



**Doctoral School of
Business Informatics**

THESIS SUMMARY

Peter Bago

The connection of CSR indicators and enterprise resource planning system

PhD dissertation summary

Supervisor: Peter Feher, Phd, associate professor

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Department of Computer Science

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Content of table

- 1. BACKGROUND, SCOPE AND OVERVIEW OF THE RESEARCH 4**
 - 1.2. *Research questions*..... 4
- 2. RESEARCH METHODOLOGY AND CONCEPT 6**
 - 2.1. *Research methodology and overview* 6
 - 2.2. *Research concept* 6
- 3. RESULTS OF THE THESIS 8**
 - 3.1. *How is the ERP system suitable for serving CSR reports?*..... 8
 - 3.2. *To what extent are the existing CSR indicator systems suitable for integrating CSR reports?*..... 9
 - 3.3. *How can ERP create automatic CSR reports?*..... 10
 - 3.4. *Vision of CSR with ERP systems* 11
- 4. MAJOR REFERENCES..... 14**
- 5. LIST OF PUBLICATIONS 18**
 - 5.1. *Journals* 18
 - 5.2. *Conferences*..... 18

1. BACKGROUND, SCOPE AND OVERVIEW OF THE RESEARCH

1.1. Research Background and Scope

The importance of research is to showcase the path of a solution that has not yet been discovered. ERP system vendors did not integrate a complete CSR framework, only one tiny process was taken out and implemented as an indicator, such as managing hazardous materials. Nonetheless, the information needed for basic CSR processes is located in ERP systems, only to be collected and organized. This requires a CSR methodology that helps in structuring and guiding ERP vendors to make it a success. An enterprise CSR strategy is driven by market pressure, but from within, the significance of my research lies in the fact that if we succeed in linking ERP and CSR, it can be motivated from the outside to transform corporate processes to meet the requirements of CSR.

The antecedents of the research are organically linked to the steps of evolutionary informatics. I have been constantly looking for ways to move from the current level of development to my previous work and research, so I have made a number of publications in which I was looking for ERP renewal opportunities. Based on these publications, the dissertation does not emphasize how we integrate accounting reports from 3 continents, but how to incorporate responsibility as a process into ERP systems. My publications had three separate areas, each of which focused on futures studies, the first being terminology - for example, what kind of automatic systems can be used to find an isotopic chain, how to say words and trends specific to the crisis. The second line is the potential for further development of ERP systems, global ERP systems, wine information systems. The third line is the "human" issue, community CRM systems, smart homes, ie integration issues. From these parallel research lines, this dissertation has come and come together.

1.2. Research questions

The following research questions will help you understand the objectives of the dissertation and the goals. My research is problem-solving, exploratory research, in which I do not set up hypotheses supported by statistical methodologies, because of the nature of the dissertation as defined in evolutionary steps, I define levels to which verifiable theories relate. The research

questions are not theses, only exploratory guiding questions, to which the answer will be defined and defined at the end of the thesis:

1. How is the ERP system suitable for serving CSR reports?
2. To what extent are the existing CSR indicator systems suitable for integrating CSR reports?
3. How can ERP create automatic CSR reports?

2. RESEARCH METHODOLOGY AND CONCEPT

2.1. Research methodology and overview

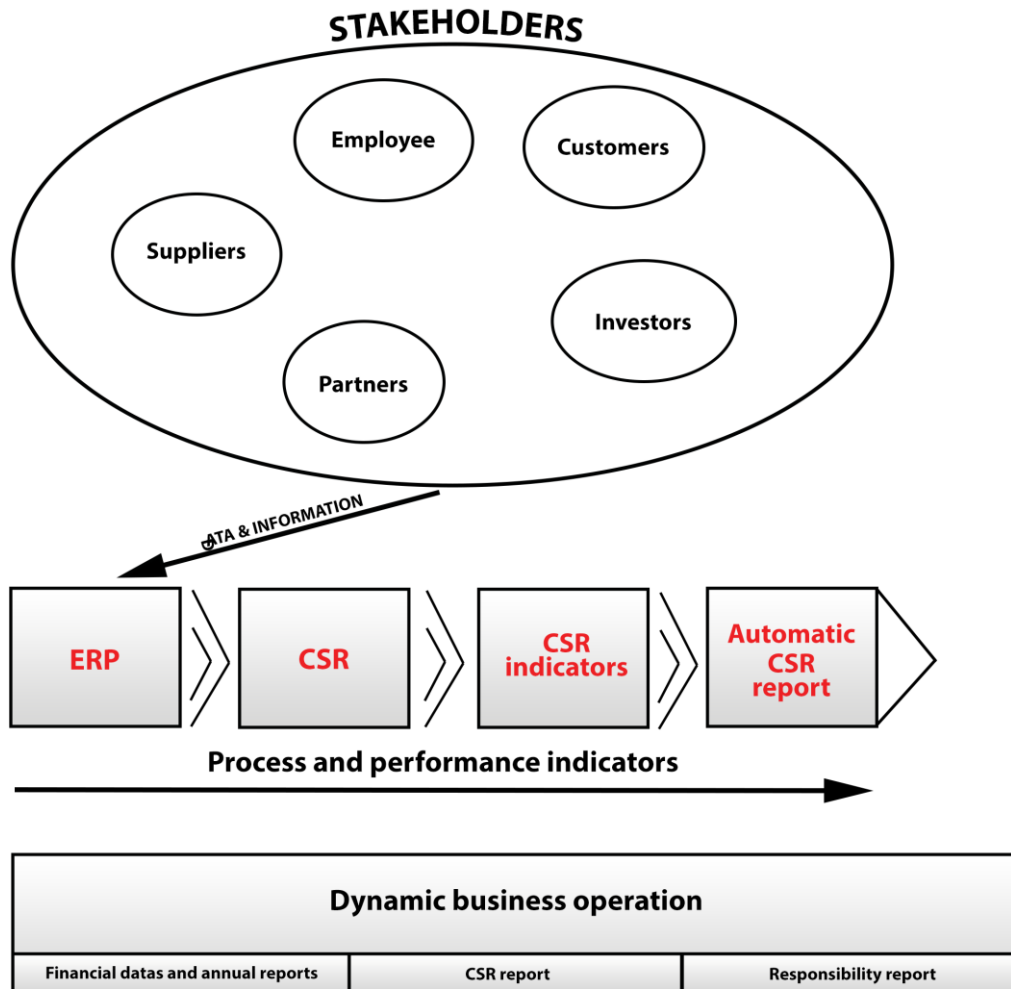
The research was carried out in a doctoral school accredited in the field of informatics, which looks at the problem on a solution basis, what is needed to create a CSR report, what literature review, what tasks are needed. Therefore, no hypotheses are set up, instead of research questions, a series of problems that ultimately lead to a solution. Such research is part of descriptive research and development, the purpose of which is to explore, not to justify. The goal is a theoretically supported problem solving that provides a workable solution for science and integrated system vendors.

Exploratory research should be used when there is no history of a given topic and it is designed for a better understanding of the topic or for a more thorough feasibility study, or perhaps for the purpose of establishing further research (Szabó, 2000). According to Babbie (2003), it would be premature to formulate hypotheses in this area, and to develop a theory that will eventually be the basis for the process.

The research questions in the structure of the dissertation and its goals help me to understand my goals more easily. My research is problem-solving, exploratory research, in which I do not set up hypotheses supported by statistical methodologies, because of the nature of the dissertation as defined in evolutionary steps, I define levels to which verifiable theories relate. The research questions are not theses, they are only exploratory guiding questions, for which the answer will be defined and defined at the end of the thesis.

2.2. Research concept

The structure of the dissertation follows the figure below, in the first part I present the path that led to the current ERP systems. The second part of the CSR literature is what is needed to create an automatic CSR report. In the third part, I present CSR indicator frameworks and select one of them, along the fourth part, to show what interfaces are in a current ERP system.

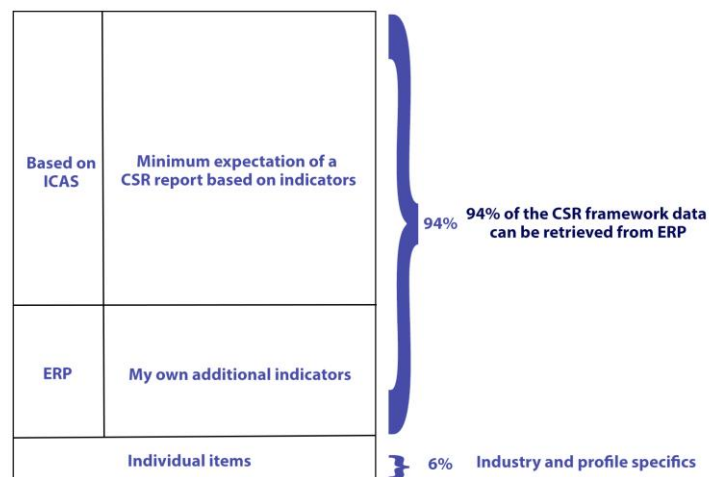


1. ábra Research concept (Source: my own, 2019)

At the end of the dissertation I take a stand on research questions, showing how an automatic CSR report can help a dynamic business operation.

3. RESULTS OF THE THESIS

The results of the dissertation are outlined in the figure below, where it can be seen that 94% of the CSR framework compiled from UNCTAD and the ICAS template can be found in SAP ERP, with additional 6% unique items that cannot be stored. or other industry specifics datas:



2. ábra Results of the thesis (Source: my own, 2019)

3.1. How is the ERP system suitable for serving CSR reports?

The ERP system stores the basic information and is therefore able to provide and display the information required by the CSR reports.

Based on the results of the dissertation, the ERP system is suitable for serving CSR reports. The main result of the dissertation is that there is still enough information in ERP systems to create an automatic ERP report. The process presented demonstrates that if we select an indicator system that adequately describes the information needs for a given indicator, it can be served by the ERP system. Based on the results presented, information in the indicator system created under the UNCTAD guidelines is already 94%.

In more detail, ERP systems store the organizational information they provide, such as the number of employees. This is information found in any ERP system that is retrieved from the ERP system when creating a CSR report and inserted into the appropriate indicator. If additional

information is required, eg. the gender ratio can be stored in the system. If we consider the original consideration of the dissertation, then an automatic CSR report is not so complicated in this respect, practically putting the right information into a schema, a report. These can be provided at any moment by the system, so an automatic CSR report is not the past but the ability to present it, so it can immediately make and decision support.

In my dissertation, I have explained in which order, which ERP information unit can be found, the order in which the CSR report derived from the ERP should comply with the requirements of UNCTAD. The latest figure shows how the automatic CSR report I imagine is built up, there are the information needs required by the basic indicators, plus the additional own indicators and the individual items that are put together in the ERP.

In decision-making and decision support, the ERP system can provide basic information to management for the indicators, which, in selecting the strategic direction, can build the CSR report into the appropriate format. The ERP system is also able to put the right information into a pre-fabricated schema, giving you the basics for decision making.

3.2. To what extent are the existing CSR indicator systems suitable for integrating CSR reports?

The CSR indicator systems I have presented are more suitable for integration, and public (corporate) reports contain information that can be used to build and integrate a CSR report.

CSR indicator systems and CSR reports need to meet different requirements for each continent and country; The UNCTAD indicator system presented and conducted in the dissertation, with a 94% hit rate, can be said to be suitable for integration.

There are currently no ERP systems on the market that contain a CSR module or an ERP system. standalone CSR reporting tool. Such a report can be compiled with generic reporting tools in the ERP. The future target is our own CSR module, which is available in all ERP systems, and the gap between the expectations and the true performance described in the dissertation is reduced. That's why CSR reports are therefore needed to integrate into ERP systems, not just because it's not in itself, so that performance increases.

Indicator systems have the same purpose, sustainability, and responsibility, so it can be said that most of the CSR indicator systems are capable of integrating with ERP. At the same time, in the case of soft factors, further improvements are needed to write down the rules required for integrating ERP systems. Therefore, the UNCTAD described above is definitely suitable for implementation. The other most suitable indicator system is the GRI core, from which SAP took over stakeholder involvement, completeness, relevance and sustainability, while the EU did not introduce the GRI principles, so this is just a small step from SAP.

Analyzing the UNCTAD guidelines in the Reuters database presented in my dissertation, I found that a CSR report could be built based on the data provided by companies, with 63% of these policies being found. So, if a CSR report can be built on such a high rate from an external database available to the company, then we can reach the target with even more in-house information.

3.3. How can ERP create automatic CSR reports?

Integration of CSR reports provides information for decision support, and needs to incorporate sustainability requirements, indicators and indicators into their design. They store information retrospectively, which can be used later for strategic decisions and CSR reports.

Companies should either have a CSR report, either mandatory or trust-building, but if not, the formula should be the following, an indicator system that suits the given corporate strategy, is suitable for the affected, and last but not least the requirements of that country. compliance. The next step is to have the information from the ERP, which has been extracted manually so far and finally put the CSR report manually. The formula is abbreviated, indicator system + information = CSR report, in my dissertation I have shown that it is suitable for the creation of the ERP system.

Not only is CSR reporting the main focus, the future is a CSR module that will narrow the gap between expectation and performance so that we can fully automate CSR processes. The goal would be to bring a strategic goal, for example, to join a green company program, the whole value chain would lead this thinking along. Why would it be good? Because wherever a CSR strategy is built, from top to bottom, or vice versa, there would always be a system that could instantly present its effects. Ultimately, we got the decision-making and decision support, that

is, how much of the above-mentioned green company program would cost the company and how, what resources, how could it be realized. The CSR report is only the first step in this endeavor.

If the companies have a unique indicator system, in this case the ERP system will be able to generate an automatic report, only to explain what information needs the given indicator and where it is located in the ERP system. Each ERP system has a generic reporting module that can be used to develop any unique CSR report. The main focus is not on the technical implementation, the indicator systems presented in my dissertation are suitable for integrating into ERP systems, the question is, what international indicator system is compatible with its own individual report.

3.4. Vision of CSR with ERP systems

The vision of CSR reports is moving in a direction where countries publish reports in a common repository, thereby increasing trust and reporting. Financial data should be published by every Hungarian company, and I believe that CSR reports should be collected in the near future, thus increasing confidence in the country and its companies. Trust would also increase for those involved, as it would be easier to eliminate the distortion of KPIs, and a truly responsible corporate operation could be presented with comparable historical data. There are several CSR benchmarking methodologies, EcoVadis, CSRHub, these are all independent organizations and use the largest frameworks, but as the next short example shows, they are incomparable. While CSRHub gives 91¹ points to Lenovo for CSR reporting, EcoVadis has only 70² points.

In the dissertation I have explored how to make an automatic report of the UNCTAD report I selected and how much data is already available in the ERP system. The data contained in the UNCTAD report has been presented in detail, with their calculation methods and as a result of the dissertation, I have shown that 94% of these data appear in an ERP system. So if we want to put this CSR report on ERP now, we'll find 94% of the data in the system. That is, with the help of a standard report builder, the data could be assembled, of course, the soft factors should

¹ https://www.csrhub.com/CSR_and_sustainability_information/Lenovo-Group-Ltd

²

https://www.lenovo.com/us/en/social_responsibility/LENOVO_GROUP_LTD_GROUP_EcoVadis_Sustainability_Profile_10_11_2017.pdf

then be added manually. As a further support, I saw in Reuters public (not CSR) reports how many percent of the indicators are present and high, 63% of the indicators are there.

At the end of the dissertation, examining 90 CSR reports, I took out a CSR template prepared by ICAS and compared the two. The result is illustrated and you can see in detail the proportion of non-reports I have in real reports. Furthermore, in the end of the 90s CSR report, I examined the proportion of UNCTAD framework indicators present and found that nearly one third of them were in public CSR reports. Two things come from this, the first being that the UNCTAD framework was not used, but there is an overlap between the frameworks.

The future of CSR needs to be improved, more effective communication is needed, not enough is what is happening now to compile reports manually. Furthermore, it is not enough that there is such a gap between real and expected performance. The third, which is also not enough, is that the implementation of the framework is not regulated in the EU, but in virtually any other country you can choose.

Therefore, for the three reasons, I think that CSR could be standardized in this respect, that is to put it behind a basic system that has been proven. This is the ERP system that was able to evolve in the midst of the crisis, because it increased competitiveness. If we are able to automate a CSR report, we have already taken a major step towards sustainability, but I want to go further in my future research. I also think that a complete CSR framework should be integrated into ERP systems, because then we can talk not only about manual decision support, but to think about a real online support system when we really know how our decisions would affect the environment and the company as well. This would be a two-way relationship where the CSR would be integrated into the entire value chain and would appear at each level of the value pyramid. This would be the point at which the company makes a strategic decision, for example, to support employee education and to allocate resources to it, whether material or human. These processes have only been manually done so far, or simply by knowing how much material resources are available and built from them.

There are some authors (Braun, 2013) who think that CSR is only a content and not a paradigm shift, companies need a new identity, companies need to be awakened to the end of company boundaries, stakeholders, values, Consumers also exist and need to embed the future CSR. I think I am thinking in this direction too, but I do not approach the question from a philosophical

point of view, but from information technology, from 1 and 0, which, if we manage to put in place a suitable sustainability framework, can really go to the paradigm shift. But if I do not start this revolution, I have at least helped with these thoughts and I look forward to my further research on how to further promote this paradigm shift.

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