



Proceedings in Electronic International Interdisciplinary Conference

The 5th Electronic International Interdisciplinary Conference

EIIC 2016

8. – 12. August 2016

Slovak Republic

Published by: EDIS - Publishing Institution of the University of Zilina



Univerzitna 1
01026 Zilina
Slovak Republic

Editors: Ing. Michal Mokrys; Ing. Stefan Badura, Ph.D.

ISBN: 978-80-554-1248-1

cdISSN: 1338-7871

eISSN: 1339-9977

DOI: 10.18638/eiic.2016.5.1

Pages: 259

Printed in: 100 copies

Publication year: 2016

- All published papers undergone single blind peer review.
- All published papers are in English language only. Each paper had assigned 2 reviewers and each paper went through two-tier approval process.
- Papers are published as delivered by authors without content modification. All accepted papers have been formally checked by the conference Technical Committee and regularly reviewed in single blind peer reviewing process by the conference Scientific Committee (Reviewers Committee).
- The publication contents are the sole responsibility of the publication author and it does not reflect the Publishing Society, Zilina, Slovakia.

Open Access Online archive is available at: <http://www.eiic.cz/archive>
(proceedings will be available online one month after the publication release).

In case of any questions, notes or complaints, please contact us at: [info\(at\)eiic.cz](mailto:info(at)eiic.cz).

Paper Citation Example: In (Eds.) S. Brown, S. Larsen, K. Marrongelle, and M. Oehrtman, Proceedings of The 5th Electronic International Interdisciplinary Conference (EIIIC-2016), Vol. 5, pg #-#. Zilina, Slovakia.



Copyright © The authors mentioned in the table of contents, Publishing Society, Zilina, Slovakia, All rights reserved.

Section Chairman Committee

Giuseppe Granata

• About:

Career

Adjunct Professor of Business Communication and Relationship Marketing at the University of Cassino and Southern Lazio. Lecturer in several university, postgraduate courses including the Master in Marketing & Retail Management. Visiting professor in business management at the University of Paris - Est Creteil, in business communication at the University of Zaragoza and Tourism Marketing at Autonoma University of Madrid. Consultant in public and private companies. Member, Editor and Reviewer of scientific journals and international conferences in the field of management. The main areas of research developed refer to communication and marketing strategies and the management of small and medium enterprises.

• Affiliation:

University of Cassino and Southern Lazio, Italy

• Scientific specialization:

Business management, Marketing, Relationship marketing, Business communication

• Country:

Italy

Nikolaos Koutras

• About:

Nikos Koutras is currently working on a PhD thesis by publication at Macquarie Law School in Australia. He has been awarded two research grants. Both research grants constitute substantial part of his PhD thesis. Since 2010 he has been lecturing as tutor in Greece and then in Australia in the area of Intellectual Property Law. He has been also worked as Head for renowned international conferences, seminars and workshops. Moreover, the immense list of publications shows his great willing for research and studying.

• Affiliation:

Macquarie Law School, Greece

• Scientific specialization:

Intellectual Property Law, Patents Law, Trademarks, Copyright Law, Open Access

• Country:

Greece

Regina Lenart-Gansiniec

• About:

The most valuable achievements

- Book: 1
- Workshops and seminars: 7
- Publications: 39, 13 in press
- Conferences: 20 (14 in Poland, 6 abroad: Hong Kong, Czech Republic, Hungary, Spain)
- Workshops: 27 (e.g Writing in the Science, The Power of Social Media, Smart Cities, Developing Your Research Project, Learning Online: Learning and Collaborating, Learning Online: Searching and Researching)
- Internship programs (contract signed): 1
- Theme Editor: Journal Economic Processes Management (Sumy State University), International Journal of Contemporary Management (Jagiellonian University), Journal of Management and Marketing (Publishing Society Ltd., Zilina, Slovakia)
- Expert: Ministry of Economic Development, Ministry of Economy (evaluation of project in the field: innovation, knowledge management, clusters, public organisation)

Awards

The best paper award: R. Lenart (2011), Basis knowledge and absorptive capacity of an organization (Wiedza bazowa a zdolność absorpcyjna organizacji), "Nauka i Gospodarka", No. 3, s. 26-32

Publication grant of the University of Economics in Cracow for publication in a prestigious quarterly of the University of Economics in Cracow, "Science and Economy" ("Nauka i Gospodarka").

• Affiliation:

Jagiellonian University in Kraków, Faculty of Management and Social Communication, Poland

• Scientific specialization:

Strategic management, knowledge management, organisational learning, open innovation, crowdsourcing, public organisations, education sector

• Country:

Poland

Martha Méndez

• About:

International lecturer, educational coach, ICT and immersive learning researcher. Head of Modern Language Department at Universidad EAN Online education School.

• Affiliation:

Universidad EAN, Colombia

• Scientific specialization:

Social Sciences, Humanities, Natural Sciences, Computer and Information sciences, ICT in Education (virtual worlds, augmented reality, gamification), collaborative learning, immersive learning

• Country:

Colombia

Angelo Robert Nicholas Molson

• About:

Prof. Angelo Robert Nicholas MOLSON was born in Hammersmith (London of Hammersmith and Fulham, England) and is a multicultural artist – author and has written more than 150 articles, e-books, novels, reviews, papers and reports for International Conferences, Global e-Conferences, e-Journals, Periodicals, Newspapers, Seminars, Magazines and e-bookstores. He has participated as an academic - author - editor - researcher - reviewer and scientific expert advisor for many Publications, Exhibitions, e-Conferences and International Events in Belgium, Cyprus, France, Germany, Greece, Italy, Philippines, Poland, Slovakia, Slovenia, Spain, Thailand, U.K., U.S.A., Other.

As an Independent Researcher in Civil Engineering has gained valuable international experience working in Europe and acted as a Module leader - Professor on Postgraduate Courses (only) in Civil engineering and Construction - Project - Property Management fields and also as Volunteer lecturer in Information Technology, a member of International Conference Committees and World Institutions (e.g. UICEE, WIETE, WOBO, CIOB etc.).

Current position

Scientific orientation: His research interests are massive property valuations, international valuations based on International & European Valuation Standards, project development appraisals, extensive project planning and scheduling programmes, cost management, change management, construction management, management in construction, value engineering and also new Technologies in buildings & constructions, BIM, Property management, Building pathology, Building engineering and further or, advance research or, property market research in specific fields, such as Building Engineering (including Energy Savings Strategies and Processes).

• Affiliation:

Ministry of Interior Affairs, Civil Engineering, Greece

• Scientific specialization:

- Engineering & Technology
- Economy - investments in economy, cost management, change management, etc.
- Engineering & Technology Education in Universities

• Country:

Greece

International Scientific Committee and Reviewers Committee

Rana Khudhair Abbas Ahmed*Al-Rafidain University College, Iraq***R. S. Ajin***GeoVin Solutions Pvt. Ltd, India***Cornelia ANGHEL DRUGĂRIN***Eftimie Murgu University of Resita, Romania***Karina Cecilia Arredondo Soto***Autonomous University of Baja California, Mexico***Stefan Badura***Publishing Society, Slovakia***Veronica Balboni***University of Ferrara, Italy***Dumitra Baron***"Lucian Blaga" University of Sibiu, Romania***Maria del Carmen Bellido Márquez***University of Granada, Spain***Vito Maria Benito Vozza***Second University of Naples, Italy***Cristian Bente***"Vasile Goldis" Western University of Arad, Romania***Hachemi Benziane***University of Oran 2, Algeria***Ana-Maria Bercu***UNIVERSITY OF IASI, Romania***Justyna Berniak-Woźny***Vistula University, Poland***Mirzi L. Betasolo***Papua New Guinea University of Technology, Papua New Guinea***IRINA BILAN***"Alexandru Ioan Cuza" University of Iasi, Romania***Juan-Vicente CAPELLA-HERNANDEZ***Technical University of Valencia, Spain***Claudia Caruso***University of Naples Federico II, Italy***Iuliana Ciotoiu***"Spiru Haret" University, Romania***IONIȚA COCHINȚU***The Constitutional Court of Romania, Romania***Ubaldo Comite***University "Giustino Fortunato", Italy***Luigi Corniello***Second University of Naples, Italy***Cathy E. Daniel***Gulf University for Science & Technology, Kuwait***Sónia de Carvalho***Universidade Portucalense Infante D. Henrique, Portugal***VALERA DHURATA***"Aleksandër Xhuvani" University, Albania***Zdena Dobešová***Univerzita Palackého, Czech Republic***Krzysztof Drachal***University of Warsaw, Poland***Wioleta Dryl***University of Gdańsk, Poland***Sonia Duse Carmen***Lucian Blaga University, Romania***Francisco Javier Blanco Encomienda***University of Granada, Spain***Silvia Florea***Lucian Blaga University of Sibiu, Romania***Emmanuel Fokides***University of the Aegean, Greece***Miroslav Galabov***St. Cyril and St. Methodius University, Bulgaria***Maksym Golovakha***Zaporozhye State Medocal University, Ukraine***Esther Luna González***University of Barcelona, Spain***Giuseppe Granata***University of Cassino and Southern Lazio, Italy***Florentina Halimi***Gulf University for Science and Technology, Macedonia***Khaled T. S. Hassan***Alexandria University, Egypt***Subhash Chander Dubey***Govt. College of Engineering and Technology, India***Pragati Prakash Chavan***Marathwada Mitra Mandal's Polytechnic, India***Mariana Iancu***BIOTERRA University of Bucharest, Romania***Martina Jakábová***Visions, s.r.o., Slovak Republic***Gordana Janevska***University "St.Kliment Ohridski", Macedonia***Kayvan Kaseb, Iran****George Katsadoros***University of the Aegean, Greece***Marcin Komańda***University of Economics in Katowice, Poland***Kinga Korniejenko***Cracow University of Technology, Poland***Maja Kostadinovska***National and University Library "St. Clement of Ohrid", Macedonia***Balázs Kotosz***University of Szeged, Hungary***Nikolaos Koutras***Macquarie Law School, Greece***Irina Kucherova***University Autonomous of Barcelona, Spain***Suneel Kumar Agrawal***Roorkee Engineering & Management Technology Institute Shamli U.P., India***Igor Kuzmenko***Kyiv polytechnic institute, Ukraine***Gintaras Labutis***Lithuanian Military Academy, Lithuania***Gabriel Laguna-Mariscal***Universidad de Córdoba, Spain*

Nushe Lajci*University of Mitrovica, Kosovo***Iwona Lapunka***Opole University of Technology, Poland***Karel Iaroslav Lato***U.S.A.M.V.B. King Michael I of Romania from Timisoara, Romania***Regina Lenart-Gansiniec***Jagiellonian University in Kraków, Poland***Wenjing Li***University of Missouri-Kansas City, Trinity biotech, USA***Ewa Lubina***Warsaw University of Life Science, Poland***Stela Lyudmilova Georgieva***Medical University of Pleven, Bulgaria***Emilia Madudova***University of Žilina, Slovakia***Jolanta Maj***Opole University of Technology, Poland***Eliana Mariela Werbin***University of Córdoba, Argentina***Monica MARIN***University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania***Carlos Mascaraque Ramírez***Technical University of Cartagena, Spain***IOSEB MASURASHVILI***Javakhsivili Tbilisi State University, Georgia***Mariana Mateeva Petrova***"St. Cyril and St. Methodius" University of Veliko Turnovo, Bulgaria***Elisabete Mendes Duarte***Polytechnic Institute of Leiria, Portugal***Martha Méndez***Universidad EAN, Colombia***František Milichovský***Brno University of Technology, Czech Republic***Katarzyna Miszczynska***University of Lodz, Poland***Adina Moldan***Technical University of Cluj-Napoca, Romania***Isabel M^a Martín Monzón***Universidad de Sevilla, Spain***Sónia Morgado***Instituto Superior de Ciências Policiais e Segurança Interna, Portugal***PABLO JOSÉ MOYA FERNÁNDEZ***UNIVERSITY OF GRANADA, Spain***EDWARD MUNTEAN***University of Agricultural Sciences and Veterinary Medicine, Romania***Eduard V. Musafirov***Yanka Kupala State University of Grodno, Belarus***Dorothy Nduku Hodson***Marketing Strategy Services (self employment), Kenya***Helena Neves Almeida***University of Coimbra, Portugal***Angelo Robert Nicholas Molson***Ministry of Interior Affairs, Civil Engineering, Greece***Mahammad A. Nurmammadov***Azerbaijan State Pedagogical University, Azerbaijan Republic***Małgorzata Okreglicka***Czestochowa University of Technology, Poland***Artur Gomes de Oliveira***Sergipe Federal Institute of Education Science and technology, Brazil***Georgia Papantoniou***University of Ioannina, Greece***Pere M. Parés – Casanova***University of Lleida, Spain***Rafal Parvi***Opole School of Banking, Poland***Joanna A. Pawłowicz***University Of Warmia and Mazury in Olsztyn, Poland***João Carlos Pereira Mira Leitão***Instituto Politécnico da Guarda, Portugal***Elitsa Petrova***Vasil Levski National Military University, Bulgaria***Krzysztof Piasecki***Poznań University of Economics, Poland***Theodoros Pierratos***Laboratory Centre of Natural Sciences (EKFE) of Evosmos, Greece***Danica PirsI***University of Nis, Serbia***Andrius Puksas***Mykolas Romeris University, Lithuania***Martin Ernesto Quadro, Argentina****Monica RADULESCU***Ion Mincu University of Architecture and Urban Planning, Romania***Angela Roman***Alexandru Ioan Cuza University of Iasi, Romania***Ioan-Gheorghe Rotaru***'Timotheus' Brethren Theological Institute of Bucharest, Romania***Hynek Roubik***Czech University of Life Sciences, Czech Republic***Oana Rusu***Alexandru Ioan Cuza University of Iasi, Romania***Teodor Rusu***University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania***Mohammed SADGAL***CADI AYYAD UNIVERSITY, Morocco***Fernando José Sadio Ramos***Polytechnic of Coimbra, Portugal***Joanna Sadkowska***University of Gdansk, Poland***Huseyin Serkan Turkan***University of Pecs, Hungary***Sandro Serpa***University of the Azores, Portugal***Eralda Shore***Agricultural University of Tirana, Albania***Narcisa Schwarz***Western University Vasile Goldis of Arad, Romania*

Malgorzata Smolarek*Humanitas University, Poland***ANA-ALEXANDRA SORESCU***National Institute for Research&Development in Chemistry and Petrochemistry - ICECHIM, Romania***Radu D. Stanciu***University Politehnica of Bucharest, Romania***Vladimir Stankovic***University of Nis, Serbia***Mariela Stefanova Kamburova***Medical University, Bulgaria***Laura-Rebeca Stiegelbauer***Vasile Goldis Western University of Arad, Romania***Radu-Liviu Sumalan***Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I", Romania***Elżbieta Szafranko***University of Warmia and Mazury in Olsztyn, Poland***Andrea Székely***University of Szeged, Hungary***Mirosława Szewczyk***Opole University of Technology, Poland***Katarzyna Szopik-Depczynska***University of Szczecin, Poland***Dominika Topa-Bryniarska***University of Silesia, Poland***Marco Tregua***Università degli Studi di Napoli, Italy***Victorița Trif***University of Bucharest, Romania***Violeta Urban***George Bacovia University in Bacau, Romania***António Valente Costa***University of Aveiro, Portugal***Nayden Valkov Nenkov***Konstantin Preslavsky University of Shumen, Bulgaria***Irena Valova***Ruse University, Bulgaria***Magdalena Valsikova***Slovak University of Agriculture, Slovakia***Radka Vaníčková***The Institut of Technology and Business, Czech Republic***Rosa Maria Vitrano***Università degli Studi di Palermo, Italy***Juana-María Vivo-Molina***University of Murcia, Spain***Ewa Więciek-Janka***Poznan University of Technology, Poland***Piotr Wittbrodt***Opole University of Technology, Poland***Rong Zhang***Nishinippon Institute of Technology, Japan***Joanna Żukowska***Warsaw School of Economics, Poland***Kamil Żyła***WEiI Politechnika Lubelska, Poland*

Sections discussed at the Conference

Psychology
Economics and Business
Accounting and Financing
Educational sciences
Law and public administration
Political science and Philosophy
Other social sciences
History and Archaeology
Languages and Literature
Arts
Linguistics
Other humanities
Mathematics
Computer architecture
Intelligent systems
Other Computer and Information Sciences
Electrical and Electronic Engineering
Other Engineering
Municipal or Urban Engineering
Health sciences
Other medical sciences
Other agricultural sciences

Conference Sponsors and Partners



Publishing Society
Slovak Republic



the-science.com
www.The-Science.com



VTP Žilina
Science & Technology Park Zilina
Slovak Republic



European Center for Ethnic Studies



University 'Giustino Fortunato'



Europejskie Centrum
Nowych Technologii i Innowacji Finansowych
European Center of New Technologies
and Financial Innovations



**WYŻSZA SZKOŁA
ZARZĄDZANIA I BANKOWOŚCI
W KRAKOWIE**
The School of Banking and
Management in Cracow



Lucian Blaga University in Sibiu



BIOTERRA University of Bucharest



**University of National and World
Economy**



**University
of Economics
in Katowice**
Department of International
Accounting
Department of International
Accounting; University of Economics
in Katowice

Published by



EDIS
Publishing Institution of the University of Zilina

Univerzitna 1
01026 Zilina
Slovak Republic

Injuries into the largest industrial entity from Bitola

Part from an extensive research considering the OSHAS system into the biggest power plant in R. Macedonia

Silvana Angelevska, PhD.
Industrial Engineering and Management
Faculty of Technical Science
Bitola, R. Macedonia

Ivo Kuzmanov, PhD.
Industrial Engineering and Management
Faculty of Technical Science
Bitola, R. Macedonia
ivo.kuzmanov@tfb.uklo.edu.mk

Abstract—One of the basic aims of the paper is to present only a part from an extensive survey considering the injuries into Bitola’s industrial entities, an survey which was conducted into the time frame from January till December 2015. The paper represents the situation with injuries into the largest power plant in R. Macedonia - A.D. ELEM REK Bitola. All of the data gathered were analyzed considering several key criteria’s.

Keywords- quality control, integrated management system, industrial entities in Bitola, injuries

I. INTRODUCTION

In Bitola region in the period from January to December 2015 a complete analysis – extensive research concerning the application of quality control systems and integrated management systems was conducted. The purpose of the survey was to consider all industrial entities that are in Bitola region and analyze the methodologies, techniques and formally adopted procedures for quality control in various industries, but also to analyze consistency in the application of integrated management systems. In fact the analysis itself was divided into several stages, including the basic subject of the paper – injuries on direct work places. For this purpose in cooperation with the regional inspectorate for health and safety, all of the injuries that occurred in Bitola’s industrial entities were recorded and analyzed. Subject of analyzes were most of the industrial entities that are working into the specified region, but as a segment which is shown into the paper is A.D. ELEM REK Bitola, as a representative subject. The reason why this capacity is subject of analysis and presentation in this paper is the size (both in terms of number of employees directly employed into the capacity as well as in terms of indirect jobs that have been created into the subject) but also in terms of the importance that the capacity has in a matter of electricity production (the largest producer of electricity in Macedonia with a combined market share of more than 70%). In addition to the labor selected segments from the research are displayed, such as: gender of the injured person, type of injury, a quarterly record of injuries, repeatability of the injury, number of days lost due to injury etc.

II. PRESENTING THE RESULTS FROM THE RESEARCH

In this paper as an object of analysis is taken the largest producer of electricity in Macedonia. We are talking about A.D. ELEM REK Bitola, which is the mining and power plant which marks its beginnings since the 1982 and today represents

an important segment of the energy production for Macedonia with a total production of over 70% of market needs. Also it is an important economic entity in Bitola and Bitola’s region with over 1600 employees, which brings him among the three largest business entities in the Bitola region in staffing among Socotab Bitola and Kromberg and Schubert. The plant also represents indirect employees for the subcontractors working activities with a numerous employees. This fact makes him an important industrial entity into Bitola’s region which is especially important for the development of the economy in Bitola and beyond. Therefore the object of research is appropriate and the industrial entity which is shown is the right representative example for the segment of the research that is shown into the paper.

This section provides a detail overview of the recorded injuries in A.D. ELEM REK Bitola in the period from 01.01.2014 till 01.01.2015. What is particularly important is that the survey was done with cooperation with the regional health and safety inspectors, but also data from the Health fund were used (regarding the absence due to an injury). In the area of research and analysis as an representative industrial capacity into the paper A.D. ELEM REK Bitola is given, in which the results are a realistic portrayal of the real situation in terms of injuries. It is more than important to mention that the area of analysis includes several criteria’s such as: gender of the injured person, the total number of injuries, day from the week when the injury is spotted, age of the injured person, body part that is injured, type of injury, time frame, the total number of working days that are lost due to an injury, repeatability of the injury, etc. This paper presents only sub line piece from the research which itself includes several selected criteria’s.

In addition of the paper, tables and graphs are given and the same ones are the best representation for the selected criteria’s.

TABLE I. ANALYZING THE DATA CONSIDERING CRITERIA – GENDER OF THE INJURED PERSON

Male	Female	TOTAL
112	12	124
In percent (%)		
90.3	9.7	100%

Analyzing the data presented into Table 1, it’s more than obvious that most of the registered injuries and injured persons are male, which is not so surprisingly having in mind the type

of activities do on direct work places. From this aspect it is also crucial to mention that the number of total injuries recorded into Bitola's region is 323, so if we correlate with the injuries recorded into A.D. ELEM REK Bitola conclusion is that they represent more than 1/3. That is the reason why the exact business entity is chosen as an representative example. On the other hand taking into consideration the number of employees into the business entity that was under consideration, we can conclude that considering the total number of employees (1781) and considering the fact that we have spotted 124 injuries the percent of injuries into the industrial entity is 6.96%. Seeing more deeply and considering that we have 1668 male employees and 113 women employees into the entity, and considering the facts represented into the table 1, we can conclude that we have 6.96% percent employees that were injured from the male gender and also 10.61% women injured persons.

TABLE II. ANALYZING THE DATA CONSIDERING CRITERIA – PROFESSIONAL QUALIFICATION OF THE INJURED PERSON

Primary education	High school	College degree	University degree
12	100	10	2
In percent (%)			
9.7	80.6	8	1.7

Analyzing the data presented into Table 2, the situation proves that most of the injured persons have secondary education, and if we analyze the job places and the description of working activities it is not so strange, due to the fact that the process of work and work activities seek this kinds of qualifications.

TABLE III. ANALYZING THE DATA CONSIDERING CRITERIA – TYPE OF INJURY

Mechanical	Electrical	Other reasons
115	4	5
In percent (%)		
92.7	3.3	4

Analyzing the data presented into Table 3, most of the injuries are from mechanical nature, but further analysis are more than necessary for the injuries recorded as a result of an electricity and other reasons. Considering the work activities and the data for the injuries, the injuries from an electrical nature had several sources that are evidenced as a reason for injury such as: welding, burns from improper work with welding instruments, burns from welding and explosion caused from sparks from an electrical cable. On the other hand injuries recorded under other sources include several other reasons such as: assault from a colleague, stretch ligaments, loss of balance at work and a heat wild animal. Seeing the reasons presented before, it's more than obvious that further steps for creating safer work places are more than needed.

TABLE IV. ANALYZING THE DATA CONSIDERING CRITERIA – INJURED BODY PART

Leg	Eye	Arm	Head	Fingers	Body
57	4	47	12	15	17
In percent (%)					
37.5	2.7	30.9	7.9	9.8	11.2

Analyzing the data presented into Table 4, it is more than obvious that the total amount of injuries shown here (152) does not correspond with the total number of injured people (124). The reason is that the analysis of the injured persons shows that there were 28 cases of multiple injuries. On the other hand analyzing further and seeing the tabular view it is more than obvious and also expected that most of the injuries will be and are recorded on the hands and on the feet.

TABLE V. ANALYZING THE DATA CONSIDERING CRITERIA – REPEATABILITY OF INJURY

Twice	Three times	Four and more
20	3	1

Analyzing the data shown in Table 5, we could say that the most characteristic is that the analysis of the recorded injuries led to findings who say that the same person (worker) had two, three, four and even more injuries during the year. This fact led to additional activities into the industrial entity which included additional training, assignment of protective equipment and even rotation on other job places into the entity during the working month. On the other hand analyzing these 24 injuries and correlating the same ones with the total amount of injuries spotted into the industrial entity (A.D. ELEM REK Bitola) which were 124, we could say that these multiple injuries during the year at the same person are significant 19.35% from the total amount of injuries spotted into the year.

This observation led to the specific future steps which includes: analysis of the injury not only from statistical nature but by several other aspects such as repeatability of the injury and the injured person, future analyses of the workplaces where these kinds of injuries are spotted, future steps with these kinds of injured persons etc., with an aim to take appropriate protective measures in order to reduce the number of injuries on direct work places.

On the other hand the data that is worth mentioning is the total number of working days lost as a result of an injury, which is in total 2557 working days.

From that aspect an according to the records of injuries and the number of lost working days due to injury, the table below is the best representative of the number of injuries and sick leaves that followed as a result.

TABLE VI. ANALYZING THE DATA CONSIDERING CRITERIA – NUMBER OF LOST WORKING DAYS DUE TO INJURY

Lost Working Days	Number of injured persons
Up to a week	24
From 7 to 14 days	46

Up to 30 days (14-30)	43
More than a month	41

Analyzing the data presented into the tabular view 6, what is worth mentioning are the sick leaves that includes more than 30 working days. The reason why these sick leaves are so important is the Macedonian legislation from which up to a 30 day leave it's on the company cost, but further than that the health fund as a government institution pays the rest of the sick leave to the worker. So therefore these findings are from a national interest considering that these cases are 41 – only in this industrial entity. This is the reason why a national strategy for reducing the injuries in direct work places is more than necessary.

TABLE VII. ANALYZING THE DATA CONSIDERING CRITERIA – QUARTERS IN THE YEAR AS A CRITERIA

First	Second	Third	Fourth
28	40	32	24
In percent (%)			
22.6	32.2	25.8	19.4

Analyzing the last table 7, where an analysis of the number of recorded injuries is presented in appropriate annually quarters, the most characteristic records are the ones from the second quarter. Analyzing in more detail, in fact this quarter is the one in which most of the recurrent injuries are also recorded, but unfortunately the records led to the fact that also most of the multiple injuries occurred in this quarter.

Based on these findings future actions are more than obvious such as: research on whether there is an increase in production and operating activities during these months, whether in this period some risky activities or repair activities were performed, whether during these months the expected replacement of protective equipment was done, if there were new employees and so on.

In fact the paper represents only a small part from an extensive survey in which all industrial facilities which are in Bitola region were analyzed. However the data presented in the paper led to conclusion that this entity is a representative sample itself where 124 cases of injuries on direct work places were spotted, from which the future analyzes conclude that every single employee could be hurt.

Analyzing other relevant information's which aren't presented in the paper the actual conclusion led to another

relevant fact which confirms the notion that anyone could be hurt, from young employees to the most experienced ones. Seeing further the data from the research the most injured persons are in the age frame 45-64, although these workers are one of the most experienced staff in the industrial entity. Just in A.D.ELEM REK Bitola 56% of the injuries are seen on workers from the age frame 45-64 years old. That is the reason why everyone should be a part of the activities for safer work places. At the end, the information's presented into the paper lead to the conclusion that the research should not stop just on statistics and obtaining newer information's, the same one should generate concrete actions that would have to solve the injury reasons and to lead to reduction of the total amount of injured persons (workers) and finally to more safer work places.

III. CONCLUSION

This paper is only a small part from a larger survey in the Bitola region, with several basic aims such as: generating an idea how the quality control is done in industrial entities, how integrated management systems are implemented and used into industrial entities, what is the situation with the injuries and the injured persons in the same ones and also what are the actions that should be done with an aim to create a more safer work places. In fact this paper represents a solid overview of the situation with the injuries into the largest power plant in Macedonia, A.D. ELEM REK Bitola. The reason why this industrial entity is chosen is because over 1/3 of the total injuries spotted in Bitola are into the same one. The data presented into the paper are only a small segment from the conducted research, but they are a solid proof that anyone regarding the education, work experience, job place, access to the protective equipment and previously conducted training on workplace hazards and appropriate protection measures could be injured. That is why the paper is only an introduction to the specifically targeted research, which is conducting at the moment, which should give an overview on the measures that are taken to prevent injuries in all of the industrial entities into Bitola's region. This paper and the research that is conducting at the moment could be a guide to future concrete actions in a matter to prevent and reduce hazards and total amount of spotted injuries on a year base.

REFERENCES

- [1] Kuzmanov, Analyzing the injuries into industrial entities from Bitola, conducted research, 2014-2016
- [2] Internal data from industrial entities from Bitola
- [3] Internal data from NGO Bitola from Bitola
- [4] Internal data from labor inspectorate from Bitola