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APPLICATION OF THE METHODOLOGY FOR IMPROVING THE BUSINESS PROCESSES FOR THE COMPAMY FOR AIRPORT SERVICES TAV AIRPORTS HOLDING, MACEDONIA

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Abstract

In this paper we will make a full diagnosis of some business processes in the company for Airport services TAV Airports Holding, Macedonia. Based on the analysis we have made on the existing quality system an appropriate methodology is designed for each feature of the TQM (Total Quality Management) system in order to find the optimal solution for smooth operation of the airport traffic, in order to meet the wishes and needs of the customer, while the company makes a profit.

The methodology of TQM is continuous improvement of all processes in the organization through small changes in short periods of time including all organizational members regardless of their hierarchical level and are performed without large capital investments. The application of methods and techniques for non-defect work will achieve greater efficiency and effectiveness in the company. The benefits of the application of this methodology led to satisfying customer needs, increasing the number of passengers, strengthening the company's place in the international market, employee satisfaction and improving the community.

Keywords: TQM philosophy, Pareto diagram, Ishikava diagram, Gantogram, Trend chard.

1. The need for the design and implementation of TQM system for the airport services company TAV Macedonia

The airport services company - TAV Macedonia officially started operating in 2011, when the Turkish company TAV Airports Holding took over management of the airport and it will run for the next 20 years. During this period, 110 million euros will be invested, according to reports from the developer, the most modern airport and the second largest in the Balkans, with a capacity of 4 000 000 passengers per year, 1500 passengers per hour, 21 aircraft parking positions, 23 counters for check-in, 6 outputs of air bridges and 5 secondary bridges and cargo capacity of 25 000 tons. Because of its strategic location, the airport is expected to become a regional Balkan transit center. The management team of TAV Airports Holding, Macedonia caught an inert firm (JPAU - Macedonia) that under the umbrella of the state had many flaws (small capacity input and output gates with constant "bottleneck" due to outdated technology, overstaffing and application of minimum standards operation). Frequent auditing controls from the past indicate that the airport barely meets the criteria for work, constantly highlighting irregularities in the reports that needed to be removed. With the arrival of the TAV Airports Holding, the Macedonian airport made major structural and organizational changes in order to build trust between employees and the management team, which will be transmitted to the service users, and it will result in an increased number of passengers and increased flights and the airport company income. Strong will and determination of the new management team contributed that the former so-called "Local bus

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station" transform its perspective and become the main artery of the Macedonian air traffic and the pride of the state. The company for Airport TAV Airports Holding, Macedonia is progressing with great speed, transforming itself into a major regional brand.

The main activity of the company airport services, transport and logistics as part of it and most of the activities of the enterprise is in sectors dominated by transport logistics, treatment of employees, customers and creating business culture to the satisfaction of all stakeholders. The airport services provided at this airport are identical as elsewhere in the world in all international and domestic airports, but are distinguished in the way, the service quality and timing because the passengers are always in need of quality service, competence, discretion and efficiency (Mitreva, 2012).

The changes that occurred with the change of ownership in the company imposed the need of designing a system of total quality management in response to customer demands and changes inside and outside the organization (Shiba, Walden, 2002; Koc, 2007; Reiner, 2008). The development of the company will be enabled only if quantitative and qualitative changes are created in the volume and characteristics of objects, phenomena and processes in nature and society. Often in many companies there is no clear picture and idea for perfection (Nair and Boulton, 2008; Svensson, 2006). The policy is clear, but as a strategy to reach the goal for many managers is a big problem. The new strategy towards quality, called integrated quality management or total quality management (TQM), answers the questions: What does the customers want? What should I do? What processes should be used? Analyzing the situation, formulating the problem and using multiple methods to solve (Nakata, 2002).

In order to realize the methodology of TQM in the airport services a progress in all parts of the process or service should by exercising their conversion error (Casadesus & Jimenez, 2000; Muppavarapu, 2011). The adoption of this philosophy implies full commitment of management on the road to perfection, focusing on passengers and work towards adopting their needs to the benefit it all: passengers, employees, airport concessionaire of Alexander the Great and the wider community. This philosophy differs from others primarily because it (Evans, 2005):

- the focus on meeting the needs and desires of travelers;
- changing the way managers manage with a substantial change in their paradigm – not to work hard but smart;
- provides quick return on investment.

If top management decided just to redesign the business processes, which means making small improvements or modifications to existing processes, in that case the methodology for reactive improvement of business processes is used which leads to the identification, problem solving and setting standards.

The methodology for reactive improvement of business processes is based on different approaches for improving quality using methods and techniques from the point of PDCA (Plan, Do, Check, Act) cycle (Mitreva, 2009).

There are two stages in the application of this methodology (Mitreva, 2009):

- **Phase 1:** diagnosis and determining the existing condition and
- **Phase 2:** rehabilitation or solving the problem and improve the quality of the overall operation.

The methodology for quality improvement supported by the PDCA cycle takes place in several steps, Table 1.

Table 1: Steps in the implementation of the methodology

PDCA cycle	Step	Activity

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Plan	1	Initiative for making a project for improvement
	2	Defining the object of interest
	3	Measurement, collection and analysis of data
	4	Analysis of the causes of problems
Do	5	Choosing a improvement solution and establishing improvement plans
	6	Implementation of the solution
Check	7	Monitoring and evaluating the results of the improvement plan
Act	8	Standardizing the solution
	9	Closing the improvement project, reflection and effects

The proactive work begins with an analysis of the business organization, continues through the analysis of the requirements of internal and external customer service and ends with a detailed definition of the process. Management personnel in the enterprise with its goodwill and perseverance should include their human resources by forming teams of all profiles, integrating their knowledge to achieve full mastery of quality in all processes of the company, with the lowest cost of operation. This way possible malfunctions are being prevented, problems are timely eliminated by removing the possible causes. The usual resistance and fear of change quickly overcome and a strong desire to change the current situation takes its place, with a new approach to quality with full dedication towards customers, employees, environment and state.

2. Subject Analysis and Research

The subject of research is the company that provides airport services TAV Airports Holding, Macedonia with the internal diagnostics and integration with the external environment. The survey was conducted by identifying the existing business processes in the company, diagnostics and analysis of anomalies in all operations, appeals and complaints from customers, as well as determining the "bottlenecks" in the implementation of activities. The analysis of the current situation in the airport services company TAV Airports Holding, Macedonia allows for making suggestions for improving them through the application of TQM methodology in each function. The applied research methodology for improving business processes through the following steps.

The realization of the research:

Step 1: Initiative project making to improve business processes;

Users of the airport services are passengers, airlines, cargo clients. The objections by them in the form of requirements, needs, complaints, appeals and complaints, are taken seriously by the company management. In a situation where the management is looking for ways to attract more airlines and passengers, it is trying to improve the business processes by offering quality service in order to retain existing and attract new customers. Considering the fact that each airline defines certain time to serve their aircraft at landing at airports and based that time plans the flight, passenger connection with other lines, use of the plane for another destination, etc. Therefore, for each airliner the time spent on the airport is very important, and there including the full servicing time which if not done properly can shake the image of both the airliner and the airport. Top management at Skopje Airport has all these details and requirements for carriers, elaborates the plans and business processes to meet their

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requirements, applies new tools and techniques for non-defect operations and thereby annuls all vulnerabilities and weaknesses from the past caused by the lack of input and output ports, counters, low throughput of passengers at rush hours at passport control and customs, poor technical equipment, outdated technology and so on. The initiative to improve was conducted in order to get a realistic picture of all the possibilities and potential of the company, the effective utilization of resources and proposing corrective measures for improving business processes, and implementing them in practice would mean bringing the company to a World class level. It would mean a greater focus on preventive measures, in order to increase customer satisfaction and service company profits.

Step 2: Determining the subject of interest or defining the problem;

Analysis of the company for airport services are made based on observation and direct contact with some of the employees working on one of the key business processes: loading and unloading of luggage, cargo, aircraft cleaning, supply of drinking water plane, catering, re-fueling in other words the entire servicing platform. In the conversations with the staff it has been diagnosed that in this business process there is an opportunity for improvement. Based on their initiative a function bearer of the process was assigned, and thus their duties and responsibilities were defined towards the diagnosis of the current state of the business process for servicing the platform to provide solutions to improve the proposal. The holder of the process along with the staff were obliged to obtain a realistic picture of the current state of this process by analyzing the existing organizational structure of the process of ramp handling in order to detect any problems and aspects that affect the successful implementation of same.

Step 3: Measuring the quality of services by applying adequate methods;

The critical operations of the business process for the handling platform are measured in intervals defined in terms of whether they are within a set of norms enabled by AHM (time given by companies - Airport handling manual). If the norms of AHM clearly specified the time for this kind of handling and it is not respected by the team, then the responsibility rests with the holder of the process (controller / supervisor). As a result of these deficiencies the company will pay penalties. The leader of the team along with some of the staff are responsible for the overall servicing of the airlines in a timely, high quality and safe manner.

The initial step where information about the timing of the activities of this business process are measured and recorded are based on daily reports - check lists where the type of the problem is identified and fixed. The team leader along with several employees measures and optimizes each activity based on the capabilities of the resources available in the airport and it serves as a normative value for the time it takes to serve on the board. These activities (operations) include: setting the passenger stairs, entry and exit of passengers, refueling, loading and unloading of luggage and goods, supply catering, aircraft towing, etc. The problems that arise are recorded on a check list, and often address the slow passenger entry in the plane and occupation of, seats irregularities concerning travel documents, immigration problems, problems with defects of the aircraft, crew coming late etc. All involved in the work process, the leaders of teams make their checklist. Irregularities in check lists and reports are being analyzed by the managers and appropriate measures to eliminate them are being taken. Any process of service has check lists. The leader of each group records the time of serving. For example, the leader of the group where checking is done, after the reception of passengers and control their identity, luggage, travel tickets, documents, interviews with passengers is completed controls the quality of service that his group carried out and makes the checklist with a report for the work done. It is to be noted that a special importance is given to the communication, because the processes are linked and complement each other, Figure 1.

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CHECK LIST 0015393

STA/ATA 11.25/11.30 STD/ATD 12.40/12.36

Tlx	/	/	Check-in	11.00	12.30
Push back	/	/	Gate	12.15	12.30
Choks	11.30	11.32	Gpu	/	/
Gpu	11.32	12.30	Refuel.	11.35	11.55
Elevator	11.32	11.51	Elevator	12.15	12.33
Bagg. tro	11.40	11.52	Trs	12.15	12.35
Trs	11.32	11.35	Toilet	11.50	11.58
Unloading	11.32	11.45	Water tru	11.55	12.00
Toilet	/	/	Cleaning	/	/
Cleaning	11.52	11.55	Catering	/	/
Catering	11.45	12.00	Paxa\c	12.15	12.30
Refuel.	/	/	Loading	12.15	12.30
			Loadsheet	12.00	12.30
			Push back	12.36	12.40

A/P Supervisor

signature

TAV Macedonia

CHECK LIST 0015393

Date 15.10.13

Carrier AUSTRIA

Supervisor LAZAROVSKI ZLATKO

FLT	DES	A/C	REG
OS-780	VIE	A-320	OS-AGO

Special request

VIP - 3pcs

Priority - 24pcs

Remarks

FUEL - 3400L.

Carrier's Representative

signature

Fig 1: *Example of a completed check list of supervisors of the business process loading / unloading*

From the check list it can be seen (Fig. 1) that Austria Airlines plane landed five minutes later (11:30), but is was serviced with all the necessary operations during four minutes earlier (12:36). Any delay in servicing is a result of poorly performed operation and the managers through these checklists can find these anomalies in terms of whether they are repeated and what corrective actions should be to taken. In Fig. 2 is given a Gantogram of the servicing of aircraft B- 737 and DC- 9 and can be used for other similar aircraft, containing the times required for the activities in the servicing platform.

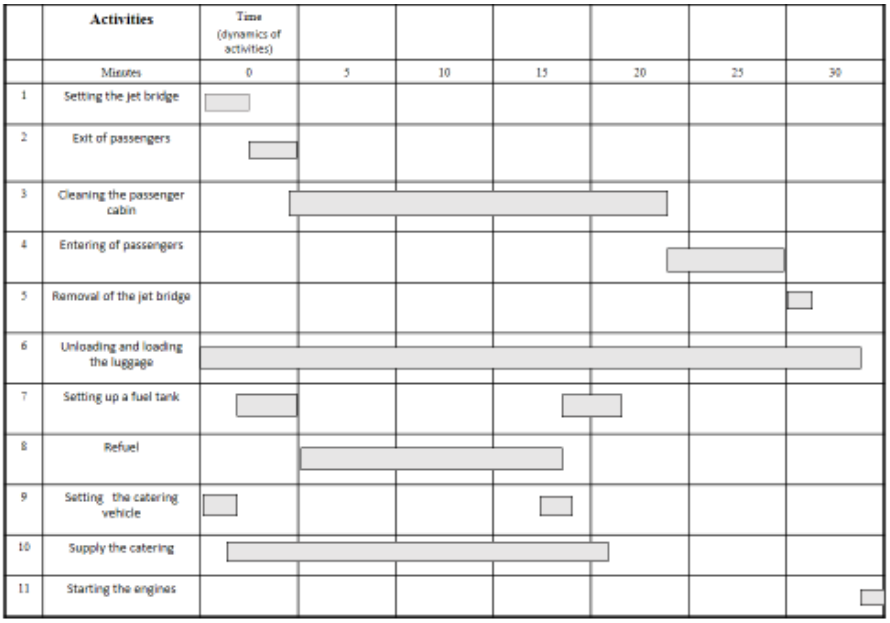

Fig. 2*: Executed activities with real-time servicing of aircraft B-737 and DC-9*

From the diagram it can see that to serve one type of plane it takes 30 minutes, and in the past it took an hour and a half. Before landing the plane all necessary preparations should be

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made. This is done by obtaining information through the mail from the departure airport on the number of passengers and their structure, the number allocated by the luggage rack and cargo goods. Immediately after landing and parking of the aircraft all operations are performed in a fixed sequence, and while strictly complying with the order of work and time required for implementation.

Step 4: Collection and analysis of data and determining the severity of the problem;

The holder of process for serving the platform diagnoses that the plane doesn't take off on time, the delay code that determines the delay was due to some reasons which are recorded on the check list. In the first case the holder of the process noted that the fuel tank, even though the team was informed in time, was late five minutes the reason being the distance from the base station. The second problem occurs because of a long time it takes to do the cleaning of the passenger compartment by the hygiene service on the grounds the cause being lack of direct staff - cleaners in times when there are three aircraft on the platform. Due to aviation rules, passengers can't get on board while running this service and while fuel is poured due to safety reasons. A third problem arises because of the bad behavior of some passengers and their low level of culture that creates delays on the counters that prolong the time for checking of the other passengers. The fourth problem is the outdated technology that often causes delays due to cancellations of equipment for servicing aircraft, resulting in prolongation of the time to serve.

As a result of the collection and analysis of the data, determining the severity of the problem, the new management team through redesigning the business processes and active involvement of every individual, granted authority and responsibility while conducting each of the tasks. The whole enterprise is redesigned and got sections responsible for traffic, cargo parking, administration, catering. In this paper we stick to ramp handling - enabled as the default operating segment. Mistakes and delays are recorded in tables and graphs and analyzed by managers. The total errors in the check lists are collected in Table 2, noted and calculated cumulative percentage, and then entered in the Pareto diagram, Fig. 3.

Table 2: Delays and errors in the service noted in the period from November to April 2012

Delays and errors in the process of service	Total frequency	Share in %	Cumulative percentage %
Delays due to incorrect documents	13	31.7	31.7
Delays due to failure of the devices	8	19.6	51.3
Delay due to the bad behavior of passengers	7	17	68.3
Delays due to cleaning of the aircraft cabin	7	17	85.3
Delays due to weather	6	14.7	100
Total:	41	100	

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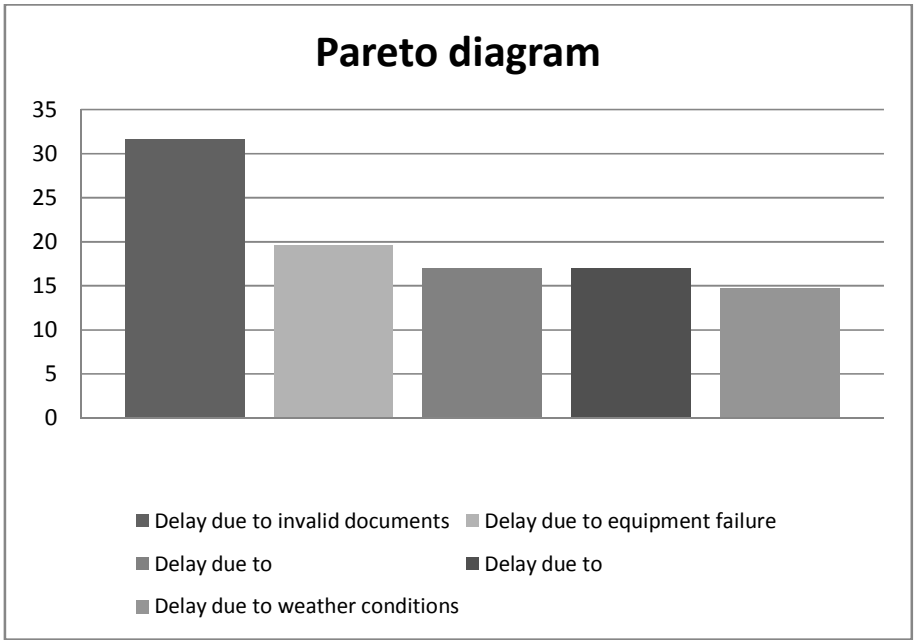

Fig. 3: *Pareto diagram for delays and errors in the service period from November to April 2012 at the business process for handling the platform*

From Table 2 and Figure 3 we can see that the errors are not always by the holders of the activities of the process and must be taken into account delays by travelers, weather conditions, malfunctioning devices etc. that simply are not predictable, and as such in the most part are justified and did not affect the percentage of errors in the implementation of TQM methodology, which records only delays caused by negligence of the teams.

Step 5: Analysis of the causes of problems and identifying the cause of the problem;

Managers using the Ishikava diagram (Dale and Lascelles, 2007) as a management tool are able to estimate the cause and effect relationships of problems, in Fig.4, for the purpose of:

- tracing the causes of emerging issues;
- encouraging the team members to use their knowledge to analyze the process;
- finding and identifying the areas where you need to gather data for further study.

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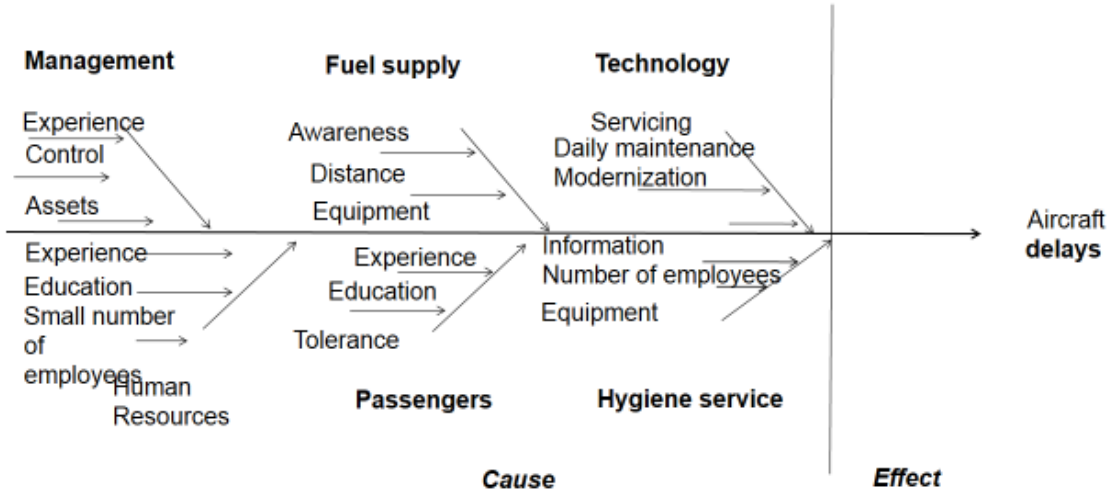

Fig. 4: *Ishikava diagram to identify the major causes of problems in handling the business process handling the platform*

Based on the analysis made using methods and techniques for non-defect working the reasons for some anomalies have been detected. The first problem is related to the delay in fuel tanks as a result of lack of a hydrant underground system of the platform causing delay in refuel. In the second case, in terms of maintaining hygiene on board it was noted that the team that cleans was delayed due to lack of feedback information leaving the last passenger on the plane and the lack of staff - cleaners. The third problem is due to poor conduct of passengers and their revolt against the strict safety rules for organizing the flight as a result of ignorance of the law and safety regulations and requirements for travel and flying. The fourth problem is the failure of the technology when it is most needed due to obsolescence.

Step 6: Choosing and applying the solution to improve and establish a plan for improvement;

The top management together with the holder of the process adopted corrective measures to eliminate the causes of the problems, with some dynamic activities in order to improve. To reduce the time for travel of the fuel tank to the platform, the management team has taken the following corrective measures (Mitreva, et al., 2013):

- the process holder (agent) must contact the department responsible for the flights, and they the pilot to obtain information on time (before the plane landed) whether the planes fuel should be charged. If necessary, the tank should be prepared and on the required position or;
- to get information by the telex service from the departure airport (before the plane takes off) by the pilot if additional fuel is needed.

As for the number of cleaners in prime time hours this has been proposed:

- to make a proper schedule by the number of cleaners and the number of flights for the next day, with the possibility of their displacement and rotation and
- to provide timely information about the last passenger on the plane to the head of the team by radio station so it can access the activities needed for maintaining the hygiene on board.

In order to deal with the problem of bad behavior of passengers, the management made a school training center at the airport to train the staff in the direction of how to deal with this

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kind of travelers, and thereby not to violate the values and norms of the airport and other passengers. Through these trainings the counter workers relationship with the passengers was changed, and the serving time was reduced. The school center works continuously on training employees through learning from the mistakes of other airports as well as acquiring new knowledge in the field of legislation. The way this is achieved that workers feel professional, licensed, motivated and fully engaged, and thus fulfill the three basic principles: fast (time), quality and safety making the employees and passengers happy, keeping the reputation of the company high and meeting profits projections (Nair and Boulton, 2008; Svensson, 2006). To overcome the problem with outdated technology the management has taken the following corrective measures:

- continuous monitoring of the development of modern technology and modernization in accordance with certain dynamic needs;
- regular servicing of existing equipment;
- conducting daily care for the correctness of the equipment.

Step 7: Control of implemented corrective measures for improvement;

Control should show whether the undertaken corrective measures contributed to the elimination of errors, complaints and whether the business processes is optimized or not. The service control using the tools and techniques for non-defect production monitors the progress of business processes and monitor the frequency of errors and changes made as a result of the corrective measures and if the results are visible.

Step 8: Assessment of the effects of the problem solving in terms of confirmation for improvement;

Table 3 shows the estimates of the effects of corrective measures as confirmation that real solutions that are found for the smooth operation and optimization of business processes. Today, the everyday problems faced by TAV Airports Holding, Macedonia are often related to defects of aircraft, crew delays, slow entry of passengers, and less due to delays and errors of operating offices in charge of handling the platform as a result of the application of TQM methodology.

Table 3: Most frequent delays in TAV Airports Holding, Macedonia

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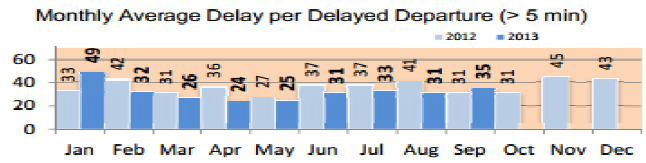
DELAYS to AIR TRANSPORT - SEP 2013

During August, from total of 468 Air Transport Departures, 50 flights (10.7%) were delayed more than 15min., and 109 flights (23.3%) more than 5 min. with average delay of 35 min. / per delayed flight.

Proportion of Delay Reasons	Delay codes	%
Aircraft rotation, late arrival from prev. sector	dl 93	53.4%
Mandatory security /Immigrations	dl 85-86	8.4%
Air Traffic Flow Menagement restrictions	dl 81-84	6.9%
Crewing	dl 64-69	
Operational requirements, flight plan	dl 61-62	3.7%
Slow embarkation (W6 company code)	dl 60	9.0%
Damage during flight (bird strike)	dl 51	3.7%
Aircraft defect	dl 41	3.7%
Passengers, baggage	dl 11-19	6.0%
Wheelchairs	dl 05	1.5%



The delay of the representatives of airlines passengers are understanding, but the business policy of the company is no delay on the part of the airport services company, as they carry over a financial losses, distort the image of the company as well as the confidence of travelers. Through the service control it has been estimated that some work processes have been improved and errors have been reduced, and in some processes there are almost no mistakes.

Table 4 illustrates the benefits of the corrective steps taken in dealing with irregularities and errors that are taken care of and are reduced from 50 up to 100 %.

Table 4: Reduction of errors from a security perspective

TAV Macedonia	SKOPJE "ALEXANDER THE GREAT" AIRPORT *Safety objectives and Safety assurance*	Page : 1/ 1 Date : 30.01.2012 Rev. : 0

I. Safety objectives for SKP:

1. Identify and eliminate as much hazards related to processes and operations;
2. Perform hazard and risk assessment for proposed new operations, equipment, and procedures;
3. Provide relevant SMS training to relevant personnel;
4. Provide a safe, healthy work environment for relevant personnel;
5. Minimize accidents/incidents to determined acceptable level of safety;
6. Prevent damage and injury to property and people as the result of operations;
7. Improve the effectiveness of the safety management system through safety audit.

II. Safety assurance

Safety performance indicators till end of 2011 per 10.000 ops	Safety performance targets till end of 2012 per 10.000 ops
2.7 Bird strikes	Reduce 50%
1.8 runway incursion caused by external vehicle	Reduce 100%
1.8 Aircraft ground damage	Reduce 50%
1.8 Safety training	Increase 50%
0.9 Airside vehicle collision	Reduce 100%
0.9 Staff injured airside	Reduce 100%
0.9 Safety related finding by external audit	Reduce 100%
0.9 Safety hazard reports	Increase number of received hazard reports 100%
0 Apron FOD events and Jet blast damage	Maintain same level
0 Dangerous Goods Occurrence and Fuel spillage on the apron	Maintain same level

Step 9: Standardizing the solution and constantly improving the perception of the company for airport services;

The analysis showed that the practice of implementing the methodology for total quality management increases the company's efficiency and performance (Chepujnoska, 2009;

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Mitreva, 2012; Bugdol, 2005; Haar, 2008). The benefits have led to satisfying customer needs, strengthening the company's place in the international market, employee satisfaction and improvements in the community. The results of the application of methods and techniques for non-defect working and TQM methodology and the standardization of new solutions demonstrated a realization of the planned and actual monthly performance for the number of operations (takeoffs and landings), the number and structure of the passengers (men, women, children, direct and transfer), the amount of cargo. Table 5 shows the expected and realized outcomes for each month, and the map of trend has given the effect in quarters in 2012 and 2013.

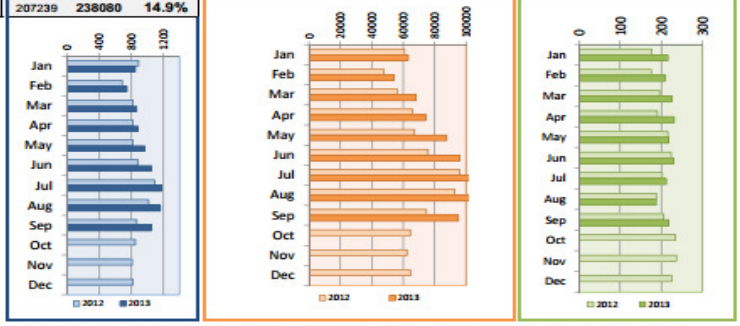
Table 5: Map of the trend of realization of airport services TAV Airports Holding, Macedonia (compared to 2012-2013)

SKOPJE ALEXANDER THE GREAT AIRPORT

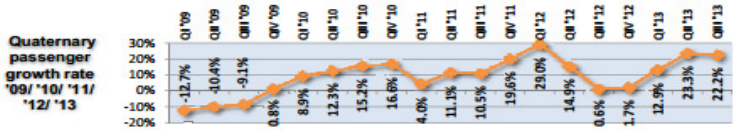
TAV Macedonia

Traffic Flow at Skopje Alexander the Great (compared 2012-2013)
- monthly development -

	Total Aircraft movements			Total Passengers					Freight+mail (in tonnes)		
				Terminal			Transit		Total Cargo with Trucked		
Month	2012	2013	% '13/'12	2012	2013	% '13/'12	2012	2013	2012	2013	% '13/'12
January	895	853	-4.7%	60911	63275	3.9%	517	165	176.66	216.19	22.4%
February	690	750	8.7%	47492	54242	14.2%	275	43	175.50	208.17	18.6%
March	826	868	5.1%	56158	68223	21.5%	1	211	195.49	225.05	15.1%
April	822	883	7.4%	65938	74340	12.7%	112	41	190.55	231.40	21.4%
May	823	966	17.4%	67225	87711	30.5%	695	281	215.87	217.87	0.9%
June	887	1054	18.8%	75968	95810	26.1%	1158	527	223.66	228.90	2.3%
July	1093	1184	8.3%	95890	112483	17.3%	1039	484	202.54	212.22	4.8%
August	1019	1166	14.4%	92903	114366	23.1%	974	657	187.54	187.87	0.2%
September	872	1053	20.8%	74800	95209	27.3%	1478	620	206.08	218.09	5.8%
October	854			64504			137		234.24		
November	814			62371			131		236.64		
December	824			64671			179		224.99		
Total Jan-Sep	7927	8777	10.7%	637285	765659	20.1%	6249	3029	1773.89	1945.75	9.7%
A/C MTOW	207239	238080	14.9%								



*Total Cargo data includes cargo from Trucked Service (on AWB bases), which according Cargo Center for the January-August period amounts 116.26 tons.
*Passenger Data includes number of infants (approximately 2% of total number).



Analyses in practice (Table 6) showed that the implementation of the methodology for total quality management increased the number of take-offs and landings of aircraft and passengers. The services offered by this company are made quickly and efficiently to respond to market demands.

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Table 6: Improvement in the number of take-offs and landings of aircraft and passengers compared from 2012 to 2013.

SKOPJE ALEXANDER THE GREAT AIRPORT

Tepe Akfen TAV Macedonia

Traffic Statistics (compared 2012 - 2013) ARRIVALS and DEPARTURES

Month		Aircraft movements 2012	Aircraft movements 2013	Aircraft movements % change	Terminal Passengers 2012	Terminal Passengers 2013	Terminal Passengers % change	Cargo volume (in tonnes) with trucked 2012	Cargo volume (in tonnes) with trucked 2013	Cargo volume (in tonnes) with trucked % change
January	Arrived	450	428	-4.9%	28075	28910	3.0%	133.80	153.09	14.4%
	Departed	445	425	-4.5%	32836	34365	4.7%	42.86	63.11	47.2%
	Total	895	853	-4.7%	60911	63275	3.9%	176.66	216.19	22.4%
February	Arrived	344	376	9.3%	23245	26420	13.7%	130.66	145.98	11.7%
	Departed	346	374	8.1%	24247	27822	14.7%	44.85	62.19	38.7%
	Total	690	750	8.7%	47492	54242	14.2%	175.50	208.17	18.6%
March	Arrived	413	433	4.8%	28862	35616	23.4%	150.55	169.27	12.4%
	Departed	413	435	5.3%	27296	32607	19.5%	44.94	55.88	24.4%
	Total	826	868	5.1%	56158	68223	21.5%	195.49	225.05	15.1%
April	Arrived	410	441	7.6%	33873	36928	9.0%	147.46	172.02	16.7%
	Departed	412	442	7.3%	32065	37412	16.7%	43.09	59.38	37.8%
	Total	822	883	7.4%	65938	74340	12.7%	190.55	231.40	21.4%
May	Arrived	412	483	17.2%	34133	45315	32.8%	150.46	150.10	-0.2%
	Departed	411	483	17.5%	33092	42396	28.1%	65.42	67.77	3.6%
	Total	823	966	17.4%	67225	87711	30.5%	215.87	217.87	0.9%
June	Arrived	443	528	19.2%	42212	52097	23.4%	167.19	168.92	1.0%
	Departed	444	526	18.5%	33756	43713	29.5%	56.47	59.98	6.2%
	Total	887	1054	18.8%	75968	95810	26.1%	223.66	228.90	2.3%
July	Arrived	547	592	8.2%	53282	62661	17.6%	148.68	143.39	-3.6%
	Departed	546	592	8.4%	42608	49822	16.9%	53.86	68.83	27.8%
	Total	1093	1184	8.3%	95890	112483	17.3%	202.54	212.22	4.8%
August	Arrived	510	583	14.3%	40105	49847	24.3%	133.85	131.33	-1.9%
	Departed	509	583	14.5%	52798	64519	22.2%	53.69	56.55	5.3%
	Total	1019	1166	14.4%	92903	114366	23.1%	187.54	187.87	0.2%
September	Arrived	436	526	20.6%	33617	42738	27.1%	145.46	149.73	2.9%
	Departed	436	527	20.9%	41183	52471	27.4%	60.62	68.35	12.8%
	Total	872	1053	20.8%	74800	95209	27.3%	206.08	218.09	5.8%
October	Arrived	427			30604			160.58		
	Departed	427			33900			73.65		
	Total	854			64504			234.24		
November	Arrived	407			29468			168.98		
	Departed	407			32903			67.66		
	Total	814			62371			236.64		
December	Arrived	411			33787			165.89		
	Departed	413			30884			59.10		
	Total	824			64671			224.99		
Total Jan-Sep	Arrived	3965	4390	10.7%	317404	380532	19.9%	1308.10	1383.81	5.8%
	Departed	3962	4387	10.7%	319881	385127	20.4%	465.79	562.04	20.7%
	Total	7927	8777	10.7%	637285	765659	20.1%	1773.89	1945.75	9.7%

Step 10: Closing the project for improvement and validation of the problem identified, and response to new problems;

By introducing a system for proposals, employees will have the opportunity to continually provide ideas, comments, opinions and suggestions for improvement of the operation.

Conclusion

The application of methods and techniques for non-defect working in this company contributed for more efficiency and effectiveness and satisfaction of customer needs, strengthening the company's place in the international market, employee satisfaction and improving the community. In recent years the number of passengers increased by 20 % due to the favorable conditions that the company offers to low-cost companies, its attractive airline tickets have increased the number of passengers, fulfilling the strategic goal of the company.

The company TAV Airports Holding, Macedonia will continue to create value for all

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customers in all segments of Macedonia and will provide services to maintain its lead and strengthen its dominant power. By implementing the system for total quality management in accordance with European standards, the company has started the process of changes in the approach to quality. The management team and all employees have accepted all the proposed changes, in order to achieve the best quality at the lowest cost of operation. Daily practice of every employee is not only control the work, but the staff is trained to act proactively, rather than be occupied with detection. Employees were given the responsibility and power to correct their mistakes and take out any problem concerning the quality of service. This created a total quality care, but the process still takes a long effort, and a commitment of the top management and reliance on oneself to fulfill the set obligations. The willingness of top management to adopt new knowledge and techniques in order to improve business processes also cannot be neglected.

References

Bugdol, M. (2005). The implementation of the TQM philosophy in Poland. *The TQM Magazine,* 17(2), 113-120.

Cepujnoska, V. (2009). *Quality Management* – Theory, Science and Practice, Faculty of Technology, Skopje, pp. 43-150.

Casadesus, M., & Jimenez, G. (2000). The benefits of the implementation of the ISO 9000 standard: empirical research in 288 Spanish companies. *The TQM Magazine*, 12(6), 432-41.

Cassell, C., Nadin, S., Older Gray, M. (2001). The use and effectiveness of benchmarking in SMEs? *Benchmarking an International Journal*, Vol. 8, No.3, 212-222.

Dumke, R., Blazey, M., Hegewald, H., Reitz, D., Richter, K. (2006). Causalities in Software Process Measurement and Improvement, *International Conference on Software Process and Product Measurement,* (MENSURA 2006), November. pp. 483-498. Deming, W. E. (1996). *How to go out of the crises*, PS Grmeč, Beograd, pp. 30.

Dale, B.G. and Lascelles, D.M. (2007), "Levels of TQM adoption", in Dale, B.G. (Ed.), *Managing Quality*, 5th ed., Blackwell, Oxford, pp. 111-126.

Evans, J.R. (2005). *Total Quality: Management, Organization and Strategy*, 4th ed., Thomson South-Western, Mason, OH.

Feigenbaum, A. (2002). The Power behind Consumer Buying and Productivity, *Quality Progress*, Vol. 35, No. 4, 49-50.

Feng, S. (2004). Method of Fuzzy Integrated Estimate for the Effectiveness of Quality Management System. *Manufacturing Technology & Machine Tool*, 2004(2), 37-52.

Haar, J. M. (2008). Predicting total quality management adoption in New Zealand-The moderating effect of organizational size. *Journal of Enterprise Information Management,* 21(2), 162-178.

Ishikawa, K. (1982). *Guide to Quality Control*, Asian Productivity Organization, Tokyo.

James, P. (1996). *Total Quality Management*: An Introductory Text, Prentice-Hall, Englewood Cliffs, NJ, pp.106-220.

Juran, M. J. (1993). "Made in U.S.A.: A renaissance in quality", *Harvard Business Review*, Vol. 71, No 4, pp. 42-50.

Juran, J.M. (1988). *Juran on Planning for Quality*, Free Press, New York, NY.

ISSN 2076-9202

Kaplan, S.R., &Norton, P.D. (2008). *The execution premium: linking strategy to operations for competitive advantages*. Boston, USA: Harvard Business School Publishing Corporation.

Koc, T. (2007). The impact of ISO 9001 quality management systems on manufacturing. *Journal of Materials Processing Technology*, 186(1-3), 207-213.

Kanji, G. K. (1998b). "An innovative approach to make ISO 9000 standards more effective", *Total Quality Management*, Vol. 9, No. 1, pp. 67-78.

Mitreva, E. (2009). Methodology for improvement of business processes. *Central and Eastern European Online Library*, 3 (3). pp. 177-190.

Mitreva, E. (2013). "The superior customer's value of the new economy implemented within Macedonian companies." *International Journal for Quality Research* Vol. 7, No. 2, pp. 215-220.

Mitreva, E., & Filipovski, O. (2012). Proposal methodology of the subsystem-internal standardization as part of TQM system. *International Journal for Quality Research*, 6(3).

Mitreva, E., Golomeova, S. (2013). *Quality Systems and Standards*, University Goce Delchev-Stip, 2013, ISBN 978-608-4708-38-4.

Muppavarapu, K. (2011). Innovative Quality Measurement System - Ideas for a Project Manager, *PMI Virtual Library*.

Mitreva, E. and Prodanovska, V. (2013). The Management Teams are a Unique Business Potential that can Initiate, Identify and Manage Change within the Organization. In: Applied Social Sciences: Administration and Management. *Cambridge Scholars Publishing,* Newcastle upon Tyne, UK, pp. 57-65.

Mitreva, E. (2011). "Model-integral methodology for successful designing and implementing of TQM system in Macedonian companies", *International Journal for Quality Research*, Vol. 5. No 4, pp. 255-260.

Mitreva, E., Jakovlev, Z., Koteski, C., Kitanov, V. and Angelkova, T. (2012). "Analysis of the existing management system in Macedonian companies and the necessity of accepting the TQM philosophy", *International Journal of Pure and Applied Sciences and Technology,* Vol. 8. No. 2, pp. 54-63.

Mitreva, E., Taskov, N., Kitanov, V., Filiposki, O. and Dzaleva, T. (2013). "The Need for Information System Design in Building a House of Quality, *International Journal of Pure and Applied Sciences and Technology* Vol.16. No.1, pp. 26-33.

Mitreva, E. (2010). *Integral methodology for designing and implementation of TQM system within companies*. Bigoss, Skopje.

Nair, A., & Boulton, W. R. (2008). Innovation oriented operations strategy typology and stage based model. *International Journal of Operations and Production Management,* 28(8), 748-771.

Nakata, Ch. (2002). Activating the marketing concept in a global context: An MNC country managers' perspective, *International Marketing Review*, Vol. 19 No. 1, 39-64.

Prodanovska, V. and Mitreva, E. (2012). Incorporation, authorization and encouragement of the employees in order to improve the quality of the educational process. *In: Two decades of academic teaching,* 18-19 June 2012, Timișoara.

Reiner, G. (2008). The internationalization process in companies located at the borders of

ISSN 2076-9202

emerging and developed countries. *International Journal of Operations and Production Management,* 28(10), 918-940.

Svensson, G. (2006). Sustainable quality management: a strategic perspective. *The TQM Magazine*, 18(1), 22-29.

Shiba, S., Walden, D. (2002). Quality Process Improvement Tools and Techniques *(http://www.walden-family.com/public/iaq-paper.pdf.).*

Nakata, Ch. (2002). Activating the marketing concept in a global context: An MNC country managers' perspective, International Marketing Review, Vol. 19 No. 1, 39-64.

Senge, P. (1990). *The Fifth Discipline: The Art and Practice of Learning Organizations*, Doubleday, New York, NY.

Van der Wiele, T. and Brown, A. (1997). "ISO 9000 series experiences in small and medium-sized enterprises", *Total Quality Management*, Vol. 8 No. 2, pp. 300-304. http://skp.airports.com.mk/default.aspx?ItemID=336

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