

Classification of International Accounting Systems. An Empirical Analysis of Twelve Countries

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Abstract: *The study aims to investigate the international accounting systems and their position within other accounting systems of twelve countries. The data were analyzed via hierarchical cluster analysis. The results indicate that the sample countries of the study were classified into three groups. The first group referred as "European Systems" consisted of eight countries, the second group referred as "Mixed (Transition) Systems" consisted of Sweden and Italy and the third group which was consisted of two countries: the USA and Australia. The specificity and uniqueness of the accounting systems of both countries prevented them from being included in either the first or the second group.*

Keywords: *Classification, International, Accounting Systems*

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I. Introduction

International accounting is defined as the science which studies the reasons for the differences between accounting systems as well as the functions associated with the international financial reporting system. According to an ancient Greek philosopher, Aristotle, has written: "if you would understand anything, understand its beginnings and development." So therefore, it will be appropriate to have historical look back about the emergence of the international accounting. The importance of international accounting can be attributed to its past developments. Accounting as we find it nowadays is the result of many combined efforts of number of different nations. The Double entry system was originated in Italy and from Italy it was spread to many other European countries. In the 18th century English people became instrumental to play an important role in transferring accounting and auditing not only to the USA but also to other countries. In the beginning of 20th century USA emerged as a super power not only in the field of political developments but also in the developments of accounting theory and practices. USA is dominating and in the development of accounting literature. Institutes like AAA and AICPA are playing an essential role in spreading the US accounting methods thought and practices to the European countries. So, it can be concluded that accounting has always been international from the time of its origin in Italy. According to Parker (1983) "Modern accounting is not the invention of one country; it has always been international in its scope". There are four different approaches to the definition of International Accounting:

- World Accounting: According to this approach the International Accounting is a universal system of accounting which is easily acceptable in all the countries.
- Comparative International Accounting: Under this approach International Accounting includes all varieties of accounting principles and methods of accounting in all the countries throughout the world.
- Operational International Accounting: This approach covers the particular technical problem being faced by domestic corporations and multinational corporations in foreign business. These are typical operational problems like foreign currency translation, consolidation, foreign exchange risk management etc.
- Politicized International Accounting: This approach itself clearly emerged from the involvement of global political institutions such as UNs which are busy in bringing harmonization in divergent IA practices.

The most valuable tool for comparing the different national accounting regulations and practices in order to group countries is the classification of the accounting systems. The classification will provide elements that characterize a country's accounting system, without the need to know all their rules and accounting practices. It is very important to mention that the accounting classifications have as starting point the similarities between the accounting rules and practices within countries, and from the other side the accounting harmonisation is based on the differences existing between rules, accounting practices, in the same country or from different ones. Despite the fact that we have different starting points the essential role of the accounting classification is to assess the difficulties of carrying out the international accounting harmonisation policies.

In this paper we are using qualitative research which is based mainly on interpretation. We have collect the most important papers and researches in the field of the International Financial Reporting Standards (IFRS) and we are trying to find and understand the differences and similarities between the national accounting systems which are absolutely necessary for international accounting harmonisation. According to Nobes (2011), classification “is a fundamental process in the better understanding of phenomena”, so we will try to present the main approaches which are accepted by the literature of the field. In addition we consider that the classification made by Nobes in 2011 expresses on the best way the fact that the international accounting harmonisation specialists are still facing problems arising from the national practices.

II. Classification of the Accounting Models

In the Western world, two basic accounting models have been developed (Nobes, C. 1998, 2011):

➤ **The French-German model**

It first appeared in France in the 17th century with state initiative and found a special appeal in countries where there is significant state intervention in the economy, such as the continental European countries. The model aims to regulate the relationship between the state and the business and contributes to the determination of taxable amount and to apply the principle of conservatism for business viability based on historical cost and the use of depreciation.

➤ **The Anglo-Saxon model**

It first appeared in Great Britain in the 19th century. It was mainly developed in countries where the relationship of the business with the investors has a leading role in the economy, while the state does not play an important role. The model, therefore, focuses on comparability, coherence, correct and in-depth information for decision-makers (Gray, S.J., 1988).

III. Nobes Studies

During the last decade of the 20th century (between 1990 and 2000), other researchers have proposed new accounting system classifications. The most important was Nobes theory which establishes the differentiation factors. These factors allow an accurate classification of the accounting systems about: the typology of users of accounting information from financial reports of listed entities, the degree in which laws and standards impose details while excluding subjective judgments, about the importance of taxation rules, the caution and precision in applying historical cost, about writing practices of consolidated financial reporting and about the entity uniformity in rule application.

The first hierarchical classification was set up in 1983 by Christopher Nobes and it was based on the financial reporting system (Novas et al, 2017). This system is identifying two orientations: micro and macro and were grouped into subclasses, families and species.

The microeconomic-oriented countries are prevailed by the elements of judgment; the concept of fair view and the market-based economic adjustment. According to this view we have Holland (which is strongly oriented towards business), Australia, New Zealand, the United Kingdom and Ireland (with professional rules derived from business practices of British origin), Canada and the United States (with professional rules derived from business practices).

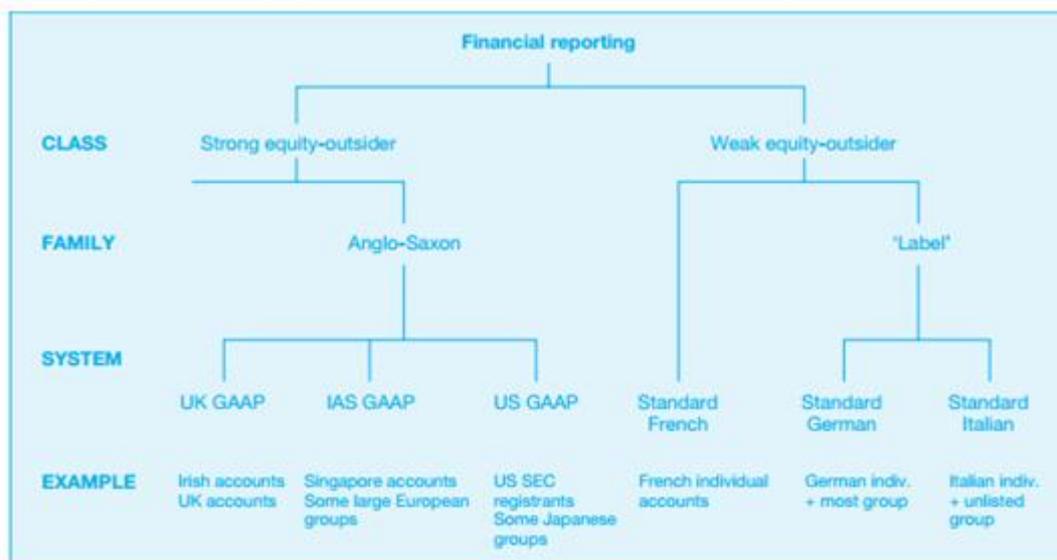
The macroeconomic-oriented countries are predominant by uniformity in the application of measurement methods (Tabara et al, 2010). Examples according this view are Italy (with a system based on the Civil Code and international influences), France, Belgium and Spain (with an accounting system based on unified account plans), Germany and Japan (with an accounting system based on statutory rules) and Sweden (with an accounting system based on economic control imposed by the tax system).

In his research in 1988, Gray realized that the importance of culture does not seem to be fully appreciated. Thus, based on Hofstede's study of 1980, identified four cultural values which are influencing the accounting practices (Gray, 1988). These four cultural values were professionalism, versus statutory control, uniformity versus flexibility, conservatism versus optimism and finally secrecy versus transparency. The Gray's model based on cultural influences was a way to show the impact of culture on accounting and the connection between culture, accounting values and accounting practices (Doupnik, T.S., Tsakumis,, 2004).

According to Beke (2011), on an international level there is a need to distinguish countries between credit countries/insider (countries which are financed mainly by banks) and equity countries/outsider (countries financed directly by investors). This point is very important because these differences affect the international financial reporting standards. In his study Nobes (1988) pointed out that one of the most important factors to explain any difference among the accounting systems is the financing system which is varying from country to country. Hence, he divided the financial reporting systems into two classes. The strong equity or outsider: we can find countries with strong funding through external equity corresponding to the Anglo-Saxon systems such as United Kingdom and New Zealand. The second class is the weak equity – outsider. In this class we can find

countries with low equity corresponding to the continental Europe accounting systems (Nobes and Parker, 2008).

Figure 1: Nobel’s proposed hierarchical classification of accounting systems (1998)

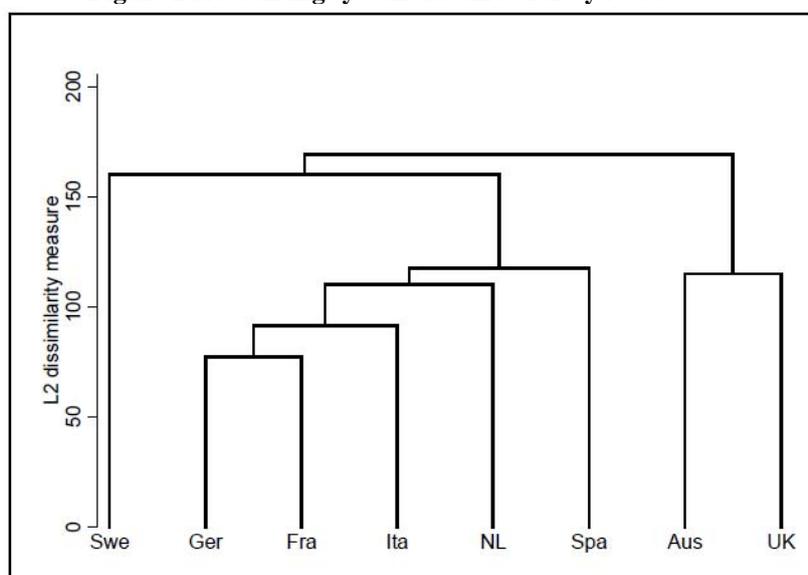


Source: Roberts, C., Weetman, P., Gordon, P, 2005

During 2008, Nobes started to wonder if the previous accounting classifications are still relevant in the “IFRS era”. Therefore two years later in 2010, with Erlend Kvaal, performed a study in which they have examined the IFRS practices of five countries Australia, France, Germany, Spain and Great Britain.

They have collected and analyzed the financial statements for the financial years 2005 and 2006 for the major companies listed in these countries. The financial statements were from a number of 232 companies of various fields of activity). The authors stated the existence of national practices different from the IFRS ones. Then they analyzed the financial statements for the years 2008-2009, and they found the same occurrence. In 2011, Nobes research attempt to investigate whether the classification made in 1983 leading to the creation of two groups is still valid even after 30 years. Out of the 14 countries included in the classification, Nobes gathered data for eight of them. In this research his sample was from Australia, France, Germany, Spain, the United Kingdom, Italy, Sweden and Holland. For the 287 of the financial statements, 13 criteria were used. Six of them referring to the presentation practices and seven referring to measurement practices.

Figure 2-Accounting system classification by Nobes.



Source: Nobes, C., (2011)

Figure 2 represents the results. All statistical techniques have led to the same conclusion: the Anglo and continental European groups can be identified in the IFRS practices of large companies (Figure 4). The national accounting practices are being resistant to the harmonisation process. (Nobes, 2011). As we can see from Figure 2, Germany and France form the first pair of countries and together form a single unit. Germany and France together with Italy form another pair. They, in turn, form another unit which, coupled with Holland. Thus, another unit is formed which, together with Spain form the other pair. Australia and Great Britain form a pair in the Anglo group.

IV. Data and Methodology

In our study we aim to classify various systems under examination by using statistical techniques, based on the similarities between the accounting rules set by 6 countries and the IASC. We have used the TRANSACC database (Transnational Accounting and A Reference Matrix) in order to obtain the data. The rules of each country have been established by accounting academics and experts. All the data that have been created were based on the rules related to preparation of balance sheets and statements of income, two basic concepts of an accounting system. These data have been classified under the titles of “accounting” (recording, classification, abstracting) and “valuation” (TRANSACC, 1995). The countries we have used in the study are: USA, Australia, Germany, Canada, Spain and IASC (International Accounting Standards Committee).

We have used the TRANSACC database which includes the accounting rules pertaining to group accounts. In other words, this part compiles accounting rules on consolidation for the Corporations in each country. We are following the methodology of the study of d’Arcy (2000). However, Nobes (2004) suggested that some of the accounting rules on consolidation were compiled in the wrong way. Moreover, consolidation procedures are carried out mainly to inform investors, while accounting of enterprises not subject to consolidation not only provides information to investors but also serves multiple purposes such as taxation (Sellhorn & Tomaszewski, 2006). As a result, in light of the concerns listed above, accounting rules on consolidation have not been included in the data set used in the present study.

Table 1: Variables of the study

VARIABLES	AUS	BEL	CA	DM	FR	GER	IT	HOL	SWE	GR	UK	USA
ACCOUNTING												
Basic principle (True and fair view)	No	Yes	Yes	Yes	Yes	No	No	Yes	No	No	Yes	No
Current Assets												
Intangible Assets												
Establishment and organization costs	Y	I	I	Y	I	Y	I	I	Y	I	Y	G
Capacity increase and re-organization costs	I	I	I	I	I	I	G	Y	I	I	Y	G
Research Costs	Y	Y	Y	I	Y	Y	Y	Y	Y	I	Y	Y
Development Costs	Y	I	I	I	I	Y	G	I	I	I	I	Y
Purchase of patent, license and etc.	G	G	G	I	G	G	G	G	G	G	G	G
Self-production of patent, license and etc.	Y	I	G	Y	Y	Y	G	I	Y	Y	Y	I
Purchase of goodwill	I	I	G	I	I	I	G	I	G	I	I	G
Self-production of goodwill	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tangible Assets												
Difference between current and fixed assets	G	G	G	G	G	G	G	G	G	G	G	G
In financial leasing, the capacity of the lesser to make an entry in the asset	Y	Y	Y	I	Y	Y	Y	Y	Y	I	Y	I
In financial leasing, the capacity of the lessee to make an entry in the asset	G	G	G	I	Y	G	G	G	G	G	G	G
In activity leasing, the capacity of the lesser to make an entry in the asset	G	G	G	I	G	G	G	G	I	I	G	G
In activity leasing, the capacity of the lessee to make an entry in the asset	Y	Y	Y	I	Y	Y	Y	Y	I	I	Y	Y
Costs of coming months/years, Costs paid in cash	G	G	G	G	G	G	G	G	G	G	G	G
Advance Payment for Placed Orders	G	G	G	G	G	G	G	G	G	I	I	Y
Deferred tax assets	Y	#	I	I	I	I	I	I	I	#	G	G

Passives													
Legal Reserves (Liability to create legal reserves) <i>yes/no</i>	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	
To create reserve for bad debts to arise from general commercial transactions	G	G	I	G	G	G	G	G	G	G	I	I	
To create reserve for possible loss to arise due to uncompleted transactions	G	G	G	G	G	G	G	G	G	G	G	G	
To create reserve for expenditures (possible expenditures-losses)	I	G	G	G	I	I	G	G	G	G	G	G	
Advance payments of placed orders	G	G	G	G	G	I	G	G	I	I	I	G	
Deferred revenues **	G	G	G	G	G	G	G	G	G	G	G	G	
Government Incentives	I	I	I	I	G	I	I	I	G	I	I	I	
VALUATION													
Valuation of Assets													
Amortization of capacity increase and re- organization costs**	I	I	G	I	#	I	G	#	I	I	#	I	
Amortization of research and development costs **	#	G	G	G	#	G	G	G	G	I	G	#	
Amortization of self-production, patents, right and etc. (<i>yes/no</i>)	No	Yes	Yes	No	No	No	Yes	Yes	No	No	Yes	Yes	
Amortization of goodwill	G	G	G	G	I	G	G	G	G	G	G	G	
Direct first material costs*	G	G	G	G	G	G	G	G	G	G	G	G	
Direct production costs *	G	G	G	G	G	G	G	G	G	G	G	G	
VARIABLES													
	AUS	BEL	CA	DM	FR	GER	IT	HOL	SWE	GR	UK	USA	
Use or appropriate rate for the costs of required general materials	G	I	I	I	I	I	G	I	G	I	I	G	
Use or appropriate rate for the costs of required general production	G	I	I	I	I	I	G	I	G	I	I	G	
Amortization of tangible assets	I	I	I	I	I	I	G	I	G	I	I	G	
Capitalization of general management costs	Y	I	I	I	Y	I	Y	I	Y	I	Y	G	
Capitalization and recording of social- purpose expenditures	I	I	Y	I	G	I	G	Y	G	Y	Y	Y	
Capitalization of loan interests	I	I	I	Y	I	I	I	I	Y	I	I	G	
Capitalization of marketing sales and distribution costs**	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Costs of renewal of tangible assets and similar costs	G	I	G	G	G	G	G	G	G	I	G	G	
Extraordinary amortization in tangible assets	G	G	G	G	G	G	G	G	G	G	G	G	
Devaluation of the book value of fixed assets	I	G	Y	G	G	G	G	G	Y	I	G	Y	
Valuation of Liabilities													
Valuation of equities (Nominal or Real Value) N/R	N	N	R	N	N	N	N	N	N	N	N	N	
Valuation of long-term debts (Recorded or Discounted) R/D	R	R	D	R	R	R	D	R	R	R	R	D	
Valuation of short-term debts (Recorded or Discounted) R/D*	R	R	R	R	R	R	R	R	R	R	R	R	
Revaluation Accounting	Y	I	Y	I	I	Y	I	I	I	I	I	I	

Source: d'Arcy, (2000).

The variables which are using in this study were collected through nominal (categorical, classifying) measurements. Specifically, as we can see in table 1 we have triple variables where (G) is Required, (Y) is Prohibited and (I) is Permitted. Also we have used dual variables (yes/no). The most important function of these values is to define the variables. Therefore, since we the four operations we have cannot be performed using these numerical values, it is impossible to calculate their arithmetic averages as well (Nakip, 2003). There are three statistical analyses that can be applied and these analyses are “factor analysis”, “discriminate analysis” and “cluster analysis”. The statistical analysis was performed with SPSS.

V. Results

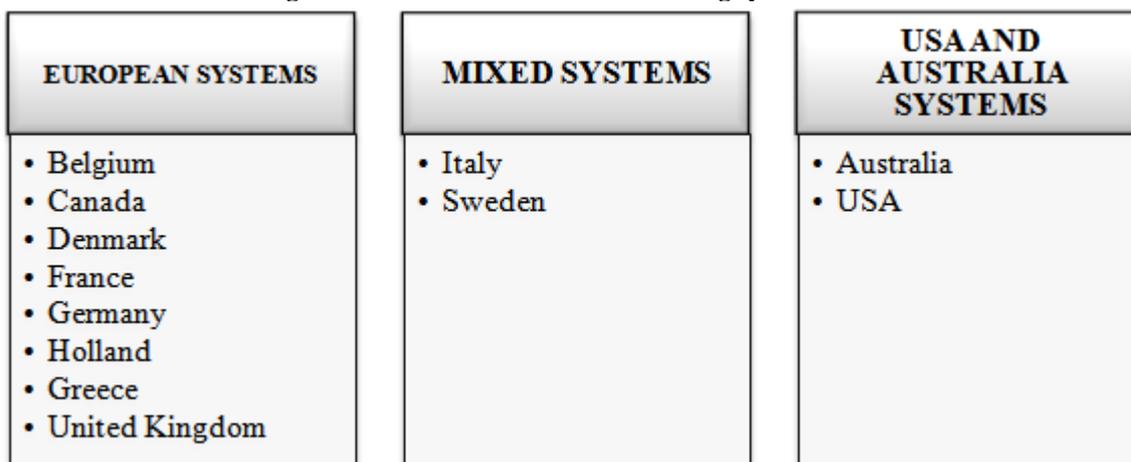
The results of the study are presenting in Table 2. A close examination of the table shows that the countries which have the most similar accounting systems are Belgium and Holland, with a similarity rating of 95%. The result is not surprising because both Belgium and Holland are West European countries and they have common historical and socio-economic culture. It is worth to mention also that these countries (with Luxembourg) were involved in regional cooperation the “BENELUX”. Moving on to the results the next two countries with the second most similar accounting systems were the United Kingdom and Holland, with a similarity rating of 89%.

Table 2: Similarities between countries

Countries	AUS	BEL	CA	DM	FR	GER	IT	HOL	SWE	GR	UK	USA
AUS	1.000	0.738	0.618	0.582	0.667	0.733	0.552	0.732	0.651	0.639	0.682	0.733
BEL	0.738	1.000	0.805	0.803	0.836	0.852	0.733	0.953	0.689	0.732	0.834	0.638
CA	0.618	0.805	1.000	0.671	0.676	0.731	0.667	0.829	0.647	0.712	0.783	0.689
DM	0.582	0.803	0.671	1.000	0.785	0.802	0.712	0.803	0.753	0.698	0.752	0.551
FR	0.667	0.836	0.676	0.785	1.000	0.819	0.755	0.825	0.733	0.812	0.771	0.531
GER	0.733	0.852	0.731	0.802	0.819	1.000	0.709	0.829	0.739	0.742	0.817	0.631
IT	0.552	0.733	0.667	0.712	0.755	0.709	1.000	0.722	0.633	0.699	0.687	0.652
HOL	0.732	0.953	0.829	0.803	0.825	0.829	0.722	1.000	0.684	0.728	0.887	0.658
SWE	0.651	0.689	0.647	0.753	0.733	0.739	0.663	0.681	1.000	0.701	0.704	0.638
GR	0.639	0.732	0.712	0.698	0.812	0.742	0.699	0.728	0.701	1.000	0.803	0.651
UK	0.682	0.834	0.783	0.752	0.771	0.817	0.687	0.887	0.704	0.803	1.000	0.682
USA	0.733	0.638	0.689	0.551	0.531	0.631	0.652	0.658	0.638	0.651	0.682	1.000

From the other hand (according to the data presented in Table 2), the systems with the least similarity (53%) are France and the USA. This result is in parallel with the findings reported by d’Arcy (2001). France was the first country in Europe to prepare and implement the Commercial Code, which was later by the Continental Europe. France is the place of birth of the accounting system of Continental Europe (Novas, et al. 2017). This accounting system is based on the precautionary principle, which aims to protect creditors. On the other hand in USA we have a capital market-oriented Anglo- Saxon accounting system but which differs from other countries which have adopted the same system. The second pair of countries with the least similarity is USA and Denmark. According to the above results and the results of the cluster analysis we can classify the accounting systems of the countries we are studying. The classifications are summarized in Figure 3.

Figure 3: Classification of the accounting systems



As we can see from Figure 3 we have three groups for the classification of the accounting systems. The first one is the USA and Australia group; the second group is the group of mixed systems and the third one is the European group. From one side we have the group adopting the European system and at the other end we have the USA and Australia. The first group is referred to as the European Systems have played an important role in the development of the Continental European accounting system, which occupies a large proportion of the literature. In this scope, it can be concluded that this group represents -although relatively- the accounting system of Continental Europe. It is obvious that all the countries in this group are in Europe except Canada.

VI. Conclusion

The study is trying to present the classification of various international accounting systems and to compare the accounting practices of 12 countries, including, Australia, Belgium, Canada, Denmark, France, Germany, Holland, Greece, Italy, Sweden, United Kingdom and the USA in order to classify them according to their similarities. In this context, we have obtained 44 accounting implementations of the 7 countries from the TRANSACC database.

The analysis above indicated that these twelve countries can be classified into three groups using cluster analysis. The accounting systems of Canada, Denmark, France, Germany, Holland, Greece and United Kingdom are included in the first group. Considering the general characteristics of the group countries and the previous studies, this group was referred to as "European Systems", as it includes some of the main countries of the Continental Europe accounting system (except Canada). The accounting systems of Italy and Spain formed the second group of the study. The examination of the historical course of the socio-economic factors constituting their various accounting systems suggests that the countries in the second group have not created an original system but a mixed structure, due to the influences of other countries' systems. Therefore, this group was named "Mixed (Transition) Systems". The third group was consisted of two countries: the USA and Australia. The specificity and uniqueness of the accounting systems of both countries prevented them from being included in either the first or the second group. Although the difficulties to conduct empirical studies (and the main problem is to obtain data) on the classification of accounting systems, it will be very useful and highly informative to repeat the present study using a larger number of countries and more data.

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