basis
	To call into question presuppositions and beliefs

The institutional work approach [3] sees collective dynamics inherent to the process of institutionalization (or deinstitutionalization), of legitimation (or delegitimation) of norms and practices. This approach contests the tendency to reduce actors' behavior to mimicry and the fall in the value of collective and political dynamic [26]. Institutional work is defined thus as "the intentional action of the actors or the organizations aiming to create, to maintain or to destabilize institutions" [22].

The institutional work allows boundless importance to individuals and groups' actions by setting the concept of "work" at the center of the institutional analysis; the endeavor and the intention are put forward by authors to reconcile the concepts of "work" and "institution" [27]. The intention can refer to an "agency which is planned" by deliberately managing its future actions which modify strategically the social conditions. It can also integrate a practical dimension that relates to the adaptation to specific problems and situations. The effort (physical or mental) can be associated with a set of objectives to affect institutions [4]. In particular, these authors choose a design in which actors are endowed with a reflexive capacity which enables them to represent the institution where they are embedded while having a strategic behavior [27]. Institutional work becomes one of the contemporary major tendencies in the development of the neo-institutional theory through taking into account institutional logic to grasp organizations' strategic behavior in their surroundings.

Institutional logics refer to the architecture of cultural beliefs and organization principles. It is through these deeply anchored elements that individuals produce and reproduce their fundamental base, structure time and space, and make sense of their daily activities and succeed in them [17, 18, 16]. Institutional logics define the behavior required to be legitimated in specific institutional contexts [28]. Institutional work requires then to extend institutional logic to different institutional sets for two main reasons [29]. It implies significant resources, specific competencies endow actors in a given context with a new set of activities, and new symbolic systems to shape a sense of these activities [30]. The extension of a new institutional logic can also produce some implications related to actors' interplays within the targeted institutional context [29]. It will offer new definitions on what is legitimate and destabilize the main point and the consensus [31], thus creating a muddle within actors [29]. Better, a new institutional logic tends to call into question the influence of the involved actors [29]. Thus, competencies and capacities which actors have to develop to assume the promotion of the new institutional logic, are at the heart of institutional work [10, 19, 32].

To ensure the durability of the institutional work, the company must be able to integrate, build, and reshape internal and external competencies to face varying environments [33, 34]. Dynamic institutional capabilities are thus built and allow to understand meta-competencies that point out the capacity of an organization to configure various institutional work [29]. In particular, the authors define dynamic institutional capabilities as the ability of an organization or a company to integrate, build, reshape over time various forms of the institutional work through several institutional environments.

In the line of the former work [35], the design of the institutional work admits the intertwining of the capital resource and the institutional capital in the organizational processes [29]. It is ultimately a matter of how the organizational capacity supports and maintains the diffusion of a growing institutional logic; this capacity stems from a set of distinctive and recognizable processes by which the organization coordinates and combines various forms of institutional work [29]. Such processes are made by current organizational competencies, the way of growth adopted or inherited, and mechanisms of training developed to ensure the expansion of these dynamic institutional capabilities [33, 34].

The same form of institutional work can be exploited to create, maintain, or modify local institutions to extend the logic [29]. From this point of view, results go against the traditional view according to which each pattern of the institutional work is related to a particular form of institutional engagement [3]. Some work [29] suggests the adjustment to the local contexts requires the diffusion of an institutional logic like a shared framework of thought.

2.2 INSTITUTIONAL PROCESSES AND INNOVATION

Innovation can be defined as all the scientific, technological, organizational, financial, and commercial activities necessary to create, implement, and market new or improved products or processes [36]. Innovation is defined as an exercise in the management and the reduction of uncertainty [5]. Uncertainty relates both to the technical performance of the innovation and the market response to its introduction.

Authors [5] put the external forces of the marketplace at the heart of the relevance of the innovation within their chain-linked innovation model. Indeed, external factors such as the structure of the market in which the firm operates, the policy and institutional environments play important roles [37].

In the line of the open innovation of [38, 39], the new approach of the innovation relies on resources, ideas, knowledge, and know-how which can come from the inside but also the outside of the company [40]. Innovation is supposed to be highly competitive and small firms are in a better position to fully exploit it, combined with their focus on new innovative technologies [41], and take over from the incumbent [42]. Small firms are more efficient in the use of capital and labor resources [43].

In management sciences, several works on the innovation sought to explain the conditions of its success and the means required to reinforce it [40]. In general, property rights that can ensure more return on innovation are never perfectly specified and enforced [44]. This led [45, 46] to put forward when transactions are costly, institutions matter. Thus, societies develop formal and informal institutions, such as culture and norms, to reduce the importance of transaction costs [47, 48].

Insights from the institutional economics literature point to the importance of internalizing externalities to ensure the appropriability of the returns to innovation; In particular, both formal and informal institutions influence the innovation process of developing countries: the market structure, the institutional environment, the policy environment, norms and culture [37].

As institutions matter on innovation due to the uncertainty related to the technological performance and the market response, firms can hardly innovate by themselves [40]. To take advantage of innovation, firms look both for new sources of innovation and resources to conduct innovation. For this purpose, they can cooperate and thus combine their sources and resources for innovation [49, 50, 51].

One can also think of dealing with the external factors of the marketplace [5] like an institutional entrepreneur to take advantage of formal and informal institutions in the innovation process. As institutions matter for innovation and institutions can provide resources to firms in a targeted marketplace [52], and institutional work [3] can lead to obtaining resources for innovation.

3 METHODOLOGY

For data collection and analysis, we adopted the case study [53, 6], combined with suggestions on institutional work [3] and innovation research [36].

The studied case is the FEPRODES, a farming women's association in Saint-Louis that brings together thousands of women involved in rice cropping development to get better access to credit, technologies, and trade opportunities. FEPRODES provides training in improved farming and postharvest techniques, computer science, gender mainstreaming, leadership, and management of small enterprises for its members.

Data on institutional work and innovation was collected using a protocol [53, 36, 6] based on [3] and [5] work. Questions are related to the FEPRODES background and activities, changes that happened on activities and practices, relations with the market, the way used by women to get and use new techniques in the rice sector, the source of changes that happened within activities and the organization, the relationship with research institutes and others, and difficulties encountered.

To guarantee the objectivity of answers [6], interviews were realized with persons in charge or people quite informed that are the Vice-chairwoman, the CEO of Finance, and the monitor of a women group of FEPRODES that grows rice. Interviews were systematically recorded with the permission of interviewees. Documentary research on websites (google and seneweb in particular) supplemented data gathered.

Interviews are completely transcribed, and we made a discourse analysis [8, 9] for the data set. We completed the analysis by using the manual method extraction of Verbatim [54]. Verbatim extraction, as means of the analysis of the opened answers, allows selecting extracts of the text according to their context (according to answers' to another variable), or of their contents (answer' lexicon). In our case, it is a question of identifying the contents and passages which relate to actions managed by the FEPRODES to induce changes in their activities and practices to become more innovative for more influence in the rice sector. That consists in extracting manually and in a rough way the statements which characterize the advanced postulates of institutional work and innovation.

Topics framing institutional work leading to innovation are then identified (Table 3). They are verbatims that support them. Quotations (words, sentences, or paragraphs) are progressively selected when reading the corpus.

Through the case of the FEPRODES, our research aims at investigating the patterns of institutional work [3, 4] used by the actors to (re) shape the processes and contexts [5] of the artisanal units of rice processing in the Saint-Louis District.

4 RESULTS

Data collected analysis allowed to find out several themes that frame and describe the institutional work and innovations of the FEPRODES. Themes can be assembled in three main groups that are the FEPRODES activities and actions to get more power in the rice industry, the partnering undertaken to enhance women's capabilities and resources endowment, and the major innovations implemented (Table 3).

Table 3. Main themes that emerged from verbatim extracted

Groups of themes	Themes	Verbatim	Comments
1. FEPRODES' Activities	<i>The requirement of women grouping together</i>	In Senegal, like in other parts of Africa, rural women traditionally do not have access to agricultural land. So, they are obliged to rent land. But, once they develop it for farming and it becomes profitable, the owner takes it away from them. This is the general pattern. To empower these women, we established a federation in 1997. Rural women did not have cultivable lands; or when they are given some, lands were far from water points.	FEPRODES was registered for more effective advocacy related to land acquiring by women
	<i>Enhancement of women abilities related to the agricultural sector</i>	FEPRODES provides training in improved farming and postharvest techniques, computer science, gender mainstreaming, leadership, and management of small enterprises for its members.	FEPRODES provide to the member's knowledge and skills required in the industry
	<i>Financial support to reach objectives</i>	We soon realized that, without microcredit, it would be difficult for our members to reach their goals. So, we created a microcredit facility attached to FEPRODES to serve primarily our members. As most rural women are very poor, we kept the minimum amount to open an account in FEPRODES to just 50 F CFA (US\$0.10). We encouraged our members to form small associations to obtain credit from us.	FEPRODES motivate its members to integrate the agricultural sector by grouping and allowing them to get funding
2. Various partnership	<i>Master the seed system</i>	We maintained close links with ISRA and AfricaRice for training and seed production. We were also closely involved in AfricaRice's participatory varietal selection (PVS) activities, which bring farmers in direct contact with new rice varieties under development. We are also greatly benefiting from the recent release of three aromatic rice varieties developed by AfricaRice.	FEPRODES is deeply involved in rice seed production
	<i>Dealing with rice value chain</i>	With support from USAID, we are focusing on the production, branding, and marketing of quality rice and our rice is now being sold under the « Le Rizchard » brand.	FEPRODES can offer quality rice to Senegalese people by using USAID support.
	<i>Reinforcement of financial supports</i>	We got funding from several partners such as Grameen Agricultural Credit Microfinance Foundation, Planet Finance, and PLASEPRI. We are accompanied by the national agency of financial standards and norms. We took advantage of micro-credit agency training. We are involved in a financial network affiliation.	In addition to its loan association, FEPRODES is benefitting from financial supports that enhance its women's capacities in the rice sector.
3. Innovations	<i>Changes in marketing</i>	Recently for rice marketing, we encounter many difficulties in selling products. USAID makes us stand in fairs, to help us in the promotion of the rice of valley. We currently signed a contract with WFP (World Food Program).	FEPRODES women find new ways to sell their products, not only to traditional markets but also to other organizations.

		With the standard bags, people used to confuse our product with that of our competitors. But thanks to USAID, to identify us, we have logos and bags. Our rice is now being sold under the Le Richard brand.	FEPRODES proposal is distinguished from the competitors by the use of a Label.
		We have an auction room in Ross-Bethio where everyone passes for the purchase. In the Saint-Louis district, there are several points of sale in the various departments where the FEPRODES women sell the rice.	In addition to the use of contracts, fairs, and traditional selling, women are using auction rooms in the whole country to sell their rice.
	Organizational changes	There are organizers under the supervision of the coordinator; they submit reports and we meet periodically, that is monthly, to discuss around reports contents.	To master the various levels of activities, the FEPRODES promoted periodical sessions to exchange with women around the progression of women activities
		We are organized in networks. There is a network of rice growing that assembles the crop, a network of processors that transforms, and a network of commercial markets.	To better perform rice growing, harvesting, processing, and selling, the FEPRODES women are vertically integrated into the rice sector.
		There is always control. Technicians of the SAED go on the ground to see our women; technicians of the SAED, are Africa Rice and ISRA.	To ensure the effectiveness of the defined activities, the FEPRODES established a system of control.
		There are training, financing of the activities, and the consciousness-raising which motivate to work... There are sometimes brainstorming meetings and experiences exchanges between women.	To support the federation objectives, women are continuously educated to get competencies and knowledge related to the rice sector.
	Innovation sources	There is a big demand for quality rice, particularly aromatic rice, in Senegal, for which clients are ready to pay a premium price.	The FEPRODES mainly focuses on consumers, norms related to the rice chain, competitors both local and importers to then see how to fit the market requirements.
		The rice of quality is required to conform to norms, particularly those related to the husking and the storage.	
		To deal with rivalry, it is necessary to produce rice of quality; we benefitted from the USAID training in this process.	
		Households of Saint-Louis district do not like imported rice. People prefer the rice of the valley, local rice, and more broken rice; they prefer broken rice. The local rice is more digestible, and does not contain much starch; a low rate of starch compared to the imported rice.	
		We also study customers and consumers to see what is fitted to do.	

5 DISCUSSION: INSTITUTIONAL CHANGES AND INNOVATION LED BY THE FEPRODES

Reading table 2 and another verbatim enables us to release several insights related to the institutional changes, the institutional work, and the innovation processes of the FEPRODES.

5.1 INSTITUTIONAL CHANGES LEAD BY THE FEPRODES

Socio-economic development in most countries in West Africa is carried by the agricultural sector. In the case of Senegal, agriculture has been the exclusive domain of men who rule the related activities and income. In particular, the fertile lands, that are suitable for cash crops, were exploited by men. They derived from this social position their main economic power enabling them to establish their dominance over women. As shown by a recent study (see http://www.rewmi.com/monde-rural-l-acces-des-femmes-au-foncier-encore-faible_a65053.html), the gendering and women position within the household restrain their responsibilities in the control of lands.

Initially, the political practices used by the federation are advocacy and vesting. Using the background of the Chairwoman, the FEPRODES dealt with the social structure leading to women acquiring lands for agriculture. In the end, women groups within FEPRODES can be granted suitable lands, particularly those for their rice growing.

By doing so, FEPRODES amended the structure of institutions related to land access and socioeconomic activities. To ensure women's sustainability within this new context where males were dominating the rice sector, FEPRODES dealt with the sets of practices related to women's position in the industry by changing the normative associations. One can see the fall in the value of collective and political dynamic as proposed by [26] led by women to transcend the mimicry and thus obtain more power in the rice sector.

The FEPRODES found a way to grant its women with many capabilities, knowledge, and know-how to support their entrance into the rice sector. Women also used the set of practices' rules and current technologies that are essential and widely taken for granted for rice growing and processing.

Modalities of institutional levers used by the FEPRODES women to modify the rules and to integrate the rice sector are summarized in Table 4.

Table 4. Institutional levers used by FEPRODES

Types of practices	Modalities	Evidence
Political practices	<i>Advocacy</i>	Using political supports, FEPRODES women attained suitable lands for rice growing
	<i>Vesting</i>	Lands are used for women's purposes only and in fee simple.
Practices relating to the normative structure of institutions	<i>Changing normative associations</i>	Women are now recognized as important and relevant actors in the whole rice chain.
Practices relating to the cognitive structure of institutions	<i>Mimicry</i>	Due to the ancient and the traditional character of rice growing in the Saint-Louis district, women rely on the current practices and technologies in the sector.
	<i>Educating</i>	Women are training for competencies and knowledge required in the rice value chain.

Finally, led by its Chairwoman, the FEPRODES acted like an institutional entrepreneur, using an endogenous way [10] to introduce new rules of the game [8] in the rice industry.

In the traditional marketing system, the exchanges were based more on the organizational arrangements [55], within a system of rules and beliefs [56] leading to male domination. As far as the FEPRODES is concerned, the proposal of its member's profits from the institutional changes in the sector, and an institutional work leading to innovations.

5.2 INSTITUTIONAL WORK FOR ORGANIZATIONAL AND MARKETING INNOVATIONS

Thanks to their Chairwoman who behaves like an institutional entrepreneur in the rice sector, the FEPRODES carried out both organizational and marketing innovations using the three main forms of institutional work.

5.2.1 ORGANIZATIONAL INNOVATION

As a general principle, supporting services (such as training, research, funding, and diffusion) to agriculture were conceived dichotomously: men were the only ones to get access to these services to the women. Activities systems and organization were structured in a way that is favorable to men to the detriment of women. Besides, institutional organizations were more interested in men than women. What is more, these organizations were led by men only. In addition, women are not very present in producers' organizations which play an increasingly active role in economic growth and civil claims.

In the district of Saint-Louis, irrigable lands near the Senegal River and very suitable for rice growing and other cereals were exclusively the property of men. Men were leading the rice industry. Women were restricted to harvest and primary processing of rice (separating the paddy crop from straw). Institutional incentives from SAED to technical, economic, and social levels in the agrarian revolution failed to resolve the exclusive control of men in the sector. Exchanges were based on the social structure [56] with male domination. Men ensured the production of the total (or almost) of local rice. Quantities sold were variable, and prices were fixed by the State. Rice growing activities were individual.

The chain operating mode was then dominated by various modes of governance at each level of the chain. The traditional rice chain was working on organizational arrangements [55].

To deal with this estate, the FEPRODES registered for more effective advocacy to plead in favor of women for suitable lands endowment in fee simple. Due to the financial resources required for rice growing, women were motivated to integrate the industry by grouping and by allowing them to get funding. Regarding the rice cultural-specific practices and its secular character in the district, women were provided with actual knowledge and skills and were encouraged to use both new and old practices. To enhance women's abilities and capacities, the FEPRODES enters a partnership agreement with several organizations for funding, training, and supports related to the whole rice chain value.

Taking advantage of this exceptional resources endowment [30] for women in the sector, the FEPRODES reshaped their organizational model.

Various levels of activities are based on strong relationships and connections between actors [30]. FEPRODES's members active in the rice sector are organized to create cooperation among them [29], thus leading to vertical integration of the chain. Objectives and choices are then defined periodically and reached by consensus to ensure the adhesion and the real implication of groups. Like an agency that is planned intentionally [4], groups are distributed regarding their geographical position and their capacity. The FEPRODES used support from partners and internal human resources to make sure that activities are achieved to reach the objectives.

5.2.2 MARKETING INNOVATION

Traditional marketing was characterized by the targeting of the local households in the district of Saint-Louis. Products mainly sold were the common rice paddy and the whole grain rice those are available in given places only. Rice was packaged on recycled or no specific packaging. Doing so, the traditional marketing proposed products with intrinsic and consumers low value-added. In general, consumer brand appreciation is through the product. This supposes that such innovation in the product must add value for the consumer, the way of procurement and use of the value-added being well known.

The current organizational system of the FEPRODES led to the increase in the value-added through a broader assortment with products more fitted to consumers' food practices in Senegal. Indeed, in addition to products largely offered on the market, FEPRODES' groups supply parboiled rice at accessible prices for any class of consumers.

Through training and consciousness-raising, the FEPRODES functions according to standards and rules related to the chain value largely shared within groups. Which supports the integration of consumers' expectations in the proposal of FEPRODES' members, and the cash sale.

Marketing is done on formal principles (prices and quantities related are known), and targets are mainly households of Saint-Louis district who set a high value upon their local rice. In addition, the FEPRODES women use contracts, fairs, and auction rooms in the whole country to sell their rice. The FEPRODES wish to reach other consumers of Senegal, and beyond. Products supplied by groups are varied and conditioned in specific packing with a brand name (Le Rizchard) and product description.

The innovation stems mainly from consumers' needs, norms, and standards related to rice growing and post-harvesting, and competitors both local and importers to fit the market requirement.

Several actions taken by the FEPRODES staff related to the three main forms of institutional work are summarized in Table 5. As proposed by authors (e.g. [3, 29], each pattern of the institutional work can be useful for any institutional engagement [4].

Table 5. Main forms of institutional work used by the FEPRODES

FORMS	ACTIONS
Establish institutions	To plead in favor of the FEPRODES project and its purposes
	To motivate women to achieve the goals
	To couple new practices with the old ones for best technical outcomes
	To provide to the actor's knowledge and skills required to adapt the activities and the FEPRODES objectives
Maintain institutions	To create rules to support the achievement of activities and purposes
	To maintain the order by partners and internal technicians supervision
	To embed and push to routine-minded organizational design and marketing objectives
Destabilize institutions	To call into question presuppositions and beliefs related to land access and the rice sector activities in Senegal

As suggested by [29], the FEPRODES put the focus on the adjustment to the local contexts by the diffusion of their objectives and activities like a shared framework for women in the rice sector. For this purpose, the FEPRODES made use of all forms of institutional work and thus obtained some advantages.

5.3 INNOVATION PATHS AND ADVANTAGES STEMMING FROM THE INSTITUTIONAL WORK

Regarding [5] work, the FEPRODES innovation processes deal with both technical performances and response to the market. In the end, women belonging to the FEPRODES obtained some advantages in the rice sector.

5.3.1 FEPRODES' INNOVATION PATHS

The FEPRODES is active in rice cropping production with the supports of research institutes, such as the Senegalese National Agricultural Research Institute (ISRA), and outperforms the rice cropping production in Senegal and beyond. By doing so, the FEPRODES women can be the first to get the best and new seeds for rice growing, obtaining the advantage of a pioneer in the industry. They also met the expectations of Senegalese people related to new varieties of quality rice. Based on the market signals, the FEPRODES developed and produced new varieties of rice for consumers. For this purpose, women are organized to vertically integrate the sector and then they overcome the transaction costs [47, 48] inherent in the rice sector. The use of branding stems from the necessity to differ from competitors and to be more attractive in the market. On the whole, the « market-pull » [5] is dominant in the innovation processes. Nevertheless, the parboiling process is a « technology push » [5] but induced by the goal to offer high-quality rice for which consumers are ready to pay a premium price.

Roughly speaking, the FEPRODES always remains in close contact with several research and financial partners to ensure all supports are required for the innovation processes. It is an interactive process [57] in which the FEPRODES includes not only its members but also consumers and their needs.

5.3.2 ADVANTAGES OBTAINED BY THE FEPRODES

Finally, actions were intentionally constructed [22] by FEPRODES' members to reshape the rice sector and take advantage of their new position in the industry.

Indeed, the institutional work managed by the staff of FEPRODES led to several advantages that made easy the innovation processes. These advantages are built on the organizational competencies, the combination of an adopted and an inherited means of growth, and most mechanisms of training developed to ensure the expansion of the FEPRODES institutional capabilities [33, 34].

5.3.2.1 TECHNOLOGY-BASED COMPETITIVE ADVANTAGES

FEPRODES women use recent post-harvests' techniques that confer a higher intrinsic quality to the rice of the valley. This quality is one of the arguments in favor of their products. Women also use the parboiling process in an artisanal way which makes it possible to transform paddy having better quality. This process is little used in the district due to the inadequacy of materials available, and the painfulness of the artisanal applied method. Women groups are trained up to master and implement best practices for rice growing and processing.

5.3.2.2 COMPETITIVE ADVANTAGES BASED ON ECONOMIES OF SCALE

The vertical integration of groups within the industry allows them to be more focused and productive at each level of the chain than if each of them should aim to assume growing and all post-harvest activities. Besides, the geographical labor division and the specialization lead to production costs reducing. In particular, processors can produce larger volumes due to the standardization and the mastering of practices, with a greater added value for the final consumer.

5.3.2.3 ECONOMIES OF SCOPE IN DERIVATIVES-BASED COMPETITIVE ADVANTAGES

Groups can process efficiently at least three derivatives of rice by using the same materials and equipment, and by applying insights into the effectiveness of rice derivatives hands processing.

5.3.2.4 PARTNERING BASED COMPETITIVE ADVANTAGES

To ensure the funding of their activities in long term, FEPRODES partnering for funding and financial training to improve the capabilities of groups.

Partnerships with, for instance, SAED and AfricaRice, make easy inputs (seeds, fertilizers) procurement. The support from USAID provides knowledge on best practices along the value chain for the quality of rice.

6 CONCLUSION: INSTITUTIONAL ENTREPRENEURSHIP AND INSTITUTIONAL WORK FOR INNOVATIONS AND WELFARE

The organization of women's groups has particularly favored access to larger and more suitable lands for rice growing and has helped enhance their resources and capabilities in the market. The advent of the FEPRODES led to improved conditions for women at several levels, particularly within the rice sector of Saint-Louis District. The achievement of this purpose was driven by organizational and marketing innovations.

In the first instance, the grouping of women in a single Federation favored the acquisition of lands best suited to rice growing. Creating a mutual loan association by these women facilitates mobilization of resources required for production, and reduces the vulnerability of women in the management of the agricultural campaign. The aim of all these initiatives is the acquisition of land just like men, and the availability of other production factors to exploit at best the land. Moreover, the dynamism of the Chairwoman of FEPRODES allowed it to be representative in the rice sector of Saint-Louis, thus receiving various forms of support at all levels of the chain.

Using their grouping and the background of their Chairwoman, women conducted two main innovation processes, organizational and marketing innovation. Indeed, the distribution of groups in specific activities enables the Federation to control all stages of the supply chain, and reduce the reliance of its members against other direct stakeholders in the sector. Which contributes both to ensure better coordination of the various activities, and a better valuation of the offer of the company. This enables women to better position their products.

The FEPRODES is then able to position its women production not only in the district markets but also to negotiate trade agreements with wholesale customers such as World Food Program.

Regarding their performances, the FEPRODES women became more effective in the market by being always present at national and international trade fairs. They are also more efficient by reducing their transaction costs due to their vertical integration in the rice market.

Assortments are easily attainable by Senegalese people and relevant for their consumption. Women changed the traditional offer in the sector by being the first to propose new varieties required by Senegalese people, and by enlarging their product

range to other new varieties. The FEPRODES women can do so, owing to their responsiveness to innovation that led them to more value-added in the rice chain.

Broadly speaking, FEPRODES advent induced institutional, social, and gender changes in the rice sector, and thus induced the innovation processes. Women's groups have improved their organizational form, and their branding and marketing. By exploiting these innovations, women increased the range and the added value of their products. Doing so, they enhanced their social position by increasing their incomes. This improvement of their living conditions is evident through the growth of their savings, the significant change in their lifestyle, their greater involvement in the education of their children, and by reducing their various debts.

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