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Baki, Birdođan and Tanyaş, Mehmet and Özkök, Murat

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# THE LOGISTICS EDUCATION IN THE UNIVERSITIES OF TURKEY

## **Birdođan BAKİ**

Assist. Prof. Dr., Karadeniz Technical University  
Department of Business Administration  
61080 Trabzon /TURKEY  
e-mail: birbaki@yahoo.com, bbaki@ktu.edu.tr  
Phone: +90 462 377 24 37  
Fax : +90 462 325 72 81

## **Mehmet TANYAŞ**

Assoc. Prof.Dr., Istanbul Technical University  
Department of Industrial Engineering  
34357 Istanbul, TURKEY  
e-mail:tanyasm@itu.edu.tr  
Phone: +90 212 293 13 00/2660  
Fax : +90 212 240 72 60

## **Murat ÖZKÖK**

R. Assist., Istanbul Technical University  
Department of Naval Architecture Engineering  
80626 Istanbul, TURKEY  
e-mail: ozkokm@itu.edu.tr  
Phone: +90 212 285 64 06  
Fax : +90 212 285 64 54

## **ABSTRACT**

Logistics is one of the most important compenents in achieving the success for the firms in competition in the present day and that the employment of the qualified people who graduated from universities by firms in this field is crucial. For this reason, that the promising logistics managers take the sufficient education and training in the field of Logistics Management is one of the most important subjects. For a succesful education and training, the contents of the courses, the academic staff who teach and the methods used in teaching are quiet important. In this study used the questionnaire method, it's aimed to cover up the available case by making an extensive research for logistics education in Turkey.

**Key Words:** Logistics, Education, Turkey.

# THE LOGISTICS EDUCATION IN THE UNIVERSITIES OF TURKEY

## 1. INTRODUCTION

Turkey is one of the most important logistics centers of the world as transportation and distribution centers for years as well as being a place that three continents meet. This geographic advantage contributes transportation and logistics sectors to develop. The development of the sector requires some needs including education and training. The educated and trained people are mostly needed so that the sector can be gone forward and progressed. That there is a large opening in this field in Turkey is an agreed-upon fact. The staff need being felt in the sector includes by-employees as well as professional managers. That's why, including high school, vocational school, institution of higher education, undergraduate and graduate and education and training of those who work in the sector, an integrated planning is needed.

Logistics features heavily in achieving success of the firms in competition recently. Besides, that the qualified university graduates in this field are employed by Turkish firms is essential. So, that the logistics firm managers of the future take sufficient education and training in the field of logistics must be dwelled on. On the other hand, there are not many observations about the present case of the logistics education and training in Turkish universities and also world universities. In the study that Baki-Tanyas (2003) did, comparatively analysing the courses in the departments concerning logistics in the universities of Turkey and developed countries, they suggested course programs for undergraduate and undergraduate programs. To get rid of this lack, it's aimed to do a study including the opinions of the academic staff in the logistics fields of the universities in Turkey.

While the universities are opening new departments, programs and courses concerning logistics, the logistics firms, foundations and public associations last the works. For example, while a private firm in the sector built Logistics Anatolian Vocational School, the other private firm produce the expert persons by establishing the Logistics academy inside it. Besides, Technical Education and Training General Directorate of Turkish Republic National Education Ministry prepare the sketch education and training program of the vocation courses of Logistics Anatolian Vocational School. Those that are closed to logistics among field/branch/departments in the secondary school level: "Maritime and Port Managership", "Foreign Trade" and "Railway Managership". In the frame of Highway Transportation Rule and Regulations Turkish Republic Transportation Ministry legislated, it inserted Logistics Managership in the rule and it obliged the firm managers doing this job to have "Vocational Sufficiency Certification" that is given with the exam after education and training. According to ninth article of this regulation, those who graduate from the departments of the transportation, logistics, transportation economics, transport business, highway traffic giving the four-year education and training in the universities/institution of higher education and those who took the degree of expertise, graduate or doctorate in the fields of the transportation, logistics, transportation economics, transport business, highway traffic as well as graduating from other departments are exempt from mid-level manager type vocational sufficiency education and training and exam (<http://www.ubak.gov.tr>).

In Table 1, the universities studying concerning logistics in Turkey and their programs are seen:

Table 1. Logistics Programs in Vocational Schools, Undergraduate, Graduate, and Certificate Programs in the Universities of Turkey (taken from <http://www.yok.gov.tr>)

	Public or Private	UNIVERSITY	The Name of Program	Quota
<b>VOCATIONAL SCHOOLS</b>	Public	Anadolu University, Porsuk Vocational School	Road Transport and Traffic	30
	Public	Çanakkale 18 March University, Lapseki Vocational School	Protecting and Warehousing of Agriculture Products	30
	Public	Sakarya University, Vocational School	Logistics	30
	Public	Uludağ University, Yalova Vocational School	Maritime and Port Business	25+25*
	Private	Anadolu Culture and Education Foundation Anadolu BİL, Vocational School	International Logistics**	90+90*
	Private	Beykent University, Vocational School	International Logistics**	40
	Private	Istanbul Commerce University, Vocational School	International Logistics	50
	Private	Izmir University of Economics, Vocational School	Logistics	50
	Private	Mersin İlağa Education and Culture Foundation, Mersin Maritime and Trade Vocational Scholl	Maritime and Port Business	100
<b>UNDER-GRADUATE PROGRAMS (SCHOOLS)</b>	Public	Dokuz Eylül University, School of Maritime Business and Management	Maritime Business Administration	50
	Public	Istanbul University, The School of Transportation and Logistics	Transportation and Logistics	40
	Private	Beykent University, School of Foreign Languages	International Logistics and Transportation**	48
<b>UNDER-GRADUATE PROGRAMS (FACULTIES)</b>	Public	Istanbul Technical University, Faculty of Maritime	Maritime Transportation and Management Engineering	100
	Public	Istanbul Technical University, Faculty of Maritime & UOLP-SUNY Maritime	Maritime Transportation and Management Engineering	30
	Public	Istanbul University, Faculty of Engineering	Maritime Transportation and Management Engineering	60
	Private	Izmir University of Economics, Faculty of Economics and Administrative Sciences	Logistics Management**	70
	Private	Yeditepe University, Faculty of Economics and Administrative Sciences	International Logistics and Transportation***	45
<b>GRADUATE PROGRAMS</b>	Public	Dokuz Eylül University, Social Sciences Institute	Logistics and Maritime Transportation(Non Thesis)	20
	Public	Istanbul University, Institute of Science and Technology	Maritime Transportation and Management Engineering	-
	Public	Galatasaray University, Social Sciences Institute	Marketing and Logistics Management (Non Thesis)	-
	Private	Beykent University, Institute of Social Sciences	MBA in Logistics and Operations Strategies	-
	Private	Izmir University of Economics, Graduate School of Social Sciences	Logistics Management	-
	Private	Izmir University of Economics, Graduate School of Social Sciences	Logistics Management(Non Thesis)	-
<b>CERTIFICATE PROGRAMS</b>	Public	Istanbul Technical University, Continuing Education Center	Logistics and Supply Chain Management Certificate Program	25
	Public	Istanbul University, Institute of Business Management	Logistics Management and Transportation Expertise Program	-

\* Education which charges tuition

\*\* They had started the education-training in 2004-2005

\*\*\* This university had converted the program of two-year “International Transportation Management in the content of Vocational School to four-year undergraduate program

The programs of Foreign Trade, Foreign Trade and European Union, International Trade, Import-Export, Customs Management, e-commerce in the vocational schools are

available. In the programs of Industrial Engineering, Business, International Trade, International Trade and Managership and Finance of the vocational schools and faculties, more courses concerning logistics and supply chain management are available and more projects had made. Besides, International Trade and Logistics undergraduate program in the faculty of Economics and Administrative Sciences of Gaziantep University and International Transportation Management program in the vocational school of Yıldız Technical University took permission from YOK(Turkish Institution of Higher Education) but haven't started education and training. Logistics Management School of Turkish Land Forces still maintain their education and training operations in Izmir. In the Turkish Military Academies, various courses concerning logistics are taught. Besides there are some certification programs held by public associations such as LODER, UND, UTİKAD. This study includes universities.

As a result, due to the fact that logistics features heavily in the competition factors, the quality of logistics education and training given in the levels of undergraduate (schools), undergraduate (faculties) and graduate is not only important for students and teachers and also important for the firms which will employ the students taking this education. In this point, the contents of the courses, academic staff and the education and training methodology used are crucial. So, the aim of this study is to analysis the present case by evaluating the departments concerning logistics of the universities in Turkey in these terms. Due to first study, it'll be guide for academic staff, the firms in the sector, YOK and similar studies in other countries.

## **2. RESEARCH METHODOLOGY**

With this study, it's aimed to clarify the present case by launching a research for the logistics education and training in Turkey. That there is no research concerning the topic is the other factor encouraging the study. The aims of the research are following:

- to reveal the profiles of the departments,
- to reveal the profiles of the academic staff,
- to determine the courses to be taught in the logistics programs,
- to determine the content of the logistics management course,
- to reveal the teaching methods, materials and evaluation ways used in the courses concerning logistics,
- to determine the simulation and computer applications in the courses concerning logistics,
- to determine the usage of the new technology in the courses concerning logistics,
- to determine the problems concerning logistics teaching and bring solution suggestions,

In the research, the questionnaire method has been used as data collecting method. While preparing the survey questions, large-extent literature study and the opinions of the academic staff have been treasured. The questionnaires have been sent to academic staff (Professor, Associated Professor, Assistant Professor, Lecturer and Research Assistant) in the schools concerning logistics with e-mail. E-mail and fax have been used in collecting datas. The e-mail addresses of the academic staff have been achieved from the web-sites of the universities. Besides, by means of forum concerning logistics, it's aimed to reach the academic staff who couldn't be reached from web-sites. The questionnaires have been sent to 57 of academic staff. In a span of three months, as a result of monthly reminding, the answers have been taken back from 25 of academic staff in 5 different universities (1 vocational school, 4 undergraduate programs). To analysis the taken datas SPSS 11.0 for WINDOWS program has been used.

### 3. SURVEY RESULTS

Table 2. The General Features of The Department and Academic Staff Who Participated in The Research

<b>The Profiles of the Participaters</b>			<b>The Case of Employment of Graduates</b>		
	Frequency	%		Frequency	%
Prof.Dr.	1	4	Has no trouble	2	50
Assoc.Prof.Dr.	-	-	Has little trouble	2	50
Asst. Prof.Dr.	5	20	Has trouble in normal level	-	-
Lecturer. Dr.	1	4	Has more trouble	-	-
Lecturer.	3	12	Has much more trouble	-	-
Research Asst.Dr	-	-	<b>TOTAL</b>	4	100
Research Asst.	15	60	<b>The case of Accreditation</b>		
<b>TOTAL</b>	25	100	We have information about accreditation study, but we have no study	4	80
<b>Establishment Date of Department/Program</b>			Accreditation study just started	1	20
Prior to 1990	1	20	Accreditation study is about to finish	-	-
1990-1999	1	20	Our department is accredited	-	-
2000 and Post 2002	3	60	<b>TOTAL</b>	5	100
<b>The Level of the Given Education-Training</b>			<b>The Profile of Academic Staff</b>	<b>Domestic</b>	<b>Abroad</b>
Undergraduate (schools)	1	20	Undergraduate	24	-
Undergraduate(faculties)	3	60	Graduate	22	2
Graduate	2	40	Doctorate	8	1
Doctorate	1	20	Post Doctorate	-	3
<b>The Number of Total Academic Staff In Departments (Average)</b>	<b>Frequency</b>	<b>Average</b>	<b>The Case of Working in the Sector for Academic Staff</b>	<b>Frequency</b>	<b>%</b>
Prof.Dr.	1	0.2	Yes	5	20
Assoc.Prof.Dr.	4	0.8	No	20	80
Asst Prof.Dr.	9	1.8	<b>The Determination of Course Content</b>	<b>Frequency</b>	<b>%</b>
Lecturer. Dr.	2	0.4	Dean Office	-	-
Lecturer	8	1.6	Chairmanship of the Department	-	-
Research Asst.Dr	-	-	Demands of the Sector	-	-
Research Asst.	23	4.6	Opinions of the Academic Staff	-	-
<b>TOPLAM</b>	47		Chairmanship of the Department and Opinions of the Academic Staff	1	20
<b>Renewing of the Undergraduate Course Programs</b>	<b>Frequency</b>	<b>%</b>	Chairmanship of the Department, Opinions of the Academic Staff and Demands of the Sector	4	80
< 1 Year	2	40	<b>Logistics Management</b>	<b>Frequency</b>	<b>%</b>
1 Year	2	40	A Part of Manufacturing Management	-	-
1-3 Year	1	20	A Part of Marketing Management	2	8.3
3-5 Year	-	-	An Other Part of the Transportation	-	-
> 5 Year	-	-	The Other Name of Distribution Management	2	8.3
			The Other Name of Purchasing	-	-
			A Different Discipline That Have Become One Flesh	20	83.3
			Whole Functions Above		

60 % of the departments participating in the research have been newly established. And it's striking that the academic staff average per department is low (Table 1). For example, the average professor number per department is 0.2. When the same table is

looked up, that those who graduated from the logistics department have no trouble in finding a job, that the accreditation studies in only 1 department start and that the opinions of chairmanship of department and academic staff and the demands of the sector are considered in 80 % can be seen. Besides, that 83.3 % of the participaters regard logistics as “A Different Discipline That Have Become One Flesh Whole Functions Above” is determined.

Table 3. The Courses to Be Given in Logistics Programs

	<b>Average</b>	<b>Standart Deviation</b>
Logistics Management	4.71	0.46
Supply Chain Management	4.54	0.78
Transportation	4.48	0.79
Logistics Information Systems	4.33	0.82
Warehousing	4.29	0.81
Foreign Trade Operations	4.29	0.81
Outsourcing and 3PL	4.21	0.83
Customer Relationship Management	4.21	0.83
Problem Solving and Teamwork	4.17	0.82
Operations Research/Quantative Decision Making Techniques	4.17	0.82
Stock Management	4.09	0.87
Customs Regulations	4.08	0.97
Export/Import Management	4.00	0.97
E-Commerce	4.00	0.93
Reverse Logistics	4.00	0.80
Production Planning and Control	3.96	0.86
Statistics	3.96	0.81
International Marketing	3.96	0.91
Project Management	3.92	0.88
Marketing	3.92	0.97
Quality Management	3.87	0.81
Risk management(including insurance)	3.87	1.08
Law	3.79	1.06
Research Techniques and Data Analysis	3.79	0.72
Customer Relations	3.75	1.07
Material Handling and Packaging	3.75	1.15
Basic Computer	3.75	1.03
Management&Human Resouces Management	3.71	0.91
Financial Control	3.67	1.00
Cost Accounting	3.62	0.97
Managerial Accounting	3.54	0.98
Production&Operations Management	3.50	0.83
General Business	3.50	0.98
Purchasing	3.46	1.28
International Deals	3.38	1.01
Foreign Exchange Management	3.37	1.09
Mathematics	3.33	0.70
Accounting	3.25	0.99
Microeconomics	2.75	0.90
Macroeconomics	2.75	0.99

Table 4. The Content of The Logistics Course

	Average	Never Must Be Given Frequency(%)	Must Be Given Less Frequency (%)	Must Be Given Normal Frequency (%)	Must Be Given More Frequency (%)	Must Be Given Much More Frequency (%)
Logistics Information Systems	4.46	-	-	2(8.3)	9(37.5)	13(54.2)
Logistics Optimization Models	4.45	-	-	3(13.6)	6(27.3)	13(59.1)
Supply Chain Management	4.42	-	-	3(12.5)	8(33.3)	13(54.2)
Global Logistics	4.33	-	-	4(16.7)	8(33.3)	12(50.0)
The Organization of the Logistics Function	4.30	-	-	6(25.0)	5(20.8)	13(54.2)
Customer Relationships Management (CRM)	4.26	-	-	4(17.4)	9(39.1)	10(43.5)
Physical Distribution	4.17	-	2(8.7)	3(13.0)	7(30.4)	11(47.8)
Logistics Term, Development and Importance	4.17	-	1(4.2)	6(25.0)	5(20.8)	12(50.0)
JIT/MRP/MRP II/ERP/DRP	4.13	-	-	5(21.7)	10(43.5)	8(34.8)
Transportation Management	4.12	-	-	8(33.3)	5(20.8)	11(45.8)
The Quality in Logistics	4.08	-	-	7(30.4)	7(30.4)	9(39.1)
The Stock in Logistics System	4.04	-	1(4.3)	6(26.1)	7(30.4)	9(39.1)
The Selection of the Location	4.04	-	-	8(34.8)	6(26.1)	9(39.1)
Outsourcing and 3PL	4.04	-	2(9.1)	5(22.7)	5(22.7)	10(45.5)
Warehousing	4.00	-	-	9(39.1)	5(21.7)	9(39.1)
Material Handling and Packaging	3.87	-	1(4.3)	9(39.1)	5(21.7)	8(34.8)

Table 5. Extent of Use of Different Teaching Methods

	Average	Standart Deviation
Managers invited	3.69	0.85
Lecture	3.64	1.15
Case study	3.50	1.09
Multimedia	3.15	1.46
Visits to companies	2.86	1.51
Software exercises	2.46	1.45

Table 6. Didactic Material Used on Logistics Courses

	Average	Standart Deviation
Text books	3.92	1.32
Journal Articles	3.42	1.28
Various Softwares	2.25	1.06
Course Notes	1.92	1.31

Table 7. Usage of Different Types of Support Tool in Logistics Courses

	Average	Standart Deviation
Blackboard	4.29	1.14
Computer presentation	3.50	1.45
Transparency	3.07	1.21
Video	2.71	1.59
Slide	2.54	1.33

Table 8. Assesment Methods Used in Logistics Courses



	<b>Average</b>	<b>Standart Deviation</b>
Student's projects	3.86	1.10
Theoretical examination	3.79	1.05
Practical examination	3.28	1.32
Quiz	2.54	1.13

Table 9. The Usage of The Computer Programs In The Courses

	<b>Average</b>	<b>No Frequency (%)</b>	<b>Low Frequency (%)</b>	<b>Normal Frequency (%)</b>	<b>High Frequency (%)</b>	<b>Very High Frequency (%)</b>
Queuing Model	2.12	4(50.0)	1(12.5)	2(25.0)	-	1(12.5)
Export/Import Program	1.78	6(66.7)	1(11.1)	1(11.1)	-	1(11.1)
Vehicle Following system	1.78	6(66.7)	1(11.1)	1(11.1)	-	1(11.1)
Linear Programming (such as LINDO)	1.75	5(62.5)	2(25.0)	-	-	1(12.5)
Transportation Model	1.75	5(62.5)	2(25.0)	-	-	1(12.5)
PERT/CPM (such as WinProject 2000 )	1.75	5(62.5)	2(25.0)	-	-	1(12.5)
MRP/MRP II/ERP Systems	1.75	5(62.5)	2(25.0)	-	-	1(12.5)
Simulation	1.75	5(62.5)	2(25.0)	-	-	1(12.5)

Table 10. The Usage of The New Teaching Methods In The Courses

	<b>Remote (via internet) Education and Training (Frequency )</b>	<b>Video Conference Technology (Frequency)</b>	<b>Forming forum or groups in internet (Frequency)</b>
Available right now, I use	-	-	10
In a span of next 5 year, it'll take place	2	-	6
Not available right now, it doesn't seem to take place in a span of 5 years	8	10	1

Table 11. The Usage of the Internet Technology in The Courses

	<b>Frequency</b>	<b>Percentage</b>
I announce the exam marks in Internet	8	80
I use the Internet for only communicating with the students	7	70
I give homework in Internet	3	30
I announce the course notes in my web-site or send to the students	2	20
I do the exam in Internet	1	10
I discuss with the students in Internet	1	10
I no way use Internet	1	10

Table 12. The Problems Encountered in Logistics Education and Training

	Average	No Frequency (%)	Low Frequency (%)	Normal Frequency (%)	High Frequency (%)	Very High Frequency (%)
The number of the academic staff is insufficient	3.74	2(8.7)	1(4.3)	5(21.7)	8(34.8)	7(30.4)
Being educated of the students on the theoretically basis (not on the application basis)	3.36	1(4.5)	4(18.2)	8(36.4)	4(18.2)	5(22.7)
The absence of the faculty giving the logistics education-training	3.26	2(8.7)	6(26.1)	3(13.0)	8(34.8)	4(17.4)
The lack of the qualification of the academic staff	3.13	3(13.0)	1(4.3)	12(52.2)	4(17.4)	3(13.0)
The lack of the support of the university top management	2.96	3(13.0)	3(13.0)	9(39.1)	8(34.8)	-
Not complying the regulation with the application	2.91	2(9.1)	4(18.2)	11(30.0)	4(18.2)	1(4.5)
The lack of the tools to be used in the courses	2.68	5(22.7)	5(22.7)	6(27.3)	4(18.2)	2(9.1)
The lack of the support of the sector	2.61	4(17.4)	7(30.4)	7(30.4)	4(17.4)	1(4.3)
Conflict with the other departments	2.59	4(18.2)	7(31.8)	7(31.8)	2(9.1)	2(9.1)
The lack of the internship	2.55	5(22.7)	4(18.2)	9(40.9)	4(18.2)	-
Uninterestedness of the students in logistics/supply chain management	2.48	6(26.1)	5(21.7)	7(30.4)	5(21.7)	-
Insufficiency of the courses in the field of business	2.45	4(18.2)	7(31.8)	9(40.9)	1(4.5)	1(4.5)
The program as a whole is not convenience with the field of logistics/supply chain management	1.90	9(42.9)	5(23.8)	7(33.3)	-	-

Table 13. The Thing to Be Done So That The Logistics Education and Training Programs Can Be Progressed

	Average	No Frequency (%)	Low Frequency (%)	Normal Frequency (%)	High Frequency (%)	Very High Frequency (%)
Collaboration with the sector	4.65	-	-	1(4.3%)	6(26.1)	16(69.6)
The number of the academic staff must be increased	4.61	-	-	-	9(39.1)	14(60.9)
The scholarships must be given in order to attract the students	4.43	-	-	4(17.4)	5(21.7)	14(60.9)
Consulting of finding a job for the graduate students	4.30	1(4.3)	1(4.3)	2(8.7)	5(21.7)	14(60.9)
Logistics departments/faculties must be opened	4.22	-	-	6(26.1)	6(26.1)	11(47.8)
The education and training inside the firm must be given for the firm employees	4.08	-	1(4.3)	6(26.1)	6(26.1)	10(43.5)

#### 4. CONCLUSIONS AND SUGGESTIONS

In this study, the present case of the logistics education and training given in the departments of the universities concerning logistics in Turkey has been revealed by considering only viewpoints of the academic staff. The results of the research are following:

- Those who graduated from logistics department have no trouble in finding a job.
- The logistics departments are established by new and private universities in general.
- The undergraduate (schools) and undergraduate (faculties) feature heavily in high education.
- The opinions of the academic staff and the sector are generally taken into consideration and the programs are often reviewed.
- The trouble of the sophisticated academic staff is available.
- First eight courses to be given in the logistics programs are suggested as logistics management, supply chain management, transportation, logistics information systems, warehousing, foreign trade, outsourcing, customer relations management.
- IT systems and optimization in the content of the logistics are determined as crucial topics.
- That the speakers from the sector in the courses generally are invited is determined.
- That the project studies feature heavily in evaluating the students is determined.
- It's been seen that the computer software and the internet usage are less.
- It's been seen that the huge problems in logistics education and training are lack of the academic staff and the giving of the courses theoretically.
- The collaboration with the sector, the increasing the number of the academic staff and providing possibility of the scholarship feature heavily in developing the logistics education and training programs.

In the light of the informations above, due to the fact that the logistics education and training for vocational high school is effectively designed and extended and the logistics programs in vocational high schools are starting, the programs of the logistics teaching are needed to be opened. Due to the fact that the teaching programs are four-year, moving fastly in this topic, YOK encourages the number of the academic staff to increase with some possibilities such as scholarship, the logistics sector support the logistics departments and programs are inevitable. That providing possibilities of scholarship and job to the logistics students, providing the collaboration between university-sector in forming course content, the usage of the modern teaching technics in education are suggested. Besides, that the rate of the applicable studies such as internship, project in education and training are high, increasing the collaborations with the education and training foundations abroad, training the available sector employees about logistics with the training inside the firm and certifications and graduate programs are necessary.

In the future, in logistics education and training, a far more detailed study must be done by taking into consideration the opinions and suggestions of the students and public associations and firms operating in the sector as well as the viewpoints of the academic staff.

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