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Linking Smallholder Rural Producers to High-Value Markets: The Role of Technical Assistance and Credit

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Abstract

Smallholder rural producers face many challenges in supplying their products to high-value markets. While these markets usually offer higher prices compared to the traditional market, they also set stricter requirements in terms of quality, volume, delivery, and packaging. For farmers to meet these standards and to achieve a higher income, they need to improve production practices and achieve a higher level of efficiency, not only in production but also in marketing. However, these changes require significant capital investments. This paper examines the role of technical assistance and credit in developing high-value chains that involve smallholder producers. Two cases are presented to illustrate the importance of both credit and technical assistance in linking smallholder producers to modern value chains. Technical assistance and credit are important but need not be directed to the production node of the chain to be effective. Marketing intermediaries can also be financed to develop linkages and to facilitate market access. It is clear, however, that credit and technical assistance will be most effective when directed towards meeting the requirements of the market. It is therefore critical that any assistance in credit, production, or marketing is treated as an investment to meet market demand.

Keywords: credit; small-scale producers; technical assistance; value chain

Abbreviations:

CBE – community-based enterprise
ICCO – Interchurch Organization for Development Cooperation
PDCI – Pecuaría Development Cooperative Incorporated
PhP – Philippine Peso
UMFI – Upland Marketing Foundation Incorporated
USD – United States dollar

Introduction

Financing smallholder producers, particularly those in the agricultural sector, is a challenge, as the risks are high and most rural and smallholder producers struggle to be viable. While their demand for credit is high, supply is low, compounding poverty in the rural sector. Meanwhile, the agribusiness sector is changing rapidly as markets are liberalized and more foreign investments are infused. In the Philippines, multinational companies are entering and rapidly expanding, particularly in the horticultural sector. In the downstream sector, supermarkets, hypermarkets, and fast-food chains are expanding as they respond to increasing purchasing power and changing consumer lifestyles. More quality products are being consumed as the demand for safe and convenient food products increases.

These forces are impacting on the rural sector, bringing with them greater requirements in terms of quality, traceability, and food safety, among others. Invariably, these require smallholder producers to change the way they produce and deliver their products. In most cases, these require significant changes in technology and vastly greater capital requirements. Given that most small farmers have limited financial assets and limited skills, they often miss these opportunities and risk being excluded from the market.

This paper examines the role of credit and technical assistance in a value-chain framework. An economic model is presented which outlines the role of credit and technical assistance, as well as the issues and implications arising from this model. Two cases are used to illustrate the role of credit and technical assistance and their impact in linking smallholder producers to high-value markets.

The Economic Framework

Credit is treated here as an input to production or services and, as such, is not only limited to the credit extended to farmers but also to traders, wholesalers, consolidators, and retailers. Similarly, technical assistance may include market facilitation or information provided by the buyer or market facilitator such as wholesalers, traders, or consolidators. It can also be technical assistance given to farmers by either private, public, or development agencies. This includes training on appropriate production technologies or marketing.

To simplify, assuming that there are three levels in the value chain: a farmer (F) sells to an intermediary (M), which can be a trader, wholesaler, or consolidator. M then sells to a high-value market such as a food processor, fast-food chain, or a supermarket (H) (Azzam, 1992). In the model that follows, a supermarket is used as an example of a high-value market. The profit-maximizing conditions for each actor in the supply chain are as follows:

$$(1) \text{ Farmer: } p_F = \frac{\partial C^F(Q^F, I^F)}{\partial Q^F},$$

where p_F is the farm price, farm's technology is represented by the dual cost function $C^F(Q^F, I^F)$, I^F is the vector of input prices including credit and technical assistance given or employed to produce Q^F ;

$$(2) \text{ Intermediary: } p_M = c^M p^F + \frac{\partial C^M(Q^f, I^M)}{\partial Q^M},$$

where p_M is the intermediary price, c^M is the amount of farm produce (Q^F) used to produce a unit of intermediary's product Q^M . The intermediary combines farm produce with its product in fixed proportion, but not between its inputs as follows: $Q^M = \min[Q^F / c^M, m(I^M)]$. I^M is the vector of input prices to include credit and technical assistance, and thus, its indirect cost function is $C^M(Q^F, p^F, M) = p^F c^M Q^F + C^M(Q^F, M)$;

$$(3) \text{ Supermarket: } p_H = c^H p_M + \frac{\partial C^F(Q^F, I^F)}{\partial Q^F},$$

where p_H is the supermarket price, c^H is the amount of raw material or farm produce used to produce a unit of retail output Q^H . The supermarket has a production technology similar to that of an intermediary which requires a fixed proportion of raw material sourced from the intermediary, but not between its retailing inputs H . The indirect cost function is specified as

$$C^H(Q^F, P^M, I^H) = p^M c^F Q^F + C^H(Q^F, I^H).$$

The profit-maximizing conditions in equations (1) to (3) assume that all three actors in the value chain are price takers in both input and output markets. If one or both markets are not competitive, then there is inefficiency in the food chain and benefits are not distributed equitably among the actors. For example, if the market intermediary (M) exercises market power (buying power), then the price received by smallholder producers (F) will be lower than the competitive price. On the other hand, if the market intermediary sources credit from a competitive credit market and operates in a competitive industry, then the price received by smallholder producers will be competitive and the price paid by the supermarket will also be competitive. In other words,

both vertical and horizontal competition in the input market affects actors in the food chain. Similarly, improving access of inputs (credit, technical assistance, or technology inputs) at any level or node in the chain leads to an improvement in the performance of the entire food chain.

Restructuring Food Markets

Restructuring in agrifood markets is driven by factors such as changing lifestyles, increasing income, and government liberalization policies (Berdegue et al., 2005; Henson and Reardon, 2005; Reardon et al., 2005).

In most Asian countries, the number of dual income households has increased. As the number of working women increase, the demand for convenience offered by modern retailers and the food service sector is expected to expand. In much of Southeast Asia, the modern retail sector is expanding as economies improve and the population increases. Total retail sales have increased by 6.1% per year. While grocery retail sales grew by 5.2%, sales in the retail food service grew by 7.9%. As this growth is faster than the growth in total food expenditure (5.4%), this implies that the consumption of food away from home has also increased.

As modern retailers continue to respond to the demands of consumers and as governments open their borders to more foreign direct investment, more modern retail formats such as hypermarkets, superstores, supermarkets, and convenience stores are emerging. In Singapore, supermarkets and neighborhood stores account for 61% of modern retail sales, while in Thailand, hypermarkets and supermarkets appear to be more dominant, accounting for more than half (52%) of the total modern retail sales from 1999 to 2007. Sales from supermarkets and neighborhood stores in Vietnam have been increasing by an average of 40% per year, while hypermarkets and supermarkets in Indonesia and the Philippines have grown by 54% and 28%, respectively.

As these modern retail formats continue to expand, opportunities emerge for smallholder producers as long as they can meet the volume and delivery and quality requirements. However, most smallholder producers are unable to tap into these opportunities as they lack the resources to compete. Meeting delivery and volume requirements is difficult because transaction and consolidation costs are high. Moreover, smallholder producers have inadequate financial resources to invest in the technology to meet the quality standards demanded by the high-value markets. In what follows, two cases are reviewed to illustrate the role of credit and technical assistance in increasing the opportunities for smallholder producers to participate in modern markets.

Collective Action and Cluster Development: The Case of Normin Veggies

To meet the requirements of the modern market, farmers were organized into production clusters where technical assistance in production and marketing could be provided more cost effectively.

A cluster is an informal group of 5 to 10 smallholder farmers who commit to undertake a common marketing plan for a particular product (or set of products) for identified markets. Each product cluster has a designated lead farmer who acts as the coordinator of production for all the farms involved in the cluster. The lead farmer is the best farmer for that type of vegetable. They are responsible for teaching other farmers in the cluster the appropriate production techniques in order to maintain the quality specified by the market (Concepcion et al., 2006).

A marketing cluster can be formed to take advantage of an opportunity at a certain period of time. To meet the high demand of tomatoes in Manila from July to December, a tomato cluster was formed just for that period. The next year, it formed again, but not necessarily with the same farmers. Similarly, in order to meet the needs of the Manila-based supermarkets, a cluster was formed for that specific purpose, but in this instance, the cluster members tended to be the same in succeeding years.

The cluster may appear loose, but what holds it together is the commitment to supply and cluster agreements. Important cluster agreements are the volume of supply per farmer, delivery schedules, and compliance with a common quality standard which necessitates agreement on practices in plant/farm management, as well as harvest and postharvest management. The cluster, therefore, is not just an ordinary grouping: it has a marketing objective and a management system, which requires discipline from every farmer to protect the reputation of the group in the market. Being a small group, it is capable of responding quickly to buyer feedback and changing market requirements.

Clustering is a strategy for smallholder farmers to become valued suppliers in the higher-value and growth markets, particularly for fast foods, food processors, and supermarkets. In the cluster, farmers get to talk about the market and the value addition possible in the supply chain. As farmers in the cluster decide together which markets are to be served, this empowers the farmers and enables them to become more dynamic actors in the market and to collectively share know-how (particularly best practices on the farm), resources, technologies, and market contacts, which would otherwise be inaccessible or too costly for them to secure as individual farmers.

The benefits of clustering include (1) economies of scale and the ability to handle large product volumes at lower cost, (2) improved access to markets, (3)

improved business transactions with service providers, and (4) more effective linkages with government and private resource organizations.

The key benefit for farmers who are members of marketing clusters which sell to the marketing consolidator (Normincorp) is increased profit. This increase in profit is due to more stable markets, higher prices for superior-quality vegetables, and a premium for reliable supply. For these reasons, Normincorp can get a price premium from 10% to 20% compared to that offered in the spot market.

A key question to ask in assisting smallholder producers is whether the cost of development assistance can be recovered—that is, whether the cost of assisting these smallholder producers will be recovered by the benefits or increase in their income due to development assistance. While it is recognized that smallholder producers need assistance in terms of access to credit and market facilitation, is it sustainable?

To answer this question, 43 vegetable farmers who received technical assistance in cluster development and credit were surveyed in October 2007. Vegetables covered include squash, cabbage, and carrots. Most of the farmers interviewed had received a loan of PhP 8,000, with an interest rate of 18% per annum and a 2% service fee for the cooperative. The loan was utilized to purchase seeds, fertilizers, and pesticides and to employ labor.

Results show that many factors affected the profitability of the clusters. These included the productivity or yield, price, production, and post-production expenses. Of the three crops, only squash registered a negative profit (Table 1). However, if one does not consider family labor or the amount of time the owner or family members spent in producing the crops, all three vegetables yielded positive net incomes (Table 2).

Squash production was affected by excessive rain, and most farmers produced much less than expected. Moreover, costs for squash are relatively high compared to other crops, particularly the shipping and transportation costs. When the cost of assisting these farmers was included, squash yielded a negative profit (Table 3). However, when family labor was accounted for, squash farmers earned a positive profit (Table 4).

Despite the cost of assistance, squash farmers earned a positive profit when they supplied to supermarkets (Metro Gaisano). Squash was sold to three different market outlets. Two were wholesale markets in Agora (Suping) in Cagayan de Oro City, which is the closest market outlet to the farmers. The other one was in Cebu (Ondong), located in the Visayas in the central part of the Philippines. The third outlet was the supermarkets (Metro Gaisano) located in Cebu. For the three outlets, squash farmers earned a positive profit only by selling to the supermarkets (Metro Gaisano) (Table 5).

For carrots, farmers sold to two types of markets. One outlet was a wholesale market (Agora) and the other one was a consolidator for

Table 1. Costs and profit as percent of sales in 3 vegetable grower clusters in Normin Veggies

	Cabbage Cluster ^a		Carrots Cluster ^a		Squash Cluster ^a	
	Amount (PhP)	% to sales	Amount (PhP)	% to sales	Amount (PhP)	% to sales
Sales	14,653.75	100.00	18,740.82	100.00	15,582.00	100.00
Production cost	11,461.25	78.21	10,110.00	53.95	10,160.00	65.20
Shipping fee	-	0.00	1,507.69	8.04	3,328.18	21.36
Facilitation fee	646.00	4.41	820.79	4.38	1,035.39	6.64
Transportation (Impasug-ong- Cagayan De Oro)	1,143.75	7.81	709.52	3.79	1,508.67	9.68
Miscellaneous	183.00	1.25	113.52	0.61	779.55	5.00
Total cost	13,434.00	91.68	13,261.52	70.77	16,811.79	107.88
Profit^b	1,219.75	8.32	5,479.30	29.23	(1,229.40)	(7.88)
Average yield (kg/grower)	1,542.50		969.50		3,232.90	
Average price per kg (PhP)	9.50		19.33		4.82	

Notes:

^a No. of farmers interviewed: cabbage = 8; carrots = 21; squash = 14

^b Profit = sales – total costs

Table 2. Costs and profit as percent of sales using “cash cost”^a in 3 vegetable grower clusters in Normin Veggies

	Cabbage Cluster ^b		Carrots Cluster ^b		Squash Cluster ^b	
	Amount (PhP)	% to sales	Amount (PhP)	% to sales	Amount (PhP)	% to sales
Sales	14,653.75	100.00	18,740.82	100.00	15,582.39	100.00
Production cost	9,451.25	64.50	7,850.00	41.89	7,600.00	48.77
Shipping fee	-	0.00	1,507.69	8.04	3,328.18	21.36
Facilitation fee	646.00	4.41	820.79	4.38	1,035.39	6.64
Transportation (Impasug-ong–Cagayan De Oro)	1,143.75	7.81	709.52	3.79	1,508.67	9.68
Miscellaneous	183.00	1.25	113.52	0.61	779.55	5.00
Total cost	11,424.00	77.97	11,001.52	58.71	14,251.79	91.45
Profit^c	3,229.75	22.03	7,739.30	41.29	1,330.60	8.55
Average yield (kg/grower)	1,542.50		969.50		3,232.90	
Average price per kg (PhP)	9.50		19.33		4.82	

Notes:^a Production cost less family labor^b No. of farmers interviewed: cabbage = 8; carrots = 21; squash = 14^c Profit = sales – total costs

Table 3. Costs and profit net of assistance cost as percent of sales in 3 vegetable grower clusters in Normin Veggies

	Cabbage Cluster ^a		Carrots Cluster ^a		Squash Cluster ^a	
	Amount (PhP)	% to sales	Amount (PhP)	% to sales	Amount (PhP)	% to sales
Sales	14,653.75	100.00	18,740.82	100.00	15,582.39	100.00
Production cost	11,461.25	78.21	10,110.00	53.95	10,160.00	65.20
Shipping fee	-	0.00	1,507.69	8.04	-	0.00
Facilitation fee	646.00	4.41	820.79	4.38	3,328.18	21.36
Transportation (Impasug-ong– Cagayan De Oro)	1,144.75	7.81	709.52	3.79	1,035.39	6.64
Miscellaneous	183.00	1.25	113.52	0.61	779.54	5.00
Cost of assistance	500.00	3.41	500.00	2.67	500.00	3.21
Total cost	13,934.00	95.09	13,761.52	73.44	15,803.11	101.41
Profit ^b	719.75	4.91	4,979.30	26.56	(220.72)	(1.41)
Average yield (kg/grower)	1,542.50		969.52		3,232.86	
Average price per kg (PhP)	9.50		19.33		4.82	

Notes:

^a No. of farmers interviewed: cabbage = 8; carrots = 21; squash = 14

^b Profit = sales – total costs

Table 4. Costs and profit as percent of sales using “cash cost”^a net of assistance cost in 3 vegetable grower clusters in Normin Veggies

	Cabbage Cluster ^b		Carrots Cluster ^b		Squash Cluster ^b	
	Amount (PhP)	% to sales	Amount (PhP)	% to sales	Amount (PhP)	% to sales
Sales	14,653.75	100.00	18,740.82	100.00	15,582.39	100.00
Production cost	9,451.25	64.50	7,850.00	41.89	7,600.00	48.77
Shipping fee	-	0.00	1,507.69	8.04	3,328.18	21.36
Facilitation fee	646.00	4.41	820.79	4.38	1,035.39	6.64
Transportation (Impasug-ong–Cagayan De Oro)	1,143.75	7.81	709.52	3.79	1,508.67	9.68
Miscellaneous	183.00	1.25	113.52	0.61	779.55	5.00
Cost of assistance	500.00	3.41	500.00	2.67	500.00	3.21
Total cost	11,924.00	81.38	11,501.52	61.38	14,751.79	94.66
Profit^c	2,729.75	18.62	7,239.30	38.62	830.60	5.34
Average yield (kg/grower)	1,542.50		969.50		3,232.90	
Average price per kg (PhP)	9.50		19.33		4.82	

Notes:^a Production cost less family labor^b No. of farmers interviewed: cabbage = 8; carrots = 21; squash = 14^c Profit = sales – total costs

Table 5. Costs and profit net of assistance cost as percent of sales per market in 3 vegetable grower clusters in

	Squash Cluster ^a					
	Agora – Suping		Cebu – Metro Gaisano		Cebu – Ondong	
	Amount (PhP)	% to sales	Amount (PhP)	% to sales	Amount (PhP)	% to sales
Sales	8,649.99	100.00	25,966.64	100.00	13,317.19	100.00
Production cost	10,160.00	117.46	10,160.00	39.13	10,160.00	76.29
Shipping fee	-	0.00	2,733.33	10.53	3,551.25	26.67
Facilitation fee	432.50	5.00	2,596.67	10.00	676.00	5.08
Transportation (Impasug-ong– Cagayan De Oro)	1,153.33	13.33	1,093.33	4.21	1,420.50	10.67
Miscellaneous	690.00	7.98	18.00	0.07	823.50	6.18
Cost of assistance	500.00	5.78	500.00	1.93	500.00	3.75
Total cost	12,935.83	149.55	17,101.33	65.87	17,131.25	128.64
Profit^b	(4,285.84)	(49.55)	8,865.31	34.13	(3,814.06)	(28.64)
Average yield (kg/grower)	2,883.30		2,733.30		3,551.30	
Average price per kg (PhP)	3.00		9.50		3.75	

Notes:

^a No. of farmers interviewed: cabbage = 8; carrots = 21; squash = 14

^b Profit = sales – total costs

Table 5. Cont.

	Cabbage Cluster ^a			Carrots Cluster ^a		
	Agora – Different Buyers	Agora – Wholesaler		Agora	Cebu Consolidators	
	Amount (Php)	% to sales	Amount (Php)	Amount (Php)	% to sales	Amount (Php)
Sales	14,518.97	100.00	15,400.00	15,516.46	100.00	17,756.66
Production cost	11,461.43	78.94	11,460.00	10,110.00	65.16	10,110.00
Shipping fee	-	0.00	-	-	0.00	1,400.00
Facilitation fee	584.00	4.02	770.00	770.07	4.96	846.14
Transportation (Impasug-ong–Cagayan De Oro)	1,164.29	8.02	1,000.00	992.86	6.40	50.00
Miscellaneous	186.29	1.28	160.00	158.86	1.02	90.86
Cost of assistance	500.00	3.44	500.00	500.00	3.22	500.00
Total cost	13,896.01	95.70	13,890.00	12,531.79	80.76	12,997.00
Profit^b	622.96	4.30	1,510.00	2,984.67	19.24	4,760.66
Average yield (kg/grower)	1,562.90		1,400.00	1,392.90		757.90
Average price per kg (Php)	9.29		11.00	11.14		23.43

Notes:^a No. of farmers interviewed: cabbage = 8; carrots = 21; squash = 14^b Profit = sales – total costs

institutional markets including supermarkets in Cebu. While carrot farmers earned a positive profit for both outlets, they earned better profits by selling to consolidators. Cabbage farmers, on the other hand, sold to two buyers: a wholesaler and a mix of buyers both located in Agora wholesale markets. In both outlets, farmers made a positive profit.

Based on the above results, the following conclusions can be made. Firstly, the cost of assisting the farmers can be recovered. Secondly, the profitability and, hence, the ability of farmers to pay for any development assistance depend on a number of factors. Productivity or yield is an important factor, especially since most smallholder farmers do not have rain shelters or greenhouses to avoid the negative effects of weather (too much rain). Finally, the type of market also affects the capacity of farmers to recover the costs of development assistance. It was observed in the two cases covered (squash and carrots) that farmers selling to high-value markets such as supermarkets have a greater chance of earning more profits.

Financing a Marketing Facilitator in the Chain: The Case of UMFI

In the case of the Upland Marketing Foundation Inc. (UMFI), the farmers and community organizations were given assistance on organic farming and value-addition technologies that utilized locally available resources. These interventions led to an increase in farm productivity, but the income objectives of the communities remained unresolved as the farmers and community organizations had a difficult time selling their organic rice and processed food products at a premium price.

In the case of the Pecuaría Development Cooperative Incorporated (PDCI), organic rice was sold in the local market, but with no established trade channel for organic rice, the product was classified as regular rice. Since the organic rice did not come from certified seeds, its maximum retail price was only PHP 20 per kilogram. While PDCI was able to sell organic rice at PHP 25 per kilogram, this was mostly through trade fairs in Metro Manila and to direct buyers in Manila. However, the volume sold was minimal.

UMFI decided that instead of just providing information and training and trying to link these communities to the market, the foundation would itself engage in selling the community's products to mainstream supermarkets. In return for these services, UMFI would collect a commission ranging from 15% to 20% to cover its costs of operations. For other costs, like promotional activities, payment of special discounts, and reproduction and distribution of marketing materials, UMFI would charge the suppliers at cost plus cost of time spent by UMFI personnel. UMFI also purchased inputs for its suppliers

like sacks, glass bottles, labels, and boxes and sold these items at a markup ranging from 10% to 15%.

As the marketing facilitator, UMFI obtained credit to link smallholder producers to supermarkets. This was critical since supermarkets paid UMFI 30 to 120 days after delivery, while UMFI paid the farmers cash on delivery. The gap in the receivables period meant that UMFI had to borrow the cash in order to service its customers. All of the loans for UMFI were obtained from development organizations engaged in financing social enterprises. Some of the interest rates were market rates, while others were collateralized. Others were guaranteed by donor organizations like the Interchurch Organization for Development Cooperation (ICCO).

The key strategies that worked for UMFI included establishing a house brand to allow as many suppliers as possible to participate as the market picked up. Rather than to label the product as organic, UMFI marketed its rice on the “health” dimension. “Healthy Rice” was registered as a brand name and not as a claim.

In marketing several community-based enterprise (CBE) products, UMFI soon realized that the amount of business generated was still too small to make the operation viable. At this time, UMFI introduced a “champion vs. rider product” strategy. They achieved economies of scale for champion products, which provided opportunities for rider products to pick up and, at the same time, meet the supermarkets requirements for variety. Champion products are products that enable UMFI to recover its costs because of their large volume. Products such as rice and Muscovado sugar are considered champion products. The rider products are specialty products that have much smaller market demand. These products are sold into either niche or specialty markets in smaller quantities.

In 2001, when UMFI started its commercial operations, it supplied around 100 supermarkets in Metro Manila. The total sales for the year reached PhP 1.8 million. In December 2006, UMFI was servicing 223 supermarket outlets all over the country. The total sales revenue for the year was PhP 25.7 million or an average of PhP 2.14 million per month. In 2006, organic rice sales reached almost PhP 13 million, equivalent to 469 metric tonnes.

Participation in the organic rice chain has brought about a significant increase in the income for smallholder farmers. A survey of 18 farmers showed that while the yield declined under organic rice farming practices compared to conventional/inorganic farming, the production costs did not change significantly. However, the net income increased by 119%. The volume of rice sold per farmer increased from 3,065 kg to 5,014 kg with a corresponding increase in price from PhP 8.83 per kilogram to PhP 10.21 per kilogram. This resulted in the average gross income per farmer increasing from PhP 27,070 to PhP 51,203.

Concluding Comments

Technical assistance and credit have been recognized as important ingredients in improving the productivity of smallholder producers. Technical assistance is also seen to be a necessary ingredient to facilitate the repayment of credit. As shown in the theoretical model, credit and technical assistance are not only important for smallholder producers to improve production capacity, but they can also be effectively used to support a market intermediary. Credit need not necessarily be infused only into the upstream portion of the chain to improve market access for smallholder producers. Channeling credit into the downstream portion can have the same effect, as long as the downstream intermediary behaves competitively or has a genuine desire to help the smallholder producers and for as long as it is sustainable. Normincorp as a market intermediary has an economic incentive to procure from smallholder producers because the supermarkets requires a variety of vegetables, some of which can be best supplied by smallholder producers. In the organic rice sector, UMFI also had a strong sense of helping smallholder producers, and it too behaved competitively, borrowing money at competitive rates and pricing inputs and outputs at competitive rates.

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