sciendo

# Using ERP systems for a green company

**Laura-Eugenia-Lavinia BARNA**
*Bucharest University of Economic Studies, Bucharest, Romania*
*barnalaura15@stud.ase.ro*

**Bogdan-Ștefan IONESCU**
*Bucharest University of Economic Studies, Bucharest, Romania*
*bogdan.ionescu@cig.ase.ro*

**Maria-Monica POPESCU (HARALAMBIE)**
*Bucharest University of Economic Studies, Bucharest, Romania*
*haralambie.monica@gmail.com*

**Abstract.** *Enterprise Resource Planning systems represent those systems that have the role to significantly improve the flow of information between departments, but also to streamline the activity of companies. The purpose of this paper is to identify the main aspects through which Enterprise Resource Planning systems offer to a company the opportunity to grow sustainably, thus becoming a "green business".*

*The research method used in this research was the survey, the questionnaire being an efficient tool for data collection. The questionnaire includes some demographic questions besides the questions specific to the subject of the paper, which has shown that Enterprise Resource Planning systems help an organization to become a green business. For data analysis we used the multiple regression model, using Microsoft Excel. The results showed that there is a significant influence between the independent variables (i.e. reducing costs, clarity and quality of information generated by the Enterprise Resource Planning system, increasing labor productivity, influencing production and services in general, influencing business infrastructure) and the dependent variable (attention to sustainability by companies).*

*The conclusion of this paper demonstrated that Enterprise Resource Planning systems are useful in a company, because the information provided by Enterprise Resource Planning systems is useful in the decision-making process to ensure the desired sustainability, so that the company becomes a "green business".*

**Keywords:** ERP system, sustainability, regression, infrastructure, quality.

## Introduction

Over time, the economic environment has developed greatly due to the evolution of technology and automation of processes within the company, thus causing problems with pollution or inefficient use of resources by companies. Companies can "contribute to the achievement of environmental sustainability objectives" (Dangelico, 2015, p. 1), only if they use efficient systems to ensure efficient management of resources and avoid pollution as much as possible.

The purpose of the paper is to observe how the use of an Enterprise Resource Planning (ERP) system ensures the sustainable development of a company, thus becoming a "green business". A company needs to make "significant investments in complex IT systems such as ERP systems" (Rajan and Baral, 2015) to increase company efficiency, reduce inefficient resource and electricity consumption and increase labor productivity.

Ursacescu et al. (2019) believes that "business and technology have an important role in the global economy" to meet the goals of sustainable development that have a major impact on

DOI: 10.2478/picbe-2021-0027
© 2021 L.-E.-L. Barna, B.-Ș. Ionescu, M.-M. Popescu (Haralambie), published by Sciendo.
This work is licensed under the Creative Commons Attribution 4.0 License.

society and companies. The use of ERP systems has a beneficial role in achieving sustainable business objectives, as they improve energy efficiency.

Hasan et al. (2019) says the green business aim to adhere to the "principles, procedures and practices" needed to "improve business continuity, environmental protection, social welfare and social responsibility". There are two reasons why a company wants to implement ERP systems to better manage its business so that it becomes a green company: internal reasons (competitiveness with other companies, social responsibility) and external reasons (the pressure to which the company is exposed by government and other organizations).

The ERP system is an integrated system, which aims to "automate and integrate business processes and operations" (Kandananond, 2014) so that information common to several departments is no longer physically distributed (e.g. printing on paper), but can be accessed directly from the ERP system database.

For a company to become a "green business", it must be aware of the impact of its activity on the environment.

The article is structured as follows: a section on literature review where the main concepts specific to the paper are defined, a section in which we presented the research method addressed in the paper, a section for analyzing the results obtained based on the questionnaire and regression model and a section where the main conclusions of the research are presented.

## Literature review

Weinrich and Ahmad (2009, in Rajal and Baral, 2015) believes that ERP systems integrate "a series of business processes" such as: supply chain, finance, accounting, production, human resources, sales and specific activities for different customers. The main advantages offered by ERP systems would be easier integration of business processes, fast processing of a large volume of information, portability and adaptation to other systems, as well as the application of best practices within the organization.




**Figure 1. Modules of ERP systems**
Source: Andriyanto (2020): https://masirwin.com/.

Ursacescu et al. (2019) states that business and technology have a key role in the global economy, through which the fulfilment of sustainability objectives is ensured, thus ensuring a positive impact for society and companies. The sustainability of the business environment is a very important economic component for managers and entrepreneurs, this component being necessary „to develop the business sustainably" (Dona, 2020). Danciu (2013) is of the opinion that sustainability becomes a model of development only if countries, economic sectors, companies and citizens are aware, assimilate and use its principles". Sustainability can also be seen as a very important strategy for the future of an organization. The concept of sustainability has become important today, because it represents all the forms and methods of socio-economic development

that ensure a balance between social, economic and ecological aspects and elements of natural capital (Wikipedia, 2020). The companies should acknowledge "the need to incorporate sustainability and environmental concerns" (Gast et al., 2017). The sustainability of a business plan is the development of a long-term strategy. If an organization develops sustainably, adopting such a strategy and using or investing in modern technologies, then it will protect itself from various economic problems and crises. Hasan et al. (2019) believes the impact of the company's business on the environment has been considered by many executives around the world, who have "incorporated green strategies into their business". The reasons why they decide to incorporate these green strategies are internal reasons (competitiveness with other companies, social responsibility) and external reasons (the pressure to which the company is exposed by government and other organizations).

Karagulle (2012) offered the definition of a green business as a "business practice valued as green." These practices can be: "the use of strict protections against emissions, the supply of ecological resources and the efficient and economical use of resources" (Karagulle, 2012). The green business allows to improve the quality of people's lives and to protect resources.

If a business turns "green", this should translate into a decrease in costs or into a "money-saving opportunity" (Karagulle, 2012).

A company must use devices (IT equipment) that consume as little electricity as possible to ensure a decrease in electricity costs for the company and to grow sustainably.

A company becomes green only if it considers three essential components: reducing electricity consumption, efficient use of resources or the use of complementary resources and ensuring financial stability (for example, if a company carries out green economic projects, banks might be impressed and these companies might receive faster loans compared to an ordinary company) (Mathews, 2015). Moreover, a green company must "be socially responsible" (Mirghafoori et al., 2017).

In general, every company will want to carry out its normal business activities and in the same time to be able to sustainably develop in the long run. A business can only be considered sustainable if it knows how to manage and improve its processes, resulting in an increase in the added value of their company. In order to develop sustainably, a company must invest significantly in information systems (integrated ERP systems) in order to carry out its activity in optimal conditions and to reduce as much as possible the inefficient consumption of resources.

According to a study conducted by the International Institute for Management Development (IMD), "62% of executives consider sustainability as a necessary strategy" to survive today's competitiveness between companies.

The goal of sustainability is to ensure value creation for as long as possible (Knut, 2016). Gradient Consulting (2020) believes that ERP systems and sustainability are essential in the process of developing and creating value for the company, because its role is to provide clear and concise information throughout the organization. If a system is updated and used correctly, it will allow quick and timely access to the information needed for decision making by managers. Even if ERP systems consist of different modules, the main features of such a system are: integration of company activities, real-time data generation and modularization. Thus, organizations need integrated solutions for “collecting, integrating, automating and monitoring information to ensure sustainability” (Brooks et al., 2012 in Chofreh et al., 2014), such as sustainable ERP systems (S-ERP). The role of ERP systems is to improve efficiency, increase productivity, reduce costs, increase the quality of information generated by these systems (Tsai, 2020). Watson et al. (2010,

in Bradford et al., 2012), believes that ERP systems can provide a "multifunctional view of the entire organization" by providing support for sustainable good practices.

ERP systems are useful to the organization because they include functions that help integrate all the processes within the organization. The function of these ERP systems is to integrate the flow of information within the organization in order to provide an overview of assets and other activities performed by organizations at any time. These systems should include modules to reduce environmental issues so that they can integrate information, functions and processes with the performance of the organization's environment. Integrated systems must ensure a holistic and integrated vision of the data management process, ensuring the sustainable development of the organization.



Ursacescu et al. (2019) considers that ERP information systems have an important role in achieving the objectives of sustainable business, because they reduce the consumption of electricity, paper and decrease the inefficient use of resources.

We selected in table 1 some criteria to evaluate how an ERP system ensures the sustainability of the organization:

**Table 1. Criteria to evaluate how an ERP system ensures the sustainability of the organization**

| Criteria | Effect |
|---|---|
| Energetic efficiency | optimization of electricity consumption |
| Feasibility | cost-benefit ratio based on the implementation of the ERP system |
| Portability | ensures the "migration" of the ERP system from a hardware platform to a software platform |
| Using the ERP system | efficiency, effectiveness and user satisfaction in a certain context of use |

Source: Authors' creation based on information from Ursacescu et al., 2019.

If we refer to the data stored in the database of ERP systems, most companies opt for ERP systems based on SaaS (Service as a Software), because on-premise solutions require "multiple servers, advanced cooling systems, big security systems" (Westmonroe, 2016). The SaaS solution provides support for all applications, servers and data. In table 2, we made a comparison between ERP systems based on an on-premises server versus SaaS.

***Table 2. On-premise versus SaaS***

| Element | On-premise server | SaaS |
|---|---|---|
| Electricity | -high consumption of electricity of the server and of the cooling system thus having a major impact on the financial performance of the company (increase of electricity expenses) | +can be used for multiple customers. Energy efficiency, reducing the impact on the environment and on the company's financial performance. |
| Rubbish | -based on manual processes that determine the appearance of paper waste | +based on process automation (decrease paper consumption) |

Source: Westmonroe, 2016.

## Methodology

The objective of this research is to analyse whether the ERP system influences the sustainability of a company.

The research methodology approached in this paper is quantitative based on the statistical analysis of the data collected based on the questionnaire using Microsoft Excel. The data collection was done through a questionnaire we designed in order to identify the impact of ERP systems on the sustainability of a company, so it becomes a "green business". The questionnaire includes 23 questions structured in 2 sections: a section containing demographic questions and a section containing questions specific to the research objective. Our survey was published between November 13, 2020 - November 20, 2020 on isondaje.ro platform.



Approximately 112 respondents answered our questionnaire, most of the respondents being employed in the economic, IT or finance field (72.3%), students enrolled in the Bucharest Academy of Economic Studies (20.5%), entrepreneurs (5.4%) and pensioner (1.8%), residing in urban areas (78.6%) or in rural areas (21.4%).

To formulate the questions specific to the research, we used the 5-value Likert scale, where the respondents had to specify their agreement or disagreement with the questions in the questionnaire. Using these Likert scales, averages and standard deviations can be calculated to compare different categories of subjects. The questions contain factors that we have identified in the literature regarding the impact of ERP systems on the sustainability of companies. These factors are presented in Table 3.

**Table 3. Relevant factors regarding the impact of ERP systems on the sustainability of companies**

| Factors | Code |
|---|---|
| Reducing the costs assimilated with saving and protecting resources | SCOST |
| Consistency, quality and clarity of information so that decisions are made much easier by managers | SCAL |
| Increasing labor productivity | SW |
| Influence on production and services in general | SPS |
| Influence on business infrastructure | SIFR |

Source: Authors' own research.

Regarding the processing of the data collected based on the questionnaire, we performed correlation tests and regression analysis. The purpose of the regression analysis performed was to identify the relationship between the variables chosen for the analysis and the degree of intensity of the connections, as well as to establish the shape and meaning of these connections.

Following the data collected, we developed a regression model in order to analyse the impact of integrated ERP systems on the sustainable development of the company, so it becomes a green business. The regression model is as follows:

$$y = \alpha_0 + \alpha_1 * SCOST + \alpha_2 * SCAL + \alpha_3 * SW + \alpha_4 * SPS + \alpha_5 * SIFR + e$$

where:
SCOST - Reducing the costs assimilated with saving and protecting resources;
SCAL - Consistency, quality and clarity of information so that decisions are made much easier by managers;
SW - Increasing labor productivity;
SPS - Influence on production and services in general;
SIFR - Influence on business infrastructure.



Using the regression model formulated above, we evaluated the extent to which the dependent variable (Use of an ERP system contributes to the sustainable development of the company - US) can be determined using independent variables (SCOST - Reducing the costs assimilated with saving and protecting resources, SCAL - Consistency, quality and clarity of information so that decisions are made much easier by managers, SW - Increasing labor productivity, SPS - Influence on production and services in general, SIFR - Influence on business infrastructure).

We formulated some research hypotheses that we presented in the table 4.

**Table 4. Research hypotheses**

| Research hypotheses | | Relationship |
|---|---|---|
| $H_1$ | ERP systems help improve the company's sustainability | US and SCOST, SCAL, SW, SPS, SIFR |
| $H_2$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and reducing the costs assimilated with saving and protecting resources | US and SCOST |
| $H_3$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and consistency, quality and clarity of information so that decisions are made much easier by managers | US and SCAL |
| $H_4$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and increasing labour productivity | US and SW |
| $H_5$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and the influence on production and services in general | US and SPS |
| $H_6$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and influence on business infrastructure | US and SIFR |

Source: Authors' own research

In the next section, we analysed the results obtained based on the questionnaire, as well as the constructed regression model.

## Results and discussions

In the first part, we chose to present the main results obtained based on the questionnaire on the demographic questions. As can be seen in table 5, we presented the distribution of the respondents according to the residential environment and gender.

**Table 5. Distribution of the respondents according to the environment of residence and gender**

| Gender / Residential environment | Female | Male | Total of respondents |
|---|---|---|---|
| Urban areas | 77 | 11 | **88** |
| Rural area | 15 | 9 | **24** |
| **Total of respondents** | **92** | **20** | **112** |

Source: Authors' own research.

Considering the data presented in table 3, we can see that most respondents live in urban areas (78.6%) and most respondents are female, because according to a study conducted by ANS (2020), the number of students enrolled in undergraduate, master's or doctoral programs and the number of employees in economics and finance areas are predominantly female.

Most respondents work in economics, followed by those working in IT and finance. Regarding the experience of the respondents regarding the use of ERP systems, most stated that they have an experience of less than 6 months (48.21%), being followed by those who have an experience between 6 months and 1 year (23.21%) and between 1 year - 5 years (23.21%). The rest of the respondents have more than 5 years of experience (5.37%).

In the second part, we analysed the questions specific to the paper. The results obtained based on the questionnaire showed that 41.1% of respondents considered that ERP systems automate workloads by 75%. Regarding the data processing generated by the ERP systems, the respondents gave on average a grade of 3 on a scale from 1 to 5 (1 representing "very little", 5 representing "very much"). The companies where the respondents work mostly have entrepreneurial initiatives (67.9% of the respondents stated this). Based on the questionnaire, we found that 97.3% of respondents agree that a company should conduct trainings for employee involvement on the sustainability growth of the company, as we have seen that respondents are neutral in respect of the volume of training offered to them by the companies (on average respondents gave grade 3 on a scale of 1 to 5 for this area - 1 meaning "very few", 5 representing "very many").

For a company to grow sustainably, it should invest in modern technologies to ensure environmental protection and resource conservation, a statement that 96.4% of respondents agreed with. The idea of modernizing the technologies to ensure the protection of the environment and the conservation of resources was appreciated by the respondents, who gave a grade of 4 meaning "largely" on a scale of 1 to 5 (1 meaning "very little", 5 meaning "very extensive").

According to the data collected based on the questionnaire, we identified that sustainability must receive great attention from the companies' management.

In the third part, we analysed the results of our multiple regression model.

**Table 6. The regression model – summary output**

| | |
|---|---|
| Multiple R | 0.9779 |
| R Square ($R^2$) | 0.9562 |
| Adjusted R Square | 0.9453 |
| Standard Error | 0.9541 |
| Observations | 112 |

Source: Authors' own research. Statistical analysis of the questionnaire.

In table 6, we presented the value of the regression coefficient (R) is 0.9779 (a value close to 1) which shows that between the dependent variable (US - Using an ERP system contributes to the sustainable development of the company) and the 5 independent variables (SCOST - Reducing the costs assimilated with saving and protecting resources, SCAL - Consistency, quality and clarity of information so that decisions are made much easier by managers, SW - Increasing labor productivity, SPS - Influence on production and services in general, SIFR - Influence on business infrastructure) there is a very strong association. The coefficient of determination (R2) shows that 95.62% (a value close to 100%) of the variation of the US dependent variable is explained by the independent variables (SCOST, SCAL, SW, SPS, SIFR). To verify that the multiple regression model is valid, we performed the ANOVA analysis. The results obtained are presented in table 7.

**Table 7. ANOVA**

| | **df** | **SS (Sum of Squares)** | **MS (Mean Square)** | **F** | **Significance F** |
|---|---|---|---|---|---|
| Regression | 5 | 2130.5892 | 426.1178 | 468.0653 | 0 |
| Residual | 107 | 97.4107 | 0.9103 | | |
| Total | 112 | 2228 | | | |

Source: Authors' own research. Statistical analysis of the questionnaire.

According to the results obtained in table 7, we checked if the multiple regression model is valid and we identified the following aspects:

F = 468.0653

Significant F = 0 < 0.05

} Since the significant F is less than 0.05 it follows that the constructed multiple regression model is valid

In table 8, we identified the value of the coefficients in the multiple regression model that are as follows:

**Table 8. Coefficients of independent variables**

| Model | Coefficients | Standard Error | t Stat | P-value | Lower 95% | Upper 95% | Lower 95% | Upper 95% |
|---|---|---|---|---|---|---|---|---|
| Intercept | 0 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| $X_1$ – SCOST | 0.0561 | 0.1181 | 0.4752 | 0.6355 | -0.1780 | 0.2903 | -0.1780 | 0.2903 |
| $X_2$ – SCAL | 0.3146 | 0.1445 | 2.1764 | 0.0317 | 0.028 | 0.6011 | 0.028 | 0.6011 |
| $X_3$ - SW | 0.2921 | 0.1675 | 1.7432 | 0.0841 | -0.04 | 0.6242 | -0.04 | 0.6242 |
| $X_4$ - SPS | 0.0468 | 0.1754 | 0.2670 | 0.7899 | -0.301 | 0.3947 | -0.301 | 0.3947 |
| $X_5$ - SIFR | 0.3445 | 0.1471 | 2.3420 | 0.0210 | 0.0529 | 0.6362 | 0.0529 | 0.6362 |

Source: Authors' own research. Statistical analysis of the questionnaire.

The multiple regression model is as follows:

$$y = 0.0561* X_1 + 0.3146 * X_2 + 0.2921 * X_3 + 0.0468 * X_4 + 0.3445 * X_5$$

where:

$X_1$ - Reducing the costs assimilated with saving and protecting resources – SCOST;

$X_2$ - Consistency, quality and clarity of information so that decisions are made much easier by managers – SCAL;

$X_3$ - Increasing labor productivity – SW;

$X_4$ - Influence on production and services in general - SPS;

$X_5$ - Influence on business infrastructure - SIFR.

We calculated the significance of each independent variable in table 9:

**Table 9. Significance of each independent variable**

| Independent variable | Variable significance calculation 100% - (p-value * 100) | Significant / Insignificant |
|---|---|---|
| $X_1$ - SCOST | 36.44% < 95% | Insignificant |
| $X_2$ - SCAL | 96.83% > 95% | Significant |
| $X_3$ - SW | 91.58% < 95% | Insignificant |
| $X_4$ - SPS | 21% < 95% | Insignificant |
| $X_5$ - SIFR | 97.90% > 95% | Significant |

Source: Authors' own research.

According to the data in table 9, the regression model remains composed of only 2 variables which were identified as being significant (there is a strong association between the independent

variables SCAL and SIFR and the dependent variable US), and the final regression model is as follows:

$$y = 0.3146 * X_2 + 0.3445 * X_5 + e$$

where:

$X_2$ - Consistency, quality and clarity of information so that decisions are made much easier by managers – SCAL;

$X_5$ - Influence on business infrastructure – SIFR.



As we can see in the regression model, ERP systems influence the consistency and quality of information, but also the business infrastructure, which becomes a green business exactly as stated by the author Chofreh et al. (2014).

Following the results obtained for the regression model, we presented in table 10, the hypotheses that were confirmed or infirmed:

**Table 10. Confirmed or infirmed hypotheses after analysis the regression model**

| Research hypotheses | | Relationship | Confirmed / Infirmed |
|---|---|---|---|
| $H_1$ | ERP systems help improve the company's sustainability | US and SCOST, SCAL, SW, SPS, SIFR | Partially confirmed because dependent variable (US) is determined by only 2 independent variables (SCAL and SIFR) (see table 9 with relevant results) |
| $H_2$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and reducing the costs assimilated with saving and protecting resources | US and SCOST | Infirmed (see table 9 with relevant results) |
| $H_3$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and consistency, quality and clarity of information so that decisions are made much easier by managers | US and SCAL | Confirmed (see table 9 with relevant results) |
| $H_4$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and increasing labour productivity | US and SW | Infirmed (see table 9 with relevant results) |
| $H_5$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and the influence on production and services in general | US and SPS | Infirmed (see table 9 with relevant results) |
| $H_6$ | There is a significant relationship between the use of an ERP system that contributes to the sustainable development of the company and influence on business infrastructure | US and SIFR | Confirmed (see table 9 with relevant results) |

Source: Authors' own research.

## Conclusion

Information systems and information technology are constantly evolving and a company must keep up with these developments and implement efficient ERP systems to help meet its objectives and in the same time maintain a responsible behaviour towards the environment and people. If a company wants to achieve the desired performance and become sustainable in the future, then it must set its goals and strategy in advance.



A company can become a "green business" only if it adopts a modern strategy and uses ERP systems to ensure environmental protection, social equity, replacement of resources with alternative resources, reduction of electricity and paper consumption. As long as ERP systems provide complete and accurate financial-accounting information, managers will be able to make the best decisions.

If ERP systems ensure efficient management of resources and business, we believe that any company that wants to grow sustainably should implement ERP systems.

In conclusion, integrated ERP systems are useful for any company, improving their sustainability.

## References

Andriyanto, I. (2020). Software Sistem ERP SystemEver, Top 10 ERP Software di Asia, Retrieved from: https://masirwin.com/software-sistem-erp-systemever/.

ANS (2020), Platforma națională de colectare a datelor statistice pentru învățământul superior, Retrieved from: https://date.invatamant-superior.ro.

Bradford, M., Earp, J.B., Williams, P. (2012). Sustainability: An Analysis of Organizational Reporting and Implications for ERP systems, *SAIS 2012 Proceedings*, 6, 30-35.

Chofreh, A.G., Goni, F.A., Shaharoun, A.M., Ismail, S., Klemes, J.J. (2014). Sustainable enterprise resource planning: imperatives and research directions, *Journal of Cleaner Production*, vol. 71, 139-147.

Danciu, V. (2013). Întreprinderea sustenabilă. Noi provocări și strategii pentru îmbunătățirea sustenabilității corporative. *Economie teoretică și aplicată*, XX(9) (586), 4-24, Retrieved from: http://store.ectap.ro/articole/898_ro.pdf.

Dangelico, R. M. (2015). Green Product Innovation: Where we are and Where we are Going, *Business Strategy and the Environment*, Bus. Strat. Env. 2015, DOI: 10.1002/bse.1886.

Dona, M. (2020). Ce înseamnă sustenabilitatea în afaceri și de ce orice întreprinzător ar trebui să o aibă în vedere, Retrieved from: https://www.businesslease.ro/blog/ce-inseamna-sustena bilitatea-in-afaceri-si-de-ce-orice-intreprinzator-ar-trebui-sa-o-aiba-in-vedere/.

Gast, J., Gundolf, K., Cesinger, B. (2017). Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions, *Journal of Cleaner Production*, 147, 44-56.

Gradient Consulting (2020). ERP Systems and Sustainability, Retrieved from: https://www.gradi entconsulting.co.uk/erp-systems-and-sustainability/.

Hasan, M. M., Nekmahmud, M., Yajuan, L., Patwary, M. A. (2019). Green business value chain: a systematic review, *Sustainable Production and Consumption*, 20, 326-339.

Institute for Management Development (IMD) (2020). Retrieved from: https://www.imd.org.

Kandananond, K. (2014). A Roadmap to Green Supply Chain System Through Enterprise Resource Planning (ERP) Implementation, *Procedia Engineering*, 69, 377-382.

Karagulle, A. O. (2012). Green business for sustainable development and competitiveness: an overview of Turkish logistics industry, *Procedia - Social and Behavioral Sciences*, 41, 456-460.

Knut, H. (2016). Why all businesses should embrace sustainability, Retrieved from: https://www.imd.org/research-knowledge/articles/why-all-businesses-should-embrace-sustainability/.

Mathews, J.A. (2015). Greening of Business, *International Encyclopedia of the Social & Behavioral Sciences*, 2nd edition, Vol. 10, DOI: 10.1016/B978-0-08-097086-8.73131-X.

Mirghafoori, S. H., Andalib, D., Keshavarz, P. (2017). Developing Green Performance Through Supply Chain Agility in Manufacturing Industry: A Case Study Approach, *Corporate Social Responsibility and Environmental Management*, DOI: 10.1002/csr.1411.

Rajan, C. A., Baral, R. (2015). Adoption of ERP system: An empirical study of factors influencing the usage of ERP and its impact on end user, *IIMB Management Review*, 27, 105-117.

Tsai, W.H. (2020). Enterprise Resource Planning (ERP) and Sustainability, Retrieved from: https://www.mdpi.com/journal/sustainability/special_issues/ERP.

Ursacescu, M., Popescu, D., State, C., Smeureanu, I. (2019). Assessing the Greenness of Enterprise Resource Planning Systems through Green IT Solutions: A Romanian Perspective, *Sustainability*, 11, 4472; 1-32, DOI:10.3390/su11164472.

Westmonroe (2016). How sustainable is your enterprise resource planning (ERP) system?. Retrieved from: https://www.westmonroepartners.com/perspectives/in-brief/how-sustainable-is-your-enterprise-resource-planning-erp-system.

Wikipedia (2020). Sustenabilitate.Retrieved from:https://ro.wikipedia.org/wiki/Sustenabilitate.