

УДК 661.1:658

DOI: 10.32342/2074-5362-2019-1-26-5

**D. DUBIS,**  
*PhD, Engineer,*  
*Stanisław Pigoń State Higher Vocational School in Krosno*

**S. CYBOWICZ,**  
*Engineer,*  
*Stanisław Pigoń State Higher Vocational School in Krosno*

## **BENEFITS FROM INTEGRATED MANAGEMENT SYSTEM IMPLEMENTATION ON AN EXAMPLE OF GLASS MANUFACTURING ENTERPRISE**

In professional literature there are lots of researches concerning benefits from Integrated management system implementation. This kind of research have been conducted in production companies, medical facilities, food industry and government entities. It has been observed that there are few researches conducted in glass industry. This is the reason why this type of research has been conducted. The purpose of the research was to identify benefits from Integrated management system implementation.

**Key words:** *management system, benefits, glass, ISO 9001.*

У професійній літературі є багато досліджень, що стосуються переваг від впровадження інтегрованої системи управління. Такі дослідження проводилися у виробничих компаніях, медичних установах, харчовій промисловості та державних установах. Було відзначено, що досліджень у скляній промисловості проведено небагато. Ось чому цей тип досліджень був проведений. Метою дослідження було виявлення переваг від впровадження інтегрованої системи управління.

На основі проведених досліджень було встановлено декілька висновків:

– Незважаючи на численні вигоди від впровадження IMS, співробітники асоціюють його з аудитами, документацією та контролем. Ці асоціації відрізняються від думки адміністративних працівників. Необхідні додаткові дослідження з цього питання.

– Респонденти обох груп показують, що покращання якості продукції є найбільшою вигодою від впровадження, особливо коли мова йде про ручне виробництво.

– Наступні найважливіші переваги відрізняються за двома групами працівників. На думку адміністративних працівників, найважливішою перевагою є вдосконалення системи прийняття рішень. За даними виробничих робітників заявлено про скорочення числа.

– Адміністративні працівники вважають найбільш важливими внутрішніми пільгами:

- 1) покращання ефективності процесу та часу;
- 2) вдосконалену систему прийняття рішень;
- 3) покращання ідентифікації та ефективне усунення проблем.

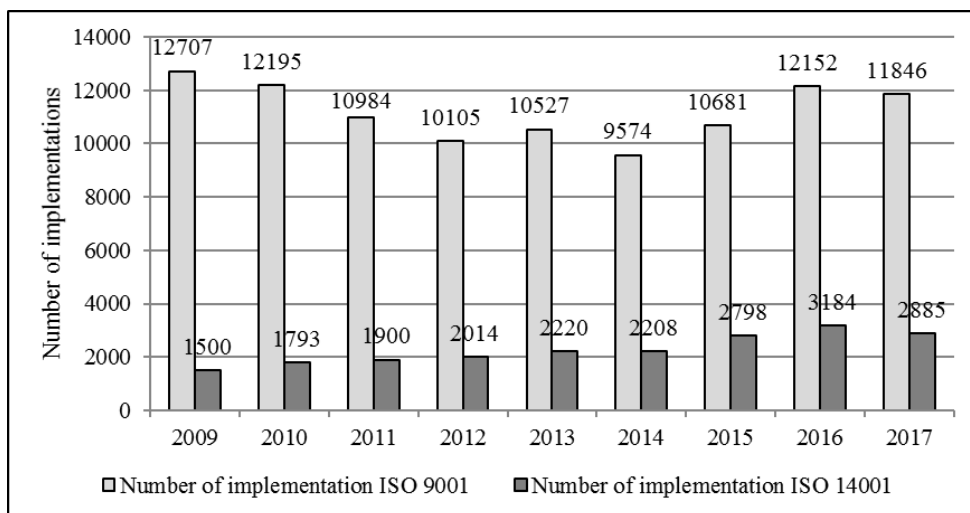
– Виробничі працівники як найважливіші внутрішні переваги враховують:

- 1) вищу якість продукції;
- 2) зменшену кількість претензій;
- 3) покращання умов здоров'я та безпеки.

**Ключові слова:** *система управління, переваги, скло, ISO 9001.*

## Introduction

In professional literature there are lots of researches concerning benefits from Integrated Management System (IMS) implementation. Many organizations hope that implementation will help them to develop and to strengthen their market position. Nevertheless, statistics published by International Organization for Standardization show that number of ISO 9001 implementations has decreased over the years. These data are illustrated on Fig. 1. Therefore, it is important to study what benefits can be achieved in organizations from various production sectors.



**Fig. 1. Number of ISO 9001 and ISO 14001 implementations between 2009 and 2017 in Poland**

Source: Author's compilation based on [www.iso.org]

There are numerous papers concerning this issue. Studies have been conducted in:

- production companies (Gajdzik, 2014); (Ligarski, 2007),
- medical facilities (Gruca-Wójtowicz, 2008),
- aliment industry (Łuczka-Bakuła, 2012),
- municipal offices (Batko, 2008).

It has been observed that there are few researches conducted in glass industry. This is the reason why this type of research has been conducted. The purpose of the research was to identify benefits from Integrated management system implementation in the company from this particular sector.

## Literature review

The reasons of implementing IMS may be of a different nature. The following groups of determinants can be listed:

- Customers' requirements,
- Company ambitions,
- Improving the quality of management,

– Increasing the quality of the product or service provided.

Many researchers point the improvement of decision making processes as one of the determinants of the IMS implementation. Structured processes enable more effective and more efficient development and implementation of system improvement methods. (Batko, 2008); (Gruca-Wójtowicz, 2008); (Łuczka-Bakuła, 2012); (Kowalczyk, 2011); (Sułkowski, 2015); (Urbaniak, 2006); (Wolniak, 2014)

Also communication between management and subordinate employees is being improved. Thanks to this, the right employees are informed about the decisions related to, for example, the implementation of a new quality tool or system. Keeping employees informed leads to:

- increased pro-quality awareness,
- increased involvement in the process of implementation and improvement of the management system.

Communication between different departments is also improved (Batko, 2008); (Łuczka-Bakuła, 2012); (Kowalczyk, 2011); (Sułkowski M., 2015); (Urbaniak, 2006); (Wolniak, 2014).

One of the values added of IMS implementation is the definition and division of entitlements and competences for particular workers (Kowalczyk, 2011).

A consequence of the above is the improvement of relations with customers and suppliers as well as internal communication between different departments. It leads also to timely goods deliveries to a customer. One of the factors influencing customers' satisfaction is a proper order inside the organization, which turns to the possibility of precise determination of requirements for particular product (Sułkowski, 2015); (Urbaniak, 2006); (Wolniak, 2014).

Thanks to an accurate determination of customer needs, the final quality of the product or service increases. At the same time the quantity of parts inconsistent with the customer's requirements and the number of complaints decreases. A smaller number of non-conformities leads to the raise of productivity (Kowalczyk, 2011); (Łuczka-Bakuła, 2012); (Urbaniak, 2006); (Sułkowski, 2015); (Wolniak, 2014).

Implementation of the management system allows shortening of processes, which is the result of unnecessary process steps elimination. Processes become more effective and efficient, as well as more understandable, which makes it possible to achieve specified goals. What is more, problems' sources are identified in a shorter period of time (Kowalczyk, 2011); (Urbaniak, 2006); (Wolniak, 2014).

The organization changes listed above lead to financial profits. A company achieves costs reduction which is being transferred into company income and profit growth (Kowalczyk, 2011); (Sułkowski, 2015); (Wolniak, 2014).

An enterprise that is highly credible may gain financial assistance from banks. An organization that is willing to develop and has innovative ideas can also apply for European Union co-financing. Having an efficient and effective IMS can significantly support these activities (Kowalczyk, 2011).

An implemented management system forces the company to review documentation. Thanks to this, all documents are properly ordered and kept under supervision. The implementation team develops document templates that facilitate later work (Batko, 2008).

Thanks to implementation of the Environmental Management System according to the ISO 14001 standard, the harmful impact of the organization on the

environment is reduced. By analyzing environmental aspects, appropriate wastes segregation or developing emergency procedures, the organization becomes eco-friendly (Nierzwicki, 2006); (Urbaniak, 2006).

By implementing the Health and Safety Management System according to the PN-N 18001 standard, safety on particular workstations is improved. This improvement is achieved through for example the use of appropriate personal protective equipment, collective/workstations protections and staff trainings (Sikora, 2010); (Urbaniak, 2006).

Enterprises that implemented IMS gain prestige in comparison to other companies. They achieve also credibility in the eyes of their customers and suppliers, which is a result of paying attention to their needs and behavior. Thanks to this, it is easier to maintain current customers and acquire new ones (Batko, 2008); (Gruca-Wójtowicz, 2008); (Kowalczyk, 2011); (Łuczka-Bakuła, 2012); (Sułkowski, 2015); (Urbaniak, 2006).

Improving of a company image causes an increase of its market competitiveness. A company that is growing sustainably is more open to new markets. The expansion to the new market is possible thanks to the possession of adequate financial resources derived from profits. The implementation of the management system gives an opportunity to achieve significant marketing benefits (Gruca-Wójtowicz, 2008); (Łuczka-Bakuła, 2012); (Sułkowski, 2015); (Wolniak, 2014).

One of the quality management system requirements is conducting internal audits in accordance with the established schedule. A client who is aware of the fact that the organization proceeds audits and implements corrective and preventive actions may limit the product incoming inspection at his facility (Hamrol, 2005); (Kowalczyk, 2011).

### **Material and research methods**

Analyzed enterprise is located in the region of Padkarpackie voivodship. Its core business is focused on production of household glassware formed manually or automatically.

The Integrated Management System of the analyzed company was build basing on the following standards: PN-EN ISO 9001, PN-EN ISO 14001, PN-N-18001 and elements of BRC:IOP.

The system documentation was developed on dedicated electronic platform which makes it easily accessible from every workstation. Such a method of documentation storage is in accordance with ISO standard requirements. The electronic platform supports any form of documentation (text files: .doc, .docx, .pdf; spreadsheet files: .xls, .xlsm and others). The documentation consists of: quality manual, process cards, fifty-seven procedures and nearly four hundred instructions and forms. Within the organization, seventeen different processes have been identified.

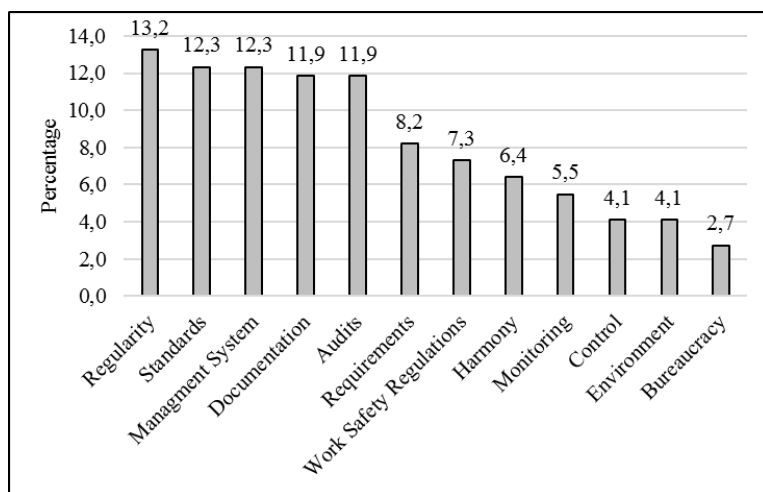
The research has been conducted on one hundred and ten employees from the analyzed enterprise, using a survey. Two different questionnaires were prepared. Fifty questionnaires were filled by the production workers, sixty – by the office employees.

Prepared questionnaires were distributed among employees by means of:

- Google Docs Platform – the questionnaires were sent to the Office employees in electronic form,
- Paper prints which were distributed to the workers of the production departments.

### Benefits noted among office employees

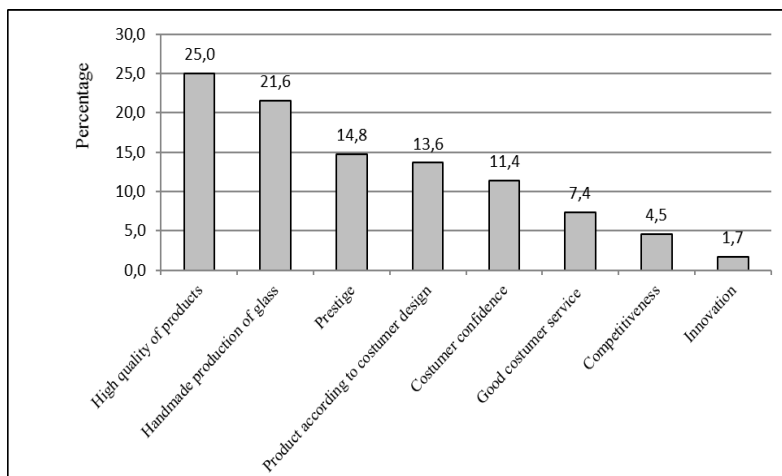
Among respondents the most common associations with the term of Integrated Management System were: regularity (13,2%), standards (12,3%) and management system (12,3%). These data are illustrated on Fig. 2.



**Fig. 2 Associations with the term of Integrated Management System among administrative employees**

Source: Author's compilation based on research

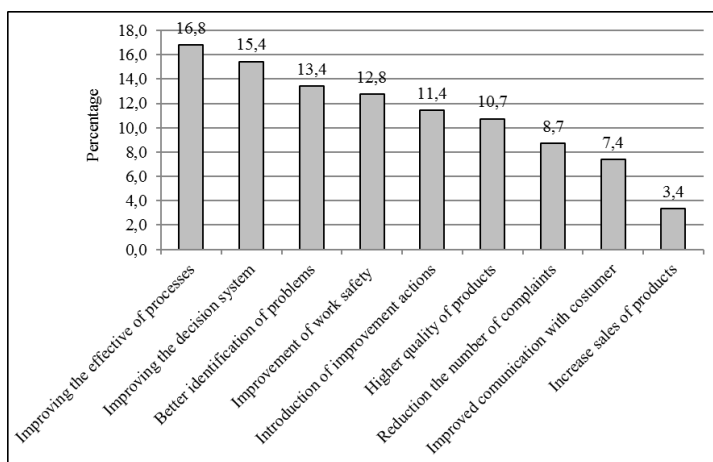
Second question was related to the aspects that outstand the company on the market. These aspects show the external benefits achieved after IMS implementation. It was noticed that 46,6% of all votes were on two responses: high products quality (25%) and greater emphasis on manual glass production (21,6%). In the third place, there was the prestige with 14,8% of responses. The data is presented on Fig. 3.



**Fig. 3 Aspects that outstand the company on the market according administrative employees**

Source: Author's compilation

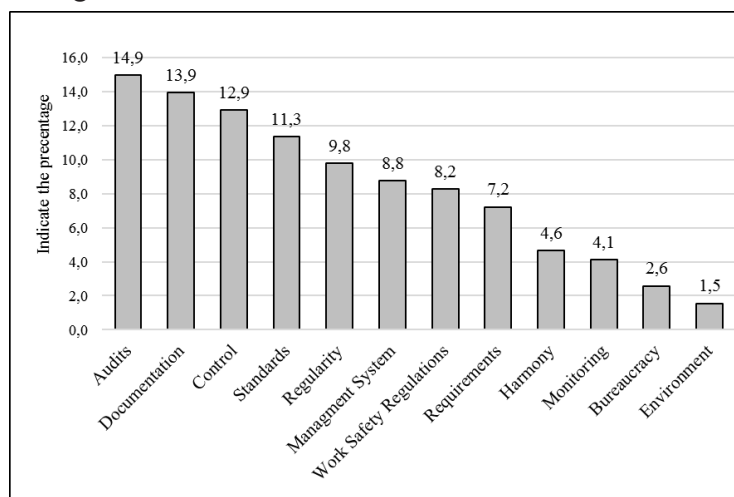
Next question was about internal advantages of IMS implementation. As the main advantage the respondents pointed improvement of processes efficiency. This answer has been chosen by 16,8% of respondents. The next benefit was improvement of the decision system – 15,4% of the votes. After that, attention was paid to better identification and faster problem solving – 13,4%. The results are presented on Fig. 4.



**Fig. 4 Internal benefits noted among administrative employees**  
Source: Author's compilation

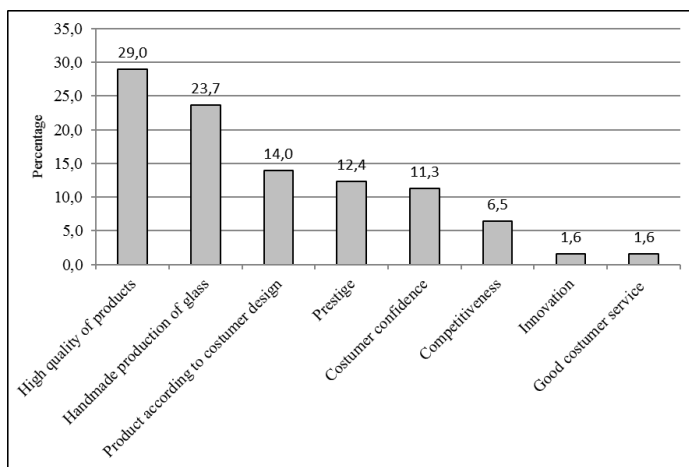
#### Benefits noted among production employees

Among respondents, the most common associations with the term of IMS were: audits (14,9 %), documentation (13,9%) and norms (11,3%). These data are illustrated on Fig. 5.



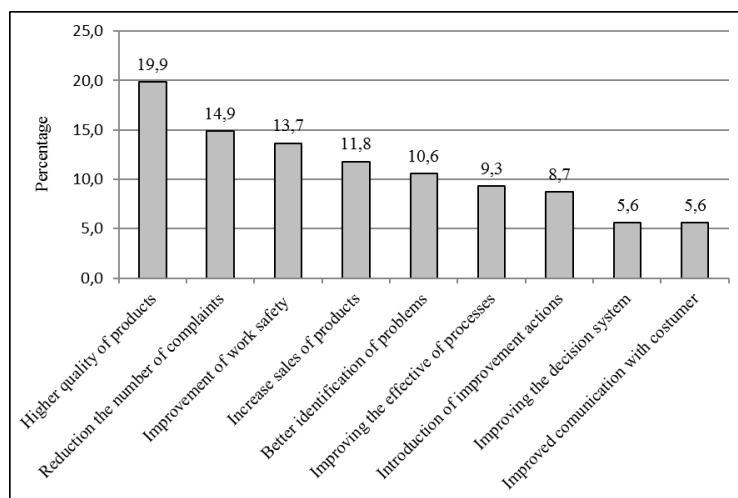
**Fig. 5 Associations with the term of Integrated Management System among production workers**  
Source: Author's compilation

A question about external benefits has been asked. Production employees consider high product quality being the greatest benefit (29%). Next ones are: handmade production quality improvement (23,7%), production according customer’s design (14,0%). The results are presented on Fig. 6.



**Fig. 6 Aspects that outstand the company on the market according production employees**  
Source: Author’s compilation

Among internal benefits of IMS the most important one is product quality improvement (19,9% of all the votes). During IMS development several crucial quality processes have been improved. Another benefits were observed in relation to processes in organization. Almost 15% of the respondents claim that claim number reduction is very important benefit. Thanks to new developed standards employees know where to address everyday’s issues and how to solve them. Also workers’ safety has been improved (13,7%). The results are presented on Fig. 7.



**Fig. 7 Internal benefits noted among production employees**  
Source: Author’s compilation

## Conclusions

Based on conducted research several conclusions have been established:

– Despite numerous benefits from IMS implementation production employees associate it mostly with audits, documentation and control. Those associations are different from administrative employees' opinions. More research in this subject is required.

– Respondents from both groups indicate that product quality improvement is the greatest benefit from the implementation. Especially when it comes to manual production.

– Next most important benefits differ between two groups of workers. According to administrative employees the most important benefit is improvement of decision system. According production workers – claim number reduction.

– Administrative workers as most important internal benefits consider:

- 1) Improved process effectiveness and time,
- 2) Improved decision system,
- 3) Improved identification and better elimination of problems.

– Production workers as most important internal benefits consider:

- 1) Higher product quality,
- 2) Decreased number of claims,
- 3) Improvement of health and safety conditions.

## Bibliography

1. Batko R. Bariery, negatywne skutki i korzyści wdrożenia systemu zarządzania jakością w urzędzie gminy / R. Batko // *Zarządzanie Jakością*. – 2008. – № 2. – S. 56–61.
2. Gajdzik B. Bariery systemowego zarządzania jakością w przedsiębiorstwach / B. Gajdzik // *Problemy Jakości*. – 2014. – № 5. – S. 23–28.
3. Gruca-Wójtowicz P. Bariery wdrażania systemów zarządzania jakością w polskich szpitalach / P. Gruca-Wójtowicz // *Problemy Jakości*. – 2008. – № 9. – S. 36–39.
4. Hamrol A. Zarządzanie jakością z przykładami / A. Hamrol. – Warszawa: Wydawnictwo Naukowe PWN, 2005.
5. Kowalczyk M., Doskonalecie zarządzania organizacją w praktyce / M. Kowalczyk. – Warszawa: CeDeWu, 2011.
6. Ligarski M.J. Ocena systemu zarządzania jakością – wyniki badań / M.J. Ligarski // *Towaroznawcze Problemy Jakości*. – 2007. – № 4 (13). – S. 25–35.
7. Łuczka-Bakuła W. Bariery i korzyści wdrażania i funkcjonowania systemu zarządzania jakością w przedsiębiorstwach przemysłu spożywczego / W. Łuczka-Bakuła // *Zarządzanie i finanse. Jurnal of Management and Finance*. – 2012. – № 10. – S. 5–17.
8. Nierzwicki W. Zarządzanie środowiskowe / W. Nierzwicki. – Warszawa: Polskie Wydawnictwo Ekonomiczne, 2006.
9. Wybrane koncepcje i systemy zarządzania jakością / red. T. Sikora. – Kraków: Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie, 2010.
10. Sułkowski M. Motywy wdrażania certyfikowanych systemów zarządzania jakością / M. Sułkowski // *Problemy Jakości*. – 2015. – № 9. – S. 4–9.



11. Urbaniak M. Korzyści wynikające z wdrożenia systemów zarządzania / M. Urbaniak // *Problemy Jakości*. – 2006. – № 7. – S. 21–25.
12. Wolniak R. Korzyści doskonalenia systemów zarządzania jakością opartych o wymagania normy ISO 9001:2008 / R. Wolniak // *Problemy Jakości*. – 2014. – № 3. – S. 20–24.
13. International Organization for Standardization. Available at: [http://www.iso.org/iso/iso-survey\\_2016.zip](http://www.iso.org/iso/iso-survey_2016.zip) (Accessed 25.03.2019).

### References

1. Batko R. (2008). *Bariery, negatywne skutki i korzyści wdrożenia systemu zarządzania jakością w urzędzie gminy* [Barriers, negative effects and benefits of implementing the quality management system at the commune office]. *Zarządzanie Jakością*, no. 2, pp. 56-61.
2. Gajdzik B. (2014). *Bariery systemowego zarządzania jakością w przedsiębiorstwach* [Barriers to systemic quality management in enterprises]. *Problemy Jakości*, no. 5, pp. 23-28.
3. Gruca-Wójtowicz P. (2008). *Bariery wdrażania systemów zarządzania jakością w polskich szpitalach* [Barriers to the implementation of quality management systems in Polish hospitals]. *Problemy Jakości*, no. 9, pp. 36-39.
4. Hamrol A. (2005). *Zarządzanie jakością z przykładami* [Quality management with examples]. Wydawnictwo Naukowe PWN, Warszawa.
5. Kowalczyk M. (2011). *Doskonalenie zarządzania organizacją w praktyce* [Improving the organization's management in practice]. CeDeWu, Warszawa.
6. Ligarski M.J. (2007). *Ocena systemu zarządzania jakością - wyniki badań* [Evaluation of the quality management system - test results]. *Towaroznawcze Problemy Jakości*, no. 4 (13), pp. 25-35.
7. Łuczka-Bakuła W. (2012). *Bariery i korzyści wdrażania i funkcjonowania systemu zarządzania jakością w przedsiębiorstwach przemysłu spożywczego* [Barriers and benefits of implementation and functioning of the quality management system in food industry enterprises]. *Zarządzanie i finanse. Jurnal of Management and Finance*, no. 10, pp. 5-17.
8. Nierzwicki W. (2006). *Zarządzanie środowiskowe* [Environmental management]. Polskie Wydawnictwo Ekonomiczne, Warszawa.
9. Sikora T. (ed.) (2010). *Wybrane koncepcje i systemy zarządzania jakością* [Selected concepts and quality management systems]. Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie, Kraków.
10. Sułkowski M., Wolniak R. (2015). *Motywy wdrażania certyfikowanych systemów zarządzania jakością* [Themes of implementing certified quality management systems]. *Problemy Jakości*, no. 9, pp. 4-9.
11. Urbaniak M. (2006). *Korzyści wynikające z wdrożenia systemów zarządzania* [Benefits resulting from the implementation of management systems]. *Problemy Jakości*, no. 7, pp. 21-25.
12. Wolniak R. (2014). *Korzyści doskonalenia systemów zarządzania jakością opartych o wymagania normy ISO 9001:2008* [The benefits of improving quality management systems based on the requirements of ISO 9001:2008]. *Problemy Jakości*, no. 3, pp. 20-24.
13. International Organization for Standardization. Available at: [http://www.iso.org/iso/iso-survey\\_2016.zip](http://www.iso.org/iso/iso-survey_2016.zip) (Accessed 25.03.2019).

## **BENEFITS FROM INTEGRATED MANAGEMENT SYSTEM IMPLEMENTATION ON AN EXAMPLE OF GLASS MANUFACTURING ENTERPRISE**

*Damian Dubis*, Stanisław Pigoń State Higher Vocational School in Krosno (Poland). E-mail: damian.dubis@gmail.com

*Sandra Cybowicz*, Stanisław Pigoń State Higher Vocational School in Krosno (Poland). E-mail: sandrulaaa26@gmail.com

DOI: 10.32342/2074-5362-2019-1-26-5

**Key words:** *management system, benefits, glass, ISO 9001*

In professional literature there are lots of researches concerning benefits from Integrated management system implementation. This kind of research have been conducted in production companies, medical facilities, food industry and government entities. It has been observed that there are few researches conducted in glass industry. This is the reason why this type of research has been conducted. The purpose of the research was to identify benefits from Integrated management system implementation.

Based on conducted research several conclusions have been established:

– Despite numerous benefits from IMS implementation production employees associate it mostly with audits, documentation and control. Those associations are different from administrative employees' opinions. More research in this subject is required.

– Respondents from both groups indicate that product quality improvement is the greatest benefit from the implementation. Especially when it comes to manual production.

– Next most important benefits differ between two groups of workers. According to administrative employees the most important benefit is improvement of decision system. According production workers – claim number reduction.

– Administrative workers as most important internal benefits consider:

4) Improved process effectiveness and time,

5) Improved decision system,

6) Improved identification and better elimination of problems.

– Production workers as most important internal benefits consider:

4) Higher product quality,

5) Decreased number of claims,

6) Improvement of health and safety conditions.

*Одержано 19.02.2019.*