RETURN ON INVESTMENT OF BUSINESSES IN CAGAYAN VIS-A-VIS THEIR UTILIZATION OF ACCOUNTING INFORMATION SYSTEM

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ABSTRACT

Accounting Information System (AIS) is a structure that a business uses to collect, store, manage, process, retrieve, and report its financial data. As businesses are expecting more from their accounting information system, its significance to success is noteworthy for having a well-developed, maintained, efficient and accurate AIS is an essential building block of a business. The study aimed to determine the level of performance of merchandising businesses located in Cagayan that used manual AIS and computerized AIS in their operations. The respondents were selected through purposive sampling from the list of merchandising businesses located in Cagayan as provided by the Department of Trade and Industry of Tuguegarao, 39 of which participated in the study. In determining the level of their performance, the statement of financial position or commonly called the balance sheet and the statement of income from years 2016-2019 were secured and the profile of the business was collected through a checklist. Frequency, Percentage Distribution Table, and Cross Tabulation were used to summarize the data gathered. Results showed that regardless of what Accounting Information System is used by the merchandising businesses in Cagayan, a decrease or increase in their return on investment is still being experienced.

Keywords: *Accounting Information System, Manual Accounting Information System, Computerized Accounting Information System, Return on Investment, Profitability*

INTRODUCTION

Technology has brought significant changes in the world that we are living in. It is designed to improve the living standard of humans. People use technology not only for entertainment, but also for business (Thibodeaux, 2019). Through the years, it has continuously evolved. It changed the business setting in planning, starting, operating, managing, marketing, selling, hiring, communicating and making profit (Sharma, 2017).

Accounting Information System (AIS) is a computer-based method for tracking accounting activity that is mostly used by businesses. It is an instrument which is considered to help in the management and control of topics related to firms' economic-financial area when integrated into the field of information and technology systems (IT) (Esmeray, 2016). Before the age of computerized

accounting information systems, accounting processes were performed by hand. Traditional manual accounting was a tedious process requiring accountants to spend copious amounts of time mathematically checking numbers in the company's accounting information (Vitez, 2013). Using this type of accounting system costs less because there is no expense for computer equipment, software and employee training. However, it is more prone to errors and inaccurate data causing many business owners to shift from manual AIS to computerized accounting information system. As defined, computerized accounting system is a computer based system which combines accounting principles and concepts as well as the concept of information system to record, process, analyze and produce financial information to its users for making economic decisions. Although it entails greater cost, these are associated with a number of benefits like speed of carrying out routine transactions, timeliness, quick analysis, accuracy of reporting (Genil & Valencia, 2013).

There are studies that centered on measuring the performance of the information system itself particularly its efficiency and effectiveness (Arcega, Datinguino, Guerra, et al 2015) and its impact to the operations of the business (Lim, 2013); (Hla & Teru, 2015), and the factors that influence on implementing such (Sam, 2012). The study of Colomina, Estebanez & Grande (2011) used ROA as a measure of financial performance regarding the continuous use of a computerized accounting system by spanish SMEs. As well as the study of Dibrell, Davis, & Craig, (2008) regarding fueling innovation through information technology in SMEs. A research on the the effect of accounting information system quality on financial performance of SMEs in Nairobi County was conducted by Odero in 2014. However, there has been no research conducted in Cagayan to determine the level of performance of merchandising businesses in using their accounting information system using ROI as a measure. For this reason, the researchers would like to conduct a research about determining the level of performance of merchandising businesses in using their accounting information system in Cagayan.

Research Objective and Questions

The main objective of the study was to determine the level of performance of merchandising businesses in using their accounting information system in Cagayan.

Specifically, it sought to answer the following questions:

1. What are the business characteristics in terms of:
   a. Form
   b. Municipality Cluster
   c. Number of Years in Business
   d. Number of Employees

2. What is the type of Accounting Information System used?
3. What is the ROI of merchandising business using manual accounting system and computerized accounting system?

Significance of the Study

The findings of the study redounded to the benefit of businesses in Cagayan. The study will serve as a guide to starting, growing and developing businesses on what accounting information system will be more beneficial in the operations and in its profit making. Shifting from manual accounting to computerized accounting is costly which discourages most of the business to adopt computerized AIS and opting to continue their current AIS which is manual AIS. This study will serve as a basis whether to adopt new AIS or continue with its current AIS. Usual questions by owners on what suits in each form of business at a certain location with specific number of employees will be answered incorporated in the development of business strategy.

Literature Review

Underpinning Theory

This study is based on the theory of cost-benefit analysis. It is a methodology for evaluating all costs included and conceivable benefits to be gotten from a business opportunity or proposition. This is the examination of a decision in terms of its consequences or costs and benefits (Dreze, J & Stern, N., 1987). The aim of cost-benefit analysis is to a give reliable method of assessing decisions as far as their results. Investment in information technology assumes a vital job in efficiency upgrades of organizations although some favor the manual AIS since investing to an automated AIS incorporates real difficulties which includes pricing issues, for example, high setup and upkeep costs and furthermore the vulnerability of advantages.

Accounting Information System

An accounting information system is an organized set of documents, records, and procedures for preparation of accurate financial reports. It is an instrument were considered to help in the administration and control of topics identified with firms' economic-financial area when incorporated into the field of data and innovation frameworks (Esmeray, 2016).

AIS would have verifiably reflect the advancement pattern of the manual bookkeeping process (Ali et al., 2016). Trabulsi (2018) indicated that traditional legacy AISs were mainly paper-based systems and seem inappropriate for today's rapidly changing business environment. As stated by Emeka (2012), Information

Technology has undoubtedly changed the work environment of an accountant. Mitra (2005) pointed out that it has an indirect role in enabling growth.

Muhindo, Mzuzua and Zhou (2014) stated that the aim of AIS is to collect and store data in order to produce meaningful output for decision making. As to Lim (2013), there are many varying designs of the system for factors that influence the way information is gathered and reported must be considered. It still lies on the types of decisions users are expected to make. The design of the AIS may likewise rely upon the measure of the firm, volume of exchange information, nature of business operations, organizational and business structure.

Allah et al. (2013) concluded that AIS is perceived as critical in establishing solid ground of businesses however some entities lag behind its implementation. Increasing AIS investment will result to achieving a stronger, more flexible business practice to face persistent changes in the environment.

Computerized Accounting System

Organizations utilize different types of data innovation in their accounting information system. Lim (2013) specified that because of the advancements in information technology, computer-based transaction systems were created. Yadav (2015) stated that the greatest impact of IT in accounting is the capacity of entities to create and utilize electronic frameworks to track and record financial transactions.

A computerized accounting system is a computer based system that simplifies, integrates, and streamlines all the business forms, cost-viably and effectively helps display the genuine image of all the business ventures to users of financial reports (Ware, 2015). Anaeli (2017) defined it as an accounting software that combines accounting principles and concepts as well as the concept of information system to record, process, analyze and produce financial information developed to make the work of managerial easier in decision making.

As to Dalvadi (2017), the introduction of computerized accounting technology provides speed, accuracy of operation, faster and error free data entry that lessens the expense and increases efficiency of business and perhaps most importantly, the ability to see the real-time state of the company's financial position. Transactions can be immediately presented on the proper records, by passing the journalizing procedure; detailed postings of exchanges can be printed for audit whenever internal controls and alter checks can be utilized to avert and recognize mistakes and; a wide variety of reports can be prepared.

Treatment of information in both system is the same. The only difference is that the user here is simply filing in a computer screen that looks and often times

acts as the source document of the transaction. Arcega (2015) stated that computerized accounting compared to its manual counterpart is generally accurate, is quicker to utilize, and is less subject to blunder.

Manual Accounting System

Before the introduction of computerized systems in accounting practice, all accounting activities up to presentation of financial statements were performed manually. This is the first type of accounting system. Amahalu (2017) describes the process of a manual system requiring the accountant or bookkeeper to present business transactions to the general journal, general ledger and worksheet by hand. It means that the whole accounting cycle is performed manually on an occasional premise. Peter (2018) detailed in his study that it is the customary type of keeping up a business financial account and utilizing using a pen/pencil and paper as opposed to utilizing a computer spread sheets. They include keeping ledgers and files which typically involve a cashbook, sales and purchase day book and petty cash sheets.

Regardless of the advantages of this system, it likewise grasp with various hazard. It diminishes task speed, builds outstanding burden of accountants, moderately slower internal control reporting, routine work and some others like the issue of backups. This approach requires much time, assets and effort in large entities yet this strategy spares cost of procuring computers and software programs (Edwin, 2016).

Level of Performance

Organizational performance involves analyzing an entity's performance against its objectives and goals. To simplify, organizational performance includes genuine outcomes or outputs compared with intended outputs. Existing researches offers scant evidence of the relationship between accounting information system and performance measures. Assessing organizational performance is a crucial part of key administration.

Organizations have increased their investments in information system fundamentally with the expectation that these investments will develop firm performance. However, some organizations continue to be able to garner better value from IS than others. Using Return on Investment as a performance measure, prior researches have shown that the adoption of computerized accounting information system results to higher performance, profitability, and efficiency operations of the business. Ravichandran and Lertwongsatien (2005) stated in their study that a firm's performance financially and investment to information technology has a direct relationship. Gaining competitive advantage is one of the abilities that a firm may obtain through information technology. The study was conducted to

understand more the sources of differences and, consequently, the mechanisms by which information systems contributes to firm performance.

As to Odero (2014), there is a strong positive relationship between the types of the AIS utilized by businesses with their financial performance using return on investment (ROI) as a quantitative measure. Dibrell, Davis, & Craig (2008) demonstrated in their study that IT does have a positive and significant effect on a firm's current profitability and future development. Based on these findings, the implementation of a computerized accounting system is encouraged across board as the findings showed that those firms which employed this strategy experienced an increased return on investment as opposed to those who did otherwise.

Nevertheless, a research shows that no clear relationship exists between this type of investment and the performance indicators. Colomina, Estebanez, and Grande (2011) argued that using IT gives no competitive advantage for attaining higher results. Then added that a lot of firms have invested in IT but they failed in attaining the established performance goals. Going more deeply into an analysis of financial returns using return on investment, this has been higher among those firms using AIS globally compared to firms just using them for fiscal management. This proves that the latter are wasting resources provided by computerized accounting system.

Research Paradigm

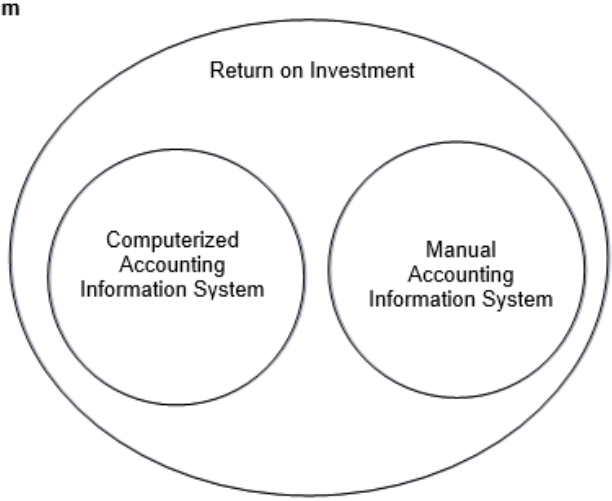

Figure 1. Paradigm of the Research Study

The paradigm presented provides a summary of the level of performance of merchandising businesses in Tuguegarao implementing accounting information system through their return on investment.

METHODS

The study utilized descriptive method to describe the accounting information system of merchandising businesses used in Cagayan. This study was conducted in merchandising businesses located in the province of Cagayan. The respondents were the owners or accounting managers of merchandising businesses in Cagayan implementing computerized accounting information system and manual accounting information system which were selected through purposive sampling from the list of merchandising businesses as provided by the Department of Trade and Industry-Tuguegarao. The financial statements particularly the balance sheet and income statement from years 2016-2018 were secured from the owners or accounting managers of merchandising business. The researchers sought the permission of the school through the Dean and the Vice President for Academics on the conduct of the study. After the permission was granted, researchers also sought the permission of the owners of merchandising business to allow them conduct the study and after which, the researchers secured necessary documents for the study. Data were collected containing the profile of the business that was summarized using a Frequency Distribution and Cross Tabulation. While for the business' performance, it was measured through their ROI (Return on Investment). Document analysis was performed in computing the Return on Investment of the merchandising businesses implementing computerized accounting information system. Frequency, Percentage Distribution, and Cross Tabulation were used in summarizing the profile and ROI of the business.

RESULTS

Table 1. Profile of the Businesses

Profile	Frequency	Percentage
Form of Business		
Sole Proprietorship	31	79.50
Partnership	8	20.50
Number of years in Business		
Less than 6 years	14	35.90
6-10 years	20	51.30
11-15 years	3	7.70
16 years and above	2	5.10
Type of Accounting System Used		
Computerized	18	46.20
Manual	21	53.80
Municipality Cluster		
3rd Class City	24	61.50
1st Class	5	12.80
2nd Class	4	10.30

3rd Class	2	5.10
4th Class	4	10.30
Number of Employees		
1-5	24	61.50
6-10	9	23.10
11 and above	6	15.40

Table 1 shows the percentage distribution of the profile of the business. As to the forms of business organization, majority of the respondents are Sole Proprietorship comprising 79.50% of the total sample population and Partnership comprise of 20.50%. Majority of the merchandising businesses are operating from 6-10 years specifically 51.30% of the sample population and few of them are operating 16 years and above at 5.10%. In terms of the type of accounting system used in the business, majority use computerized rather than manual with frequency of 46.2% and 53.80%. Based on the results, most of the merchandising businesses are located in Tuguegarao at 61.50% while 38.50% are located outside Tuguegarao. With regard to the municipality clusters where the businesses are located, most are 3rd class city comprising 61.50% of the respondents while 3rd class is the least comprising 5.10%. Most of the respondents have 1-5 number of employees at 61.5% and few have 11 and above employees at 15.40%.

Table 2. Return on Investment of Merchandising Businesses in 2017 and 2018

ROI	Frequency	Percentage
Increased ROI	23	59.00
Decrease ROI	15	38.50
Steady/Constant	1	2.60

Return on Investment was calculated for the year 2017 and 2018 for each of the respondents. The table shows that 59% of the respondents indicated an increase in ROI in year 2018 as opposed to 38.50% which showed a decline and 2.60% remains constant.

Table 3. Return on Investment of Merchandising Business in 2017 and 2018 According to Type of Accounting System Used

Profile		Return on Investment (ROI)					
		Increased ROI		Decreased ROI		Constant	
Type of AIS Used	N	F	%	F	%	F	%
Computerized	18	12	66.67	6	33.33	0	0
Manual	21	11	52.28	9	42.86	1	4.76

The table shows that out of 18 merchandising businesses who implemented a computerized accounting system, 66.67% has shown an increasing return on investment from years 2017-2018 and 33.33% has shown a decreasing return on

investment. While out of 21 merchandising businesses who implemented a manual accounting system, 52.38% has an increasing return on investment, 42.86% has a decreasing return on investment and 4.76% has a constant return on investment from years 2017-2018.

Table 4a. Return on Investment of Merchandising Business in 2017 and 2018 According to Type of Accounting System Used along Form of Business

Form of Business	N	Return on Investment (ROI)					
		Increased ROI		Decreased ROI		Constant	
		Manual	Comp.	Manual	Comp.	Manual	Comp.
Sole Proprietorship	31	8	9	5	8	0	1
Partnership	8	4	2	1	1	0	0

It can be seen from the table that there are 31 merchandising businesses with sole proprietorship form of business. Thirteen of the sole proprietor owned business used a manual AIS, 61.54% of which has an increased ROI and 38.46% of which has a decreased ROI. On the other hand, 18 used computerized AIS, 50% of which has an increased ROI and 44.44% of which has a decreased ROI and only 5.56% has a constant ROI. Moreover, there are 8 merchandising businesses with a partnership form of business. Five used a manual AIS, 80% of which has an increased ROI and only 20% has a decreased ROI. On the other hand, 3 used a computerized AIS, 66.67% of which has an increased ROI and only 33.33% has a decreased ROI.

Table 4b. Return on Investment of Merchandising Business in 2017 and 2018 According to Type of Accounting System Used along Number of Years in Business

Number of Years in Business	N	Return on Investment (ROI)					
		Increased ROI		Decreased ROI		Constant	
		Manual	Comp.	Manual	Comp.	Manual	Comp.
3-5 years	14	8	2	3	1	0	0
6-10 years	20	3	2	7	7	0	1
11-15 years	3	1	1	0	1	0	0
16 years and above	2	0	2	0	0	0	0

The table shows that there are 14 respondents from merchandising businesses with 0-5 years in business, 11 used a manual AIS, 72.73% of which has an increased ROI and 27.27% has a decreased ROI. Three used a computerized AIS, 66.67% has increased ROI and 33.33% has decreased ROI. While out of the 20 respondents under 6-10 years in business, 10 used a manual AIS, 30% of which has increased ROI and 70% has a decreased ROI. For the 10 respondents who used computerized AIS, 20% has an increased ROI, 70% has a decreased ROI and 10% remained constant. Under 11-15 years, there were 3 respondents, 1 used

manual AIS which has increased ROI and 2 used computerized AIS, 50% of which has increased ROI and 50% has decreased ROI. For the 2 businesses with 16 years and above in business, both used computerized AIS and have increased ROI.

Table 4c. Return on Investment of Merchandising Business in 2017 and 2018 According to Type of Accounting System Used along Municipality Cluster

Municipality Cluster	N	Return on Investment (ROI)					
		Increased ROI		Decreases ROI		Constant	
		Manual	Comp.	Manual	Comp.	Manual	Comp.
3rd Class City	24	6	7	3	7	0	1
1st Class	5	2	1	1	1	0	0
2nd Class	4	0	1	2	1	0	0
3rd Class	2	1	1	0	0	0	0
4th Class	4	3	1	0	0	0	0

The table shows that there are 24 respondents under 3rd Class City, 9 used a manual AIS, 66.67% has increased ROI and 33.33% has decreased ROI. And for the 15 respondents that used a computerized AIS, 46.67% has an increased ROI and 46.67% has a decreased ROI and 6.66% has a constant ROI. Under the 1st Class Municipality with 5 respondents, 3 of which used a manual AIS, 66.67% has an increased ROI and 33.33% has a decreased ROI. Also, 2 respondents used a computerized AIS, 50% has an increased ROI and 50% has a decreased ROI. While out of 4 respondents under the 2nd Class Municipality, 2 used a manual AIS with a 100% decreased in ROI. Two used a computerized AIS, 50% of which has an increased ROI and 50% has a decreased ROI. For the 3rd Class Municipality with 2 respondents, 1 used a manual AIS and 1 used a computerized AIS with a 100% increase in ROI. For the 4th Class Municipality with 4 respondents, 3 used a manual AIS and 100% of which has an increased ROI and 1 used a computerized AIS with a 100% increase in ROI.

Table 4d. Return on Investment of Merchandising Business in 2017 and 2018 According to Type of Accounting System Used along Number of Employees

Number of Employees	N	Return on Investment (ROI)					
		Increased ROI		Decreased ROI		Constant	
		Manual	Comp.	Manual	Comp.	Manual	Comp.
1-5	24	5	2	9	8	0	0
6-10	9	4	2	1	1	1	0
11 and Above	6	3	2	1	0	0	0

The table shows that out of the 24 merchandising businesses with a number of 1-5 employees, 58.33% used manual AIS and 41.67% used computerized AIS. Thirty-five percent of the 14 that used manual AIS has an

increased ROI and 64.29% has a decreased ROI. And out of the 10 that used computerized AIS, 20% only has an increased ROI while 80% has a decreased ROI. Moreover, out of 9 merchandising businesses with a number of 6-10 employees, 66.67% used manual AIS, while 33.33% used computerized AIS. Out of 6 that used manual AIS, 66.67% of which has an increased ROI, while 16.66% has a decreased ROI, and 16.66% of which has a constant ROI. While out of 6 merchandising businesses with a number of 11 and above employees, 66.67% of which used a manual AIS and 33.33% used computerized AIS. Out of the 4 that used manual AIS, 75% of which has an increased ROI and 25% has a decreased ROI. While out of the 2 that used computerized AIS, 100% of it has an increased ROI.

DISCUSSION

Quantitative data regarding Return on Investment (ROI) were obtained from the financial statements of the 39 respondents, primarily using their total assets and total net income for the three-year period 2016, 2017 and 2018. It was found out that 59% of the respondents' ROI increased over the 3-year period. None of the ROI's of the respondents resulted to negative or zero, which implies that all the respondents are earning profit; thus, revenues exceed operating expenses and finance costs of the business. A positive ROI indicates good return; however, a higher ROI is better (Agamata, 2014).

Results revealed that more businesses that are using computerized AIS showed an increased ROI than those that used manual AIS in their operations. The results coincided to the study of Dibrell, Davis, & Craig (2008) as they demonstrated that IT does have a positive and significant effect on current profitability and future growth. In addition, the study of Ravichandran and Lertwongsatien (2005), concluded that there is a direct relationship between a firm's financial performance and investment to information technology; thus, IT can be used to influence a firm's ability to gain a competitive advantage. However, the study of Colomina, Estebanez, and Grande (2011) also pointed out in contrast to other studies that using IT gives no competitive advantage for attaining higher results, and that many firms have invested in IT but they did not succeed in attaining the established performance goals. This was in negation to the other studies but somehow supported the results of the data gathered because it showed that there is no huge difference (1 respondent only) as to the number of businesses with increased ROI that used computerized AIS and manual AIS. On the other hand, businesses that used manual AIS have experienced more than of the businesses that used computerized AIS. This implies that necessary actions were not taken before and during the crises which may be due to lack of necessary data needed in making decisions. This was supported and illustrated in the study of Muhindo, Mzuza, and Zhou (2014) which stipulates that AIS and profitability are linked together. Their findings showed that many small scale businesses did not

apply computerized accounting information systems in their businesses which resulted into poor performance levels because of lacking safety information record keeping, and real time access to the operations data which greatly affects the decisions and response of the business with regard to issues like fluctuations in demand, or change in customer's attitude towards certain product or services that cannot be easily forecast or easily determined by management without necessary financial data.

Most of the respondents are owned by sole proprietors. However, results showed more increased ROI of partnership business than that of the sole proprietorship. The difference was due to the fact that the form of business ownership affects the risk associated with it (Agenjo, Dumois, Claudio, Rivera, 2010). However, based on the findings, manual AIS is more efficient regardless of the form used in business, but the probability of having an increased ROI is higher for those formed under partnership as compared to sole proprietorship.

According to Ilaboya and Ohiokha (2016), there is a positive significant relationship between firm's age and profitability because the increase in knowledge of effective production techniques increases the company's productivity. Also, Alben-Selcuk (2016) in the result of his study states that as the firm gets older, profitability declines. In addition, it has been shown that the relationship between age and profitabilty is generally a convex one which suggests that the younger firms start to see a decline in their profitability from the beginning but they become profitable again at an old age.

Municipality cluster was also sought in the study to obtain how each class affects business and municipality was classified according to average annual income (Executive Order 249). Location is an essential factor that forms and defines the success or failure of entrepreneurial development and business activities (Minai and Lucky, 2011). In a business environment where companies contend in the highly delicate market, modernization in all business processes including accounting is an instrument for constant advancement towards competitive products or services offered to customer (Abdulle, 2019). However, an analysis obtained for 3rd class city and 1st class municipality that a manual AIS is more profitable, but for 2nd class municipality, computerized AIS is profitable. While for 3rd class municipality and 4th class municipality, regardless of the AIS is used, it is still profitable. Compared to those businesses in the 3rd class city, the study revealed that businesses from the 1st, 3rd and 4th class municipalities showed a higher increase in ROI. Prakash (2018) cocluded in her study that businesses in rural areas earn better profits and more financing than businesses in the city. Rural small businesses are smaller and grow more gradually than urban small businesses. However, they are more likely to be profitable and run a lean operation with fewer expenses.

Furthermore, results show that a lesser number of employees would give a decrease in ROI as compared to businesses with a higher number of employees whether implementing a computerized and manual accounting information system. Manpower is proportional to productivity. The more people are available to work, the faster projects can be completed and the more projects a business can take on, which gives an increase in profit and results to a growth in ROI (Thibodeaux, 2019).

CONCLUSION

Most of the merchandising businesses in Cagayan regardless of the AIS used, either manual accounting information system or computerized accounting information system, have experienced an increase and a decrease in their return on investment. Thus, there is no assurance of a constant increase in ROI even using computerized AIS.

RECOMMENDATION

The researchers would like to recommend a future study on the factors affecting the level of performance of merchandising businesses in Cagayan, and that data must be gathered and classified according to the nature of business (e.g. hardware, groceries, drugstores, etc.) to closely recognize the said factors.

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