Strategic Approaches to ERP Implementation in Enterprise Environments

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Abstract

This study investigates the dynamics of Enterprise Resource Planning (ERP) implementation within contemporary enterprises. Through a comprehensive analysis of organizational perspectives, the research explores the decision-making processes, key considerations, and challenges encountered during the first phase of the ERP adoption. Drawing upon insights from industry professionals and stakeholders, the study delineates strategic approaches to ERP implementation, highlighting the interplay between organizational maturity, system functionality, and integration capabilities. Findings underscore the importance of aligning ERP implementation with established business models while accommodating future scalability and evolving operational needs and the reliability of the vendor which significantly reduces the risk of implementation failure.

Keywords: ERP implementation, enterprise modelling, systems modelling.

1. Introduction

Increasingly, enterprises in Poland are contemplating the adoption of Enterprise Resource Planning (ERP) systems, driven by the accrued experiences of numerous firms indicating that ERP systems streamline various financial and accounting processes. These processes include intricate accounting management within complex organizational frameworks, consolidated reporting, document flow optimization, strategic planning, cost monitoring, warehouse oversight, among others. While alternative methodologies exist to achieve analogous objectives, the pivotal advantage of an integrated ERP system lies in its capacity to centralize access to extensive financial and accounting datasets via a unified interface, thus significantly augmenting the efficiency of daily corporate management.

Confronted with the prospect of ERP implementation, enterprises have to make a series of pragmatic decisions regarding the precise execution of this endeavor. Insights gleaned from engagements with ERP stakeholders underscore the disparate nature of the pre-implementation phase across entities, with divergent ERP implementation strategies evident among companies. Initially, a comprehensive ERP implementation team must be constituted, delineating the roles and responsibilities of its members. Subsequently, an exhaustive assessment of product offerings is indispensable to discern systems aligned with the scale and requisites of the enterprise, while elucidating their functional capacities. A pivotal determinant in this phase is the selection of a deployment model, whether a company should adopt on-premises, cloud-based, or a hybrid system. Thereafter, the enterprise must determine a suitable vendor for system implementation and subsequent maintenance.

The aim of this research was to look at the described process in terms of similarities and differences in the solutions used by various companies concerning implementation strategies of the ERP system. In particular, we were looking for practical problems that were encountered by the companies we analyzed and decisions that had to be made during this process. The major contribution of the paper is that it presents specific problems and strategic decisions that were approached by the companies that implemented the ERP systems in Poland.

2. Review of previous studies

The literature on ERP systems tends to focus on the success and failure factors in implementing these systems. Nevertheless, one can also find some considerations regarding the strategy of preparing the company for the implementation of the system, i.e. recommendations regarding the pre-implementation phase.

For example, Capaldo and Rippa [9], [42], [58] write that each company must choose one of two methods of system implementation - "big bang " or " incremental" strategies ". “Big Bang” means quick implementation of all systems together, which means that the process takes a short time, but due to low customization, the organization must reorganize and adapt to the ERP system, not the other way around. In the case of incremental implementation to the system is adapted to the individual, but due to the long implementation period, the company uses two IT systems for a long time - the old one and the new one that is being implemented. This is expensive and causes duplication of the computer resources.

Another issue to consider is the implementation team [10], [26], [52], which will be able to define the requirements for the system - or, alternatively, outsource this task to an external company (which may not know the specifics of the company and may also make mistakes) [24]. The requirements elicitation is critically important [1], [59] as well as the prioritization of these requirements [41], [60]. Efficient implementation also requires the proper motivation of top managers [14], [25], [28], [57] and the low-level employees [2], [8], [25], [45], [56] to put sufficient effort and commitment into the process of adopting the new ERP system. Choosing a specific system is a very long and complicated process, especially taking into account that according to Kreamer [33] between 55 and 75 per cent of implemented ERP systems fail to meet the expected results. In the era of cloud, onsite and hybrid systems, the company must also make the decision what type of the system a company needs [15], [18, 19], [44] and what supplier to choose [38].

The next issue is the choice of the implementation company [40]. It is not uncommon that during and after the implementation there are conflicts regarding the scope of implementation, where the implementation company blames the ordering party for incorrect specifications and requirements [11], [53]. Many times, companies that have attempted to implement an ERP system have complained that the promises made by the companies offering them the ERP system did not coincide with the subsequent implementation and functionalities of the system. They called it the "promising mountains of gold" syndrome. The choice of a vendor who will be reliable and will take care of the client's interests is critically important at the pre -implementation stage [13], [46]. One needs to discuss and agree with the implementing company, among others on: technical specification [19], understanding the organization’s business processes [36], customization [23], [26], user's maturity to implement the new solution [37]; evaluate and integrate the legacy systems [20], [22, 23]. The vendor must provide full support [7] during and after the implementation [50], [58].

In the pre - implementation phase, it is also necessary to realistically establish a budget and reserves in the event of cost overruns [4], [39], [47]. Many companies, guided by promises, estimate a much lower budget for ERP than needed, especially considering that it is usually necessary to replace or purchase hardware [6], [14]. Research shows that the initial budget (agreed with the vendor) may be exceeded by up to 50% [29], [47]. High maintenance costs after implementation should also be taken into account [50].

Another important element of the pre-implementation phase is realistic setting of deadlines and milestones [3], [6], [35], [54]. According to [6], it takes companies from 6

months to a year to select a software supplier. The implementation itself (Beheshti studied large enterprises [6]) takes from 7 months to 2 years (and longer).

Another important task for the implementation team is to make sure that the system will be continued in the future and that the manufacturer does not plan to discontinue it. If there are such plans, it is necessary to create a plan to replace this system with a new one. The development potential of the system is very important.

The company must also be aware of the high costs and time required to migrate data [34]. Statistics offered by various publications do not necessarily reflect the actual share of these costs in the total budget allocated for implementation. Here, the trust and credibility of the implementing company is also important, because the data not only must be effectively migrated to the new system, but there must also be no errors and no part of the data may be lost.

Finally, the company must also define the criteria according to which it will finally assess whether the implementation was successful and to what percentage it achieved the assumed goals [55].

Since all above mentioned factors had to be decided upon during the pre-implementation stage of the ERP system, we asked representatives of companies operating in Poland concerning their experiences associated with these aspects of implementation.

3. Insights from empirical research

The research survey, the results of which are presented below, was conducted on 56 respondents who participated in the ERP system implementation process so directly that they were able to answer the questions asked[1]. The respondents worked in various positions, ranging from technical, through administrative and financial posts. Out of 56 implementation that respondents described, 5 were cloud implementations and remaining were on-site implementations. We were not capable of selecting a representative sample, therefore, we suggest caution with the interpretation of the results because they might be biased. Nevertheless, in our opinion, problems which respondents described can be used as guidelines when a company is preparing to implement the ERP system and can be covered during the risk analysis stage. Another source of bias might be that fact that the survey questions were based on previous interviews with the same respondents concerning the practical aspects of implementing the ERP systems.

It is also worth noting that approximately 25% of people we asked to complete the survey reported that the ERP system was ultimately not implemented in their company.

Figure 1 illustrates the company sizes represented by the respondents. As evident from the data, the implementation of ERP systems is predominantly observed in medium and large enterprises. This observation aligns with the rationale that smaller entities typically exhibit less intricate business processes, thereby mitigating the imperative for ERP integration [48], [51].

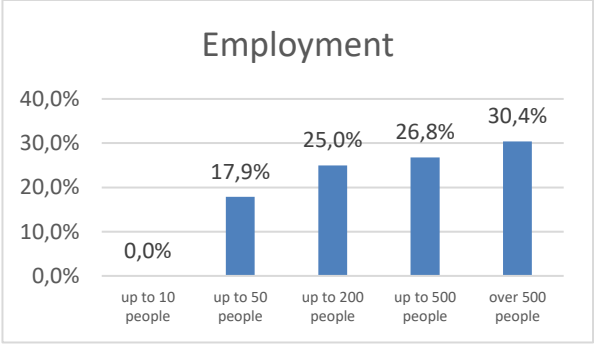

Fig 1. Employment range in a respondent's company

The second question (Figure 2) concerned the official technical dialogue as a way to

[1] Respondents were subject to various confidentiality clauses and therefore we could neither ask nor reveal the names of the companies in which they were employed.

learn about the offers of various ERP vendors, prices, and adaptation to the company's needs. As indicated by the respondents' answers, such dialogue took place in 73.2% of cases (by "technical dialogue" we meant the company inviting representatives of various firms and having presentations of their products together with price discussions not the discussions inside the company concerning technical aspects of the ERP system and its implementation –smaller companies did only informal technical analysis). In other situations, the company either decided itself what system it wanted to implement and contacted only one supplier, or commissioned such an analysis to a subcontractor (this behaviour was observed for smaller enterprises). There were also cases in which the company prepared a detailed specification of its needs and then announced a tender for the development and implementation of a system that meets the described needs (mostly for state-owned enterprises) [12].

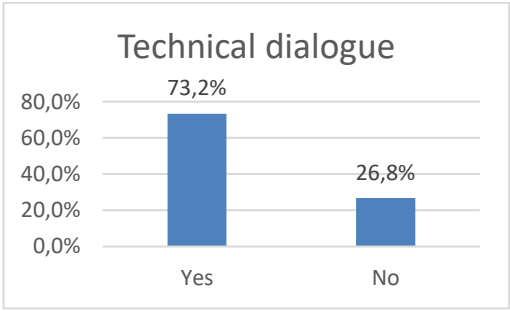

Fig 2. Presence of technical dialogue before selection of an ERP system

In response to the imperative to select a precise IT solution, the survey additionally inquired about the leadership of the team entrusted with ERP system implementation (Figure 3). A significant majority of cases (66.1%) identified the manager of the company's IT systems department as the leader of this team, followed by occasional involvement from a member of the Management Board (23.2%). Approximately 10% of instances cited another individual assuming this leadership role. Furthermore, respondents highlighted instances wherein the chief accountant officer (CFO) often advocated for a particular system based on familiarity and preference, although the ultimate decision rested with the team leader, underscoring the autonomy in system selection [5], [31].

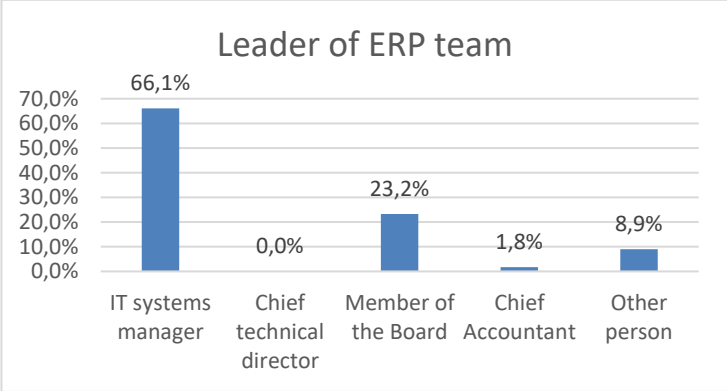

Fig 3. Who was the leader of the ERP implementation team in a company

The next question concerned knowledge of the company that carried out the implementation (Figure 5). In the case of enterprises subject to the Public Finance Act, the implementation of the ERP system takes place through a tender, which means that the client has little chance that the implementation will be carried out by a company they may have previously known or cooperated with. In the case of commercial companies, only in 17.8% of cases the clients did not know the implementing company. In 53.6% of cases, the implementing company was recommended by one of the employees or cooperating enterprises, and in 28.6% of cases it was a company with which the entity had previously cooperated (the smaller the company was the more common was the selection of previously

known company). As it can be seen, in most cases, very well-known companies were chosen or those recommended by a person who had previously worked directly with them (relying on personal recommendations was popular for all sizes of companies).

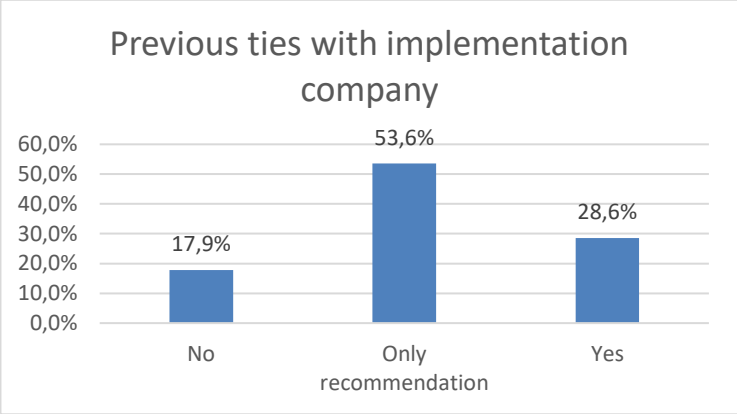

Fig 4. Did Your company know the implementation companies before ERP implementation

Figure 5 shows the distribution of answers to the question about the main determinants of system selection. Respondents could select from one to three answers. As the chart shows, the most frequently given reason was adapting the system to the specific nature of the company. Examples of such adaptation were given by respondents, among others: the fact that only a few ERP systems are dedicated to large organizations, while other systems are characterized by great simplicity of use, it was also important to have a Polish module in the field of human resources and remuneration (adapted to Polish regulations). The data exchange platform integrated in the system was also important [16][17][30].

Some companies already had experience with various systems and chose a system that was already known in the company (24.4%). The third most important factor is the development potential of the system, i.e., among others: certainty that the manufacturer does not intend to stop developing a given solution. The other important factors chosen by respondents were the system properties presented during the technical dialogue or presentation and the price of the system - although this was not the most important factor.

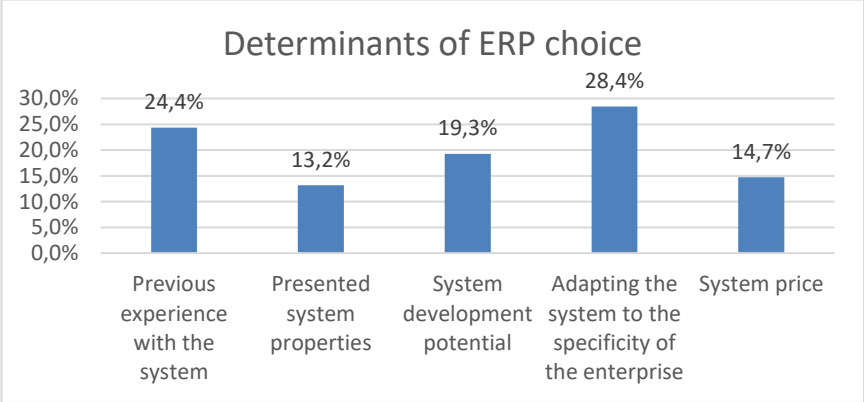

Fig 5. Determinants of the ERP system selection

Figure 6 shows the frequency of data migration when implementing an ERP system. As the chart shows, in 92.9% of cases there was a need for expensive data migration. Information obtained from respondents showed that data migration sometimes cost half of the entire budget allocated to the ERP system. Typically, the amount ranged between 20% and 40% of the entire budget (including hardware). According to respondents, it was a very difficult process and took much longer than initially planned. More than half of the delays related to the implementation of the ERP system resulted from data migration problems. It is worth noting the high share of the cost of data migration among respondents - it was much higher than various ERP statistics indicate [32].

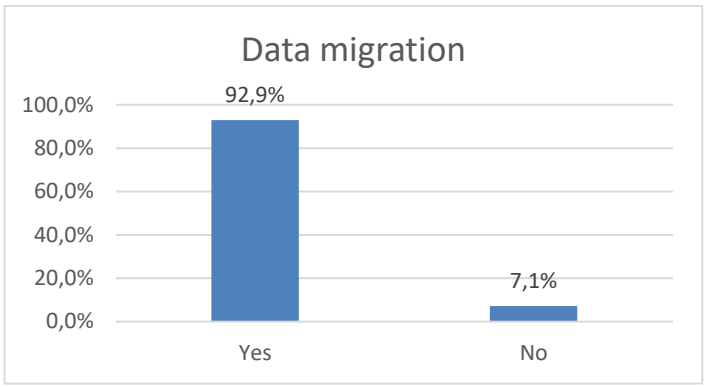

Fig 6. Data migration as a part of the ERP implementation

Figure 7 shows the duration of the ERP system implementation. In the majority of cases, respondents estimated this time to be approximately one year (83.9%), in 8.9% it was a period shorter than a year, and in 7.1% it was a period longer than one year. After implementation, the implementing company serviced the system and solved any problems that occurred on an ongoing basis, as well as performed training and updating the system. However, it is worth mentioning that this was the originally planned implementation time. In the case of the survey, as many as 65% of respondents believed that the implementation took longer than initially planned. 49% of respondents also stated that the originally planned budget was exceeded [21]. Shorter implementation was observed mostly for smaller entities or for cloud-based implementations.

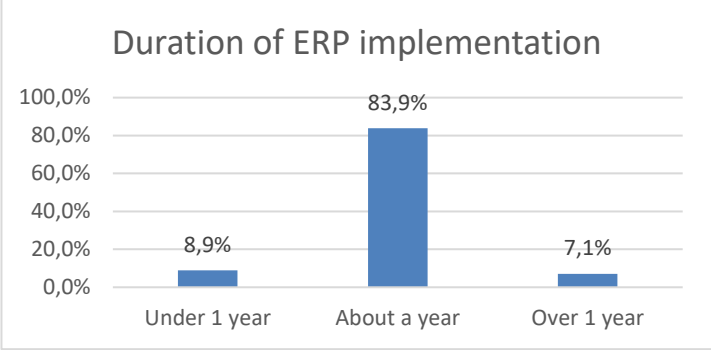

Fig 7. Duration of the ERP implementation period

Figure 8 shows the distribution of answers to the question whether, in the respondents' opinion, one of the ERP systems was best suited to the company's needs. As many as 89.3% answered that ERP systems are definitely different and that the ERP system should match the specific needs of a given company (meaning to adapt such a system so there is as little customization as possible). When asked about the differences, they gave many different examples, for example a specific method of accounting in the SAP system, adaptation to the needs of distributed companies, having a data exchange platform, ease of integration with existing systems in the enterprise, as well as system costs [27][43].

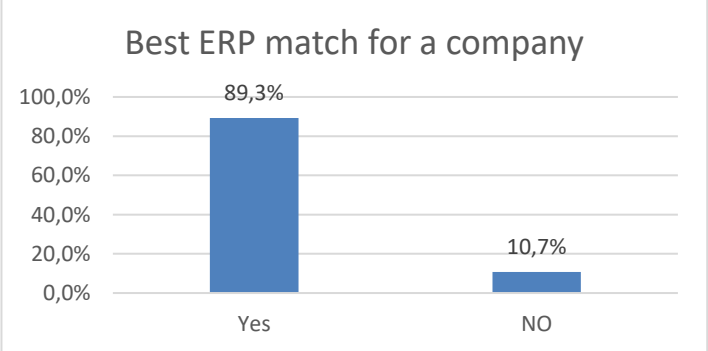

Fig 8. Do any of ERP system is the best match for your company

Figure 9 shows the respondents' opinion which solution is more beneficial for the company in their opinion - implementing the ERP system in conjunction with another large system required by the company, or integrating the new system with those systems that have already been implemented. The majority of respondents believed (87.5%) that it was better to implement both large systems together, although 12.5% believed that it was completely feasible and simpler to implement only the new system that was needed and integrate it with the second, existing system. Several respondents said that, despite expected problems, implementing an ERP system and integrating it with existing other systems turned out to be relatively simple, quick and cheap [49].

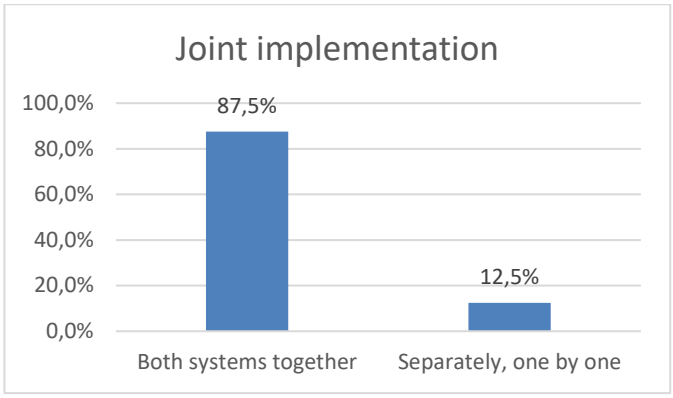

Fig 9. Should two big enterprise systems be implemented together or separately and integrated

Figure 10 shows what the conflicts with the implementation team were about. Conflicts occurred in only 15% of implementations. The most frequently controversial issue was the difference between promises and reality (21.8%) and the scope of implementation, where the implementation company believed that the client incorrectly defined its requirements and/or did not understand what was agreed with the client. Respondents also complained about the difference between the planned budget and actual costs (18.1%), which resulted from the need to incur various additional fees and surcharges, as well as insufficient or inappropriate customization (15.5%), i.e. adapting the system to the customer's needs. According to respondents, each new system replacing the old one brought several additional benefits, but there was always something missing in the new system. It is worth noting that the given numerical values refer to the share of specific reasons for conflicts in all selected answers (of which there were a total of 195)[53].

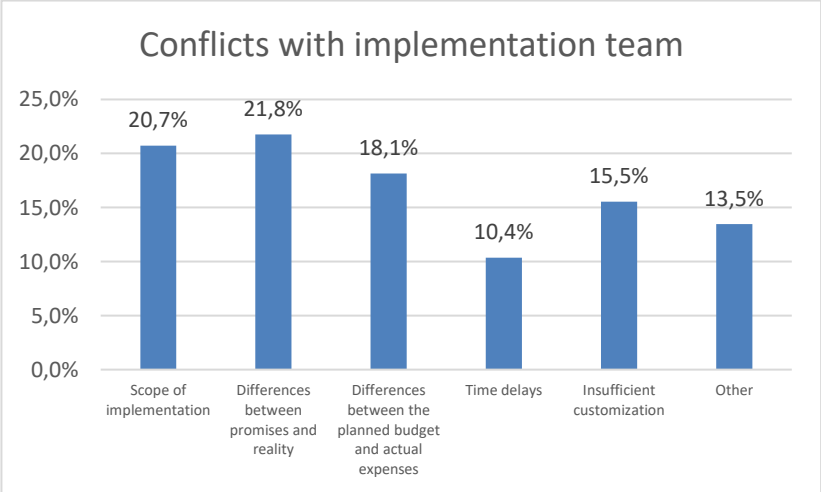

Fig 10. Reasons of conflicts with the implementation team

Figure 11 shows the criteria used by enterprises when selecting the system. As shown in the survey, the votes were evenly distributed between a good combination of price,

quality and system capabilities, and focusing on the quality of the system and the number of implementations carried out worldwide.

Many respondents were of the opinion that it is better to pay more for an expensive but proven system in many implementations around the world and to employ a very experienced and reputable implementation company than to take the risk that the implementation will either fail or be interrupted.

Respondents provided various statistics about success rates in ERP implementation. Some claimed that only one in five ERP system implementations is successful, others said that 70% of implementations fail, others that half, and still others that 30%.

Since all these numbers also appear in various studies on the Internet, it is difficult to clearly assess which of them most closely corresponds to reality, and what was considered a success or failure in a given study of the implementation of the ERP system[10].

In many cases, a failure in implementation could mean the implementation that did not satisfy the client and did not improve the quality of the work, even though the system has been implemented.

The survey results elucidate a notable trend wherein the majority of respondents did not prioritize the price of the system as the sole determining factor. Instead, a substantial emphasis was placed on evaluating the functionality of the system and ensuring its effective implementation.

Fig 11. What was more important – price of the ERP implementation or its quality

4. Summary and final conclusions

The objective of this research was to scrutinize the strategic and organizational dynamics underlying ERP system implementation within companies and problems encountered during this process. Findings reveal that while the chief accountant's officer preference often leaned towards one ERP system, the ultimate decision-making authority typically rested with the team leader possessing expertise in IT and ERP systems from a technical perspective. Within the surveyed sample, the selection of a specific system seldom occurred without engaging in the official technical discourse, wherein representatives from diverse companies presented their respective solutions. In smaller companies it was not uncommon for the member of the board to be directly involved in the implementation process.

A prevailing inclination among respondents was to collaborate with familiar or recommended implementation firms, consequently leading to a relatively low incidence of conflicts during the implementation phase. Conversely, instances of cooperation with unfamiliar entities occasionally engendered misunderstandings regarding the implementation scope and alignment with the unit's specific requirements. Notably, companies exhibited a propensity to prioritize system reliability and success over immediate cost considerations, reflecting a strategic preference to avert potential complications and failures. This strategic orientation was likely influenced by the observation that entities with constrained budgets sometimes opted to forego implementation due to perceived cost prohibitions. In the decision-making process

surrounding ERP system selection, it becomes evident that price constituted just one among several pivotal considerations. So it was not only the price that mattered in the selection of the system, but also (among others) its quality, matching the company's profile and size, simplicity of use and scalability.

A prevailing sentiment among respondents was the belief that it is advantageous to implement all major systems within the enterprise concurrently. However, contrary to the general belief, several respondents asserted that subsequent integration of ERP systems with pre-existing software posed minimal challenges. So the majority of the respondents opted for the joint implementation of systems, whereas the minority claimed that it is even easier to implement them separately – one after another.

Large enterprises tended to opt for globally recognized systems with extensive implementation track records, thereby instilling greater confidence in their compatibility with other software platforms. Across the board, interviewees noted that the systems they utilized were generally capable of integration with other platforms, contingent upon the proficiency and competence of the implementation team. Furthermore, respondents frequently underscored the exigency of data migration, characterizing it as a protracted and costly process, often cited as a primary factor contributing to budget overruns and missed implementation deadlines. High costs of data migration (higher than predicted by the literature) were one of the interesting conclusions from the survey.

When probed for advice to companies contemplating ERP acquisition, respondents emphasized that implementing an ERP system is viable once the company processes are well-established. However, waiting until the company attains a considerable scale is deemed unnecessary, as complexity may burgeon significantly at that juncture. Notably, robust ERP systems have the capacity to evolve together with the organization, enabling the addition of further modules and functionalities as needed. It is advisable for the company to have already defined its headquarters, business profile, and operational procedures, although additional processes can be incorporated later as part of ongoing development. Hence, ERP implementation can occur either when the company has achieved full maturity or when it has reached a certain stage of development and its processes are well-defined. It is another interesting observation from the survey, that once the company established its processes, it can and it should already implement the ERP system.

The survey results showed that not always vendor promises matched reality, implementation process depended on the quality of requirements specification and honest communication between the implementation company and its client, and the selection of the system was based on how well it suited the company needs, not just its price. We believe that these practical observations may be useful for other companies if they are considering the implementation of the ERP system.

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ChatGPT 3.5 was utilized to enhance the quality of specific sentences in the article (find synonyms, or analogous sentences).

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References

1. Aires, M., Abrantes, R.: Requirements Elicitation in ERP Implementation Process, Procedia Computer Science, 204, pp. 794–802 doi: https://doi.org/10.1016/j.procs.2022.08.096 (2022)
2. Ali, M., Miller, L.: ERP system implementation in large enterprises – a systematic literature review. Journal of Enterprise Information Management, 30(4), 666–692 https://doi.org/10.1108/JEIM-07-2014-0071 (2017)
3. Amoako-Gyampah, K.: Perceived usefulness, user involvement and behavioral

intention: An empirical study of ERP implementation. Computers in Human Behavior, 23, 1232–1248 https://doi.org/10.1016/j.chb.2004.12.002 (2007)
4. Azka, A.F. Aisyah, N.: ERP Next for Effective Budgeting: Overcoming Project Financial Management Challenges in System Integrator Company, Adpebi Science Series, 1(1), 1-15 (2024)
5. Basu, K.K.: Organisational culture and leadership in ERP implementation, International Journal of Strategic Change Management, 6(3–4), 292–313 (2015)
6. Beheshti, H.M., Blaylock, B.K., Henderson, D.A., Lollar , J. G.: Selection and criticism success factors in successful ERP implementation. Competitiveness Review, 24(4), 357–375, https://doi.org/10.1108/CR-10-2013-0082 (2014)
7. Bingi, P., Sharma, M. K., Godla, J. K.: Critical Issues Affecting an ERP Implementation. Information Systems Management, 16(3), 7–14 https://doi.org/10.1201/1078/43197.16.3.19990601/31310.2 (1999)
8. Calisir, F., Calisir, F.: The relationship of interface usability characteristics, perceived usefulness, and perceived ease of use to end-user satisfaction with enterprise resource planning (ERP) systems. Computers in Human Behavior, 20(4), pp. 505–515 (2004).
9. Capaldo, G., Rippa, P.: A planned oriented approach for EPR implementation strategy selection. Journal of Enterprise Information Management, 22(6), 642–659 https://doi.org/10.1108/17410390910999567 (2009)
10. Chen, C.C., Law, C.C. H., Yang, S.C.: Managing ERP implementation failure: a project management perspective. IEEE Transactions on Engineering Management, 56(1), 157–170 (2009)
11. Dariea, C.M.: Inherent Conflict on Implementation of Strategic Tools Enterprise Resource Planning (ERP), Accounting and Management Information Systems AMIS 2021, p. 333 – 245 (2021)
12. Deja, M., Szafrański, L.: A case of pre-implementation of the integrated repository for university administration by academic librarians', Library Philosophy and Practice, pp. 1-18 doi: 10.26106/3gsr-ws56. (2021)
13. Ehie, I.C., Madsen, M.: Identifying critical issues in enterprise resource planning (ERP) implementation. Comput. Ind., 56, 545–557 https://api.semanticscholar.org/CorpusID:6130338. (2005)
14. El Amrani, R., Rowe, F., Geffroy-Maronnat, B.: The effects of enterprise resource planning implementation strategy on cross- functionality. Information Systems Journal 16(1), 79–104 https://doi.org/https://doi.org/10.1111/j.1365-2575.2006.00206.x. (2006)
15. Geary, K.J.: A Qualitative Case Study on ERP Systems in the Market Pros and Cons. Northcentral University, 1-17 (2020)
16. Haddara, M.: ERP selection: the SMART way, Procedia Technology, 16, 394–403 (2014)
17. Haddara, M.: ERP systems selection in multinational enterprises: a practical guide, International Journal of Information Systems and Project Management, 6(1), 43–57 (2018)
18. Hadidi, M. et al.: Comparison between cloud ERP and traditional ERP, Journal of Critical Reviews, 7(3), 140–142 (2020)
19. Hamdar, A.: Implementing cloud-based enterprise resource planning solutions in small and medium enterprises, Walden University, 1-25 (2020)
20. Hamilton, P., West, B. J.: Software Review Chaos Data Analyzer, Professional Version. [eds.] J. Sprott and G. Rowlands. Nonlinear Dynamics, Psychology, and Life Sciences 4(2), 195–199 https://doi.org/10.1023/A:1009580513427. (2000)
21. Harikrishnan, V.: Navigating the ERP Transformation: Unveiling the Role of Consultants and Microsoft D365 in Reshaping Post-Pandemic Business Dynamics, The Pennsylvania State University, Harold and Inge Marcus Department of Industrial and Manufacturing Engineering, 1-33, (2024)
22. Ho, C.F., Wu, W.H., Tai, Y.M.: Strategies for the adaptation of ERP systems. Industrial Management and Data Systems, 104(3), 234–251 https://doi.org/10.1108/02635570410525780. (2004)
23. Holland, C.P., Light, B.: Global enterprise planning implementation. Proceedings of the 32nd Annual Hawaii International Conference: HICSS, 99, pp. 1 – 10 (1999)
24. Holland, C., Light, B., Gibson, N.: A Critical Success Factors Model for Enterprise Resource Planning Implementation. European Conference on Information Systems, pp. 1 – 12 (1999)

25. Hong, K.-K., Kim, Y.-G.: The critical success factors for ERP implementation: an organizational fit perspective. Information & Management, 40(1), 25–40 (2002)
26. Huang, S., Chang, I., Li, S., Lin, M.: Assessing risk in ERP project: identify and prioritize the factors. Industrial Management & Data Systems, 104(8), 681–688 (2004)
27. Hustad, E., Stensholt, J.: Customizing ERP-systems: A framework to support the decision-making process, Procedia Computer Science, 219, pp. 789–796 (2023)
28. Ioannou, G., Papadoyiannis, C.: Theory of constraints-based methodology for effective ERP implementations. International Journal of Production Research - INTJ PROD RES. 42 4927-4954 10.1080/00207540410001721718. (2004)
29. Johanson, B., Sudzina, F.: Actual Vs. Planned ERP Systems Implementation Costs in European SME's. In: Proceedings of 3rd European Conference on Information Management and Evaluation J. Ljungberge K. Grundén (eds.) University of Gothenburg, Academic Publishing Limited, Gothenburg, pp. 232-238 (2009)
30. Karsak, E.E., Özogul, C.O.: An integrated decision making approach for ERP system selection, Expert systems with Applications, 36(1), 660–667 (2009)
31. Ke, W., Wei, K.K.: Organizational culture and leadership in ERP implementation, Decision support systems, 45(2), 208–218 (2008)
32. Kenge, R., Khan, Z.: A research study on the ERP system implementation and current trends in ERP, Shanlax International Journal of Management, 8(2), 34–39 (2020)
33. Kreamer, D.K.: The past, present, and future of water conflict and international security. Journal of Contemporary Water Research & Education, 149(1), 87–95 (2012)
34. Kunduru, A.R.: Data Conversion Strategies For Erp Implementation Projects, Central Asian Journal Of Mathematical Theory And Computer Sciences, 4(9), 1–6 (2023)
35. Kunduru, A.R., Healthcare ERP Project Success: It's all About Avoiding Missteps, Central Asian Journal of Theoretical and Applied Science, 4(8), 130–134 (2023)
36. Larasati, S. D., Eitiveni, I., Mahardhika, P.: Analysis of ERP Critical Failure Factors: A Case Study in an Indonesian Mining Company, Jurnal Sistem Informasi, 19(2), 34–47 (2023)
37. Leonard-Barton, D.: Implementation characteristics of organizational innovations : Limits and opportunities for management strategies. Communication Research, 15(5), 603–631 https://doi.org/10.1177/009365088015005006. (1988)
38. Lin, C.-T., Chen, C.-B., Ting, Y.-C.: An ERP model for supplier selection in electronics industry, Expert Systems with Applications, 38(3), 1760–1765 (2011)
39. Maddalena, I.: Risks and benefits of an ERP implementation and use. Politecnico di Torino, https://webthesis.biblio.polito.it/secure/28345/1/tesi.pdf&ved=2ahUKEwj3xJy1gvqGAxXkgf0HHXYMCHMQFnoECBQQAQ&usg=AOvVaw0rvmddvFo4MecxbaG4Lfpi (2023)
40. Mahmood, F., Khan, A.Z., Bokhari, R.H.: ERP issues and challenges: a research synthesis, Kybernetes, 49(3), 629–659 (2020)
41. Mandava, H.: The Advantages of Cloud ERP in the Global Business Landscape, World Journal of Electrical and Electronic Engineering, pp. 1–5 (2024)
42. Markus, M.L.: Technochange management: Using IT to drive organizational change . Journal of Information Technology 19(1), 4–20 https://doi.org/10.1057/palgrave.jit.2000002 (2004).
43. Martins, E.J., Belfo, F.P.: Major concerns about Enterprise Resource Planning (ERP) systems: A systematic review of a decade of research (2011-2021), Procedia Computer Science, 219, pp. 378–387 (2023)
44. Miller, J.G.: Factors that Influence the Public Sector's Adoption of a Cloud-Based ERP System: A Quantitative Study. Capella University, 1 – 119 (2020)
45. Murray, M., Coffin, G.: A case study analysis of factors for success in ERP system implementations . AMCIS 2001 Proceedings 196, pp. 1012 – 1018 (2001)
46. Muscatello, J.R., Chen, I.J.: Enterprise Resource Planning (ERP) Implementations: Theory and Practice. International Journal of Enterprise Information Systems (IJEIS) 4(1), 63–83 (2008).
47. Noureddine, M., Mostafa, D., Imane, L.: Cost Optimization of ERP Project: Practical recommendations, [in:] 2023 IEEE International Conference on Technology Management, Operations and Decisions (ICTMOD). IEEE, pp. 1–4 (2023)
48. Noureldeen, A., Salaheldeen, M., Battour, M.: Critical success factors for ERP implementation: a study on mobile telecommunication companies in Egypt, [in:]

Proceedings of International Conference on Emerging Technologies and Intelligent Systems: ICETIS 2021 (Volume 1), Springer, pp. 691–701 (2022)
49. Nugroho, M.H.: Analysis of ERP Implementation in the Hospital Financial Reporting Process, [in:] Proceeding of International E-Conference On Management & Small Medium Enterprise, pp. 430–442 (2023)
50. Peng, G.C.A., Nunes, M.B.: A risk ontology for ERP post-implementation, [in:] Proceedings of the 2nd Annual South East European Doctoral Student Conference, Thessaloniki, Greece, pp. 22–23 (2007)
51. Puspitasari, W., Saputra, M., Witjaksono, R.W.: Identification and indicators of ERP implementation success factor–a literature review, International Journal of Innovation in Enterprise System 5(02), 109–121 (2021)
52. Rothenberger, M.A., Srite, M.: An investigation of customization in ERP system implementations. IEEE Transactions on Engineering Management, 56(4), 663–676 (2009)
53. Saba, P., Meissonier, R., Harfouche, A.: Different IT Projects, but the same Conflicts. Action Research During IT Deployment, Information Systems Frontiers, pp. 1–27 (2024)
54. Sarker, S., Sarker, S.: Implementation Failure of an Integrated Software Package: A Case Study from the Far East. In: Mehdi Khosrow – Pour, (eds.) Organizational Achievement and Failure in Information Technology Management, pp. 249-262 (2000).
55. Soja, P.: Examining the conditions of ERP implementations: Lessons learn from adopters. Business Process Management Journal, 14(1), 105–123 https://doi.org/10.1108/14637150810849445. (2008)
56. Somers, T.M., Nelson, K.: The impact of criticality success factors across the stages of enterprise resource planning implementations. Proceedings of the 34th Annual Hawaii International Conference on System Sciences, pp.1-10 (2001)
57. Umble, E.J., Haft, R.R., Umble, M.M.: Enterprise resource planning : implementation procedures and critical success factors. European Journal of Operational Research, 146(2), 241–257 (2003).
58. Vogt, C.: Intractable ERP: a comprehensive analysis of failed enterprise-resource-planning projects. SIGSOFT Software Eng. Notes 27(2), 62–68 https://doi.org/10.1145/511152.511163. (2002)
59. Xie, Y., Allen, C., Ali, M.: Critical success factor based resource allocation in ERP implementation: A nonlinear programming model, Heliyon, 8(8), 1- 15 (2022)
60. Yaseen, M. et al.: Importance of functional requirements prioritization: ODOO ERP as case study, i-Manager's Journal on Software Engineering, 14(4), 489 – 497 (2020)