



# ERP lifecycle main indicators and guidelines to determine a change of ERP provider.

Sergi, Batalla

FH JOANNEUM, Industrial Management, Werk-VI-Straße  
46, 8605 Kapfenberg, Austria  
sergi.batallamartinez@fh-joaanneum.at

Herbert, Kohlbacher

FH JOANNEUM, Industrial Management, Werk-VI-Straße  
46, 8605 Kapfenberg, Austria  
herbert.kohlbacher@fh-joaanneum.at

## ABSTRACT

Enterprise Resource Planning (ERP) systems help companies to support their business processes within the different departments in real-time. ERP's have been evolving and improving along with the new technologies. In this context, we can differentiate 3 major types of enhancements and evolutions regarding ERP systems: updates, upgrades, and migrations. How do we know if it is time to invest in a new solution, or if there is still interest in running an ERP that has several years of service? There are several indicators to identify when an ERP is no longer suitable and must be replaced by a new generation. These key indicators are listed and explained, as well as its notoriety. The indicators are just guidelines, each enterprise is different and must align those indicators with its strategy. A use case is introduced, illustrating a medium-sized enterprise considering switching its ERP system provider. This paper is aimed at ERP consultants, IT managers and other decision makers involved in Information System strategy.

## CCS CONCEPTS

• Information systems applications; • Enterprise information systems;

## KEYWORDS

ERP migration, ERP switch, Enterprise Resource Planning, SAP S/4HANA

## ACM Reference Format:

Sergi, Batalla and Herbert, Kohlbacher. 2022. ERP lifecycle main indicators and guidelines to determine a change of ERP provider.. In *2022 8th International Conference on Computer Technology Applications (ICCTA 2022)*, May 12–14, 2022, Vienna, Austria. ACM, New York, NY, USA, 6 pages. <https://doi.org/10.1145/3543712.3543742>

## 1 INTRODUCTION

Enterprise Resource Planning (ERP) systems are the backbone of companies' transactional and operational information. ERP's run in all kinds of enterprises, does not matter the size or the industry, helping companies to support their business processes within the different departments in real-time. Departments and business units within a firm, communicate continuously and exchange data with

each other. It is paramount for an organization' effective information system to be based on effective communication and data exchange within the departments and business units as well as associated third parties such as: vendors, customers, and outsourcing.

There are many advantages with a centralized-system approach such as ERP' systems; among others they bring value added to the enterprises with integration, automation, standardization, and control of the business processes. Integration: an ERP system consists of several modules which are integrated and thus provide real-time data for further use. Automation: the system uses intelligent logic, for example the net amount is automatically calculated from the gross amount when the invoice is issued. Standardization: business processes are mapped uniformly throughout the company allowing multinational corporations to roll-out the "Core Business Model" to the different subsidiaries. Control: An ERP system has an automatism to warn the user when incorrect or missing data entries are made assuring that wrong or inconsistent data is not registered in the system. ERP' systems solve duplication, discontinuity and redundancy data issues and provide business processes efficiency [1].

ERP's are catalysts for business innovation and a key point concerning enterprises' digital transformation. ERP's business process and information are the basis for digitalization solutions such as Robotic Process Automation (RPA), allowing companies to reduce manual tasks and increasing so the efficiency of their processes. ERP's play a key role within Industry 4.0 and the horizontal integration with third parties since transactional data is handled in the ERP's systems. The digital transformation of business models is a major success factor for competitive companies, and not only for multinational corporations but for small and medium-sized enterprises (SME) as well [2].

The main characteristics depicted previously define ERP's as one of the strategic information systems for enterprises [3]. Since the first ERP system saw the light in 1972 (SAP R/1), Enterprise Resource Planning systems have been evolving and improving along with the new technologies. In the next chapters we will discuss about how companies can deal with the evolution or ERP's systems and the main considerations, issues, and risks to be taken into account.

## 2 ERP UPDATES, UPGRADES, AND MIGRATIONS

Within the strategic decisions to make within a company, those related to the modification of internal management processes are the most complex to lead, since all the operational and transactional business process are involved.



This work is licensed under a Creative Commons Attribution International 4.0 License.

ICCTA 2022, May 12–14, 2022, Vienna, Austria  
© 2022 Copyright held by the owner/author(s).  
ACM ISBN 978-1-4503-9622-6/22/05.  
<https://doi.org/10.1145/3543712.3543742>

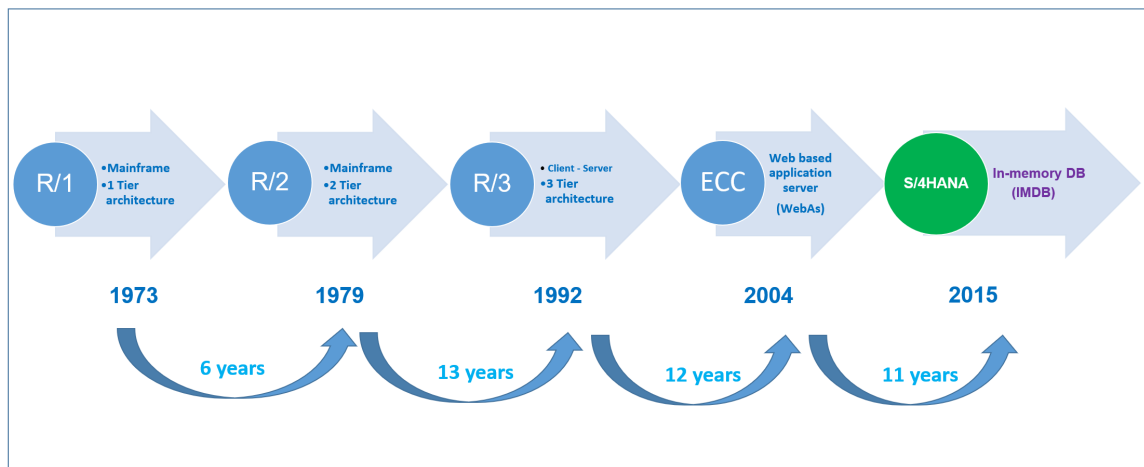


Figure 1: SAP ERP evolution.

Like everything in life, the present version of the ERP system is not going to last forever either. Technology advances without brake and our information systems become obsolete or simply do not meet the expectations and pace set by the markets. In this context, we can differentiate 3 major types of enhancements and evolutions regarding ERP's systems: updates, upgrades, and migrations.

**Updates** in an ERP system consist of minor changes usually involving security patches, bug fixes and support packages, that can be implemented by the own IT department (or outsourced IT department) without cost from the ERP provider. Updates are commonly identified with a higher second, third or fourth figure of the version number. ERP's should be updated on a regular basis to make sure to use the current version of the program, with all new features included and all known bugs removed.

**Upgrades** in an ERP system include relevant enhancements as well as new functionalities. Un upgrade is complicated and usually requires the know-how of an external IT consulting firm. There is a significant cost for the company as well as some risk in terms of harmonization with the current version. Test is required before launching the upgrade in the production system, with the purpose of identify possible issues in advance. Not all but just the most relevant business processes are generally tested during the upgrade. Upgrades are mandatory when the ERP vendor no longer supports the ERP software or its underlying infrastructure or platform. Updates are habitually identified with a higher first figure of the version number.

**Migrations** involve data transfer from the legacy system (former system) into the new system. Existing ERP business processes are integrated according to the new system functionalities. It requires infrastructure changes (Platform, Database, Memory requirements, etc.) to take advantage of all new system's capabilities. ERP migrations are extremely complicated and risky (especially when changing from ERP vendor). It requires the know-how of an external IT consulting firm (IT integrator). It involves a huge cost for the company. Migrations are mandatory when the ERP vendor no longer supports your ERP software or its underlying infrastructure

or platform. A brand-new "name" is chosen for the new system in order to differentiate it from the previous one (branding). Move an on-site ERP system to a cloud solution is an example of ERP migration.

The expected lifecycle to run an ERP system is around ten to fifteen years in average (Figure 1 shows the time gap between the different SAP ERP evolutions). However, as long-lasting as it is, there comes a time when the ERP has had its day. How do we know if it is time to invest in a new solution, or if there is still interest in running an ERP that has several years of service? There are several indicators to identify when an ERP is no longer suitable and must be replaced by a new generation [4]. In the next chapter we will detail and explain those pointers, that will help us to determine the right time to change our ERP system.

### 3 KEY INDICATORS TO UNCOVER THE RIGHT TIME TO SWITCH THE ERP SYSTEM

The ERP system supports the core business operations and transactional data in a company. When it falls behind, business processing efficiencies and decision-making abilities tend to follow suit [5]. There is no written date on which we are told that 'after x years the ERP must be changed'. Switching our business software should occur when the tool no longer meets the expectations set for achieving the business objectives [6].

ERP systems help companies to organize their data, become more sustainable, and foster general growth within an organization. Technology is continually evolving and for optimal efficiency it is necessary to upgrade the ERP system in a timely manner. By using an outdated system, the risk concerning business productivity, IT security, and overall customer satisfaction increases. A modern ERP System can help ease company operations and create greater efficiency [7]. The following key indicators are guidelines to uncover the right time to upgrade or change the ERP system.

Eighteen international blogs from ERP integrators were browsed and analyzed to identify and gather the main indicators to change the ERP system (see references [4] till [21]). Table 1 shows how

**Table 1: Indicators to uncover the need of an ERP switch.**

| Indicator   | %   | Count |
|---|-----|-------|
| Missing Functionalities                                   | 71% | 12    |
| Lack of overall Integration / Interfaces with 3rd parties | 65% | 11    |
| Reporting and Real-time data issues                       | 65% | 11    |
| Business growing at a different pace than the ERP         | 59% | 10    |
| User Experience   | 53% | 9     |
| High maintenance costs                                    | 47% | 8     |
| ERP provider support is not adequate                      | 53% | 9     |
| The System has reached End-of- Life (EOL)                 | 41% | 7     |
| Cloud   | 41% | 7     |
| Scalability   | 29% | 5     |
| Mobility  | 35% | 6     |
| Security  | 24% | 4     |
| Low automation rate                                       | 18% | 3     |
| Qualified resources to maintain ERP difficult to find     | 6%  | 1     |

many blogs contain the indicator and the corresponding percentage, determining the notoriety of each one of the key indicators.

**Missing functionalities.** The difficulty in obtaining new functionalities can also come from the fact that the publisher of the solution no longer offers updates. This is the sign of an outdated solution, on which even its provider no longer relies [4]. Another pointer that cannot be neglected is the lack of adaptation to local regulations. If the ERP cannot adapt to government regulations and constant changes in regulations, the company shall invest in other means to comply with these processes. Let's assume that the system is not aligned to some change in the way of issuing electronic invoices. This would be a real headache for the enterprise to operate within the regulations and involves additional expenses [4].

**Lack of overall Integration & Interfaces with 3rd parties.** A system unable to evolve does not allow, for example, to open up to third-party solutions, via a web portal or EDI integration, to exchange data with partners and suppliers. Or that does not offer good interoperability with critical application such as MES (Manufacturing Execution Systems) [19]. When the ERP was not designed for this interconnection, and cannot evolve to adapt, the company can miss out on business and development opportunities. Its ERP also no longer allows it to remain competitive, because it slows down the company's responsiveness and its ability to respond to its customers [4].

**Reporting and Real-time data issues.** When the ERP no longer fulfills its missions correctly, users tend to develop their own tools and spreadsheets. But unlike ERP, these tools do not interconnect their data and do not perform the advanced calculations and analyzes of an ERP worthy of the name. The company is missing out on multiple optimizations, automations, and savings [4].

**User Experience.** ERPs are just not aimed at specialists. It is therefore not intended solely for accountants or unit managers. It must be ensured on the one hand that it is used by the greatest number of relevant employees possible, on the other hand that it satisfies this variety of users. Users' perception of the ERP system

as not "user friendly", high response times, complains about the fluidity of navigation, and the search for information, are indicators to take into account when assessing the possibility to switch into a new ERP system [16]. If the ERP end-users work around the system, this means the user experience is declining, a strong indicator that it could be time to look at new ERP software [6].

**High maintenance costs.** Technical and functional obsolescence of the ERP can become costly in terms of maintenance, with IT teams very stressed in the face of malfunctions. To overcome the shortcomings, it is sometimes necessary to resolve to develop add-ons or wait for a major release [19]. Maintenance is certainly a regular cost linked to an ERP, but the amount can soar with an aging solution. And this for two main reasons. On the one hand, if the publisher has not ensured a high level of maintenance, the shortcomings are increasingly felt over time and the only solution remains even more maintenance. On the other hand, a legacy ERP is likely to rely on hardware that is also aging and prone to breakdowns. Hence more maintenance interventions are required to avoid any interruption and, worse, data loss [4].

**ERP provider support.** The ERP provider must be competent and client oriented. It must provide a service that is at the level of the company expectations. The ERP supplier should guarantee technical support in a timely manner as well as updates and upgrades to assure the required evolution of the system [12].

**The System has reached the End-of-Life (EOL).** Over time, upgrades can become increasingly rare if the publisher decides to migrate its installed base to more recent technologies, in cloud architecture, for example [19].

**Cloud.** Given their average age, many ERPs predate cloud architectures. However, the phenomenon has been gaining momentum in recent years. It has also experienced a tremendous boost with the health crisis linked to Covid-19. Companies with an information system in the cloud have indeed shown, during the first confinement, their ability to reconfigure quickly to ensure business continuity and give their users access to their data. Changing the ERP can be an opportunity for an organization to also switch to a hosted

solution, which could be more flexible, safer and equipped with the latest technologies [19].

**Scalability.** In addition to integrating new technologies, an ERP must also have enough scalability to adapt the functional field to new needs – which do not fail to appear when the company evolves over time. A legacy ERP does not always allow new processes to be implemented, because it is not possible to enrich it with the corresponding functionalities. This lack of scalability is a real obstacle for the company. The impossibility of integrating a new module dedicated to the ERP requires the equipment of a third-party solution, with a risk of an interfacing problem with the ERP of another generation [4].

**Mobility.** An ERP system which proves to be incompatible with remote access and on mobile terminals, a use that is nowadays unavoidable in certain sectors, particularly industrial ones [19].

**Security.** With the arrival of new technologies, security should not be overlooked. New security standards are in place and the ERP should include them. The ERP security levels should shield the company against access by unauthorized persons and offer protection concerning user auditing and processes control [6].

**Low automation rate.** ERPs should improve the automation of business processes. When this is not the case and the automation rates are low, should be checked if the ERP platform and service that can provide the necessary automation based on your business model or budget. If the ERP platform no longer optimizes resources, affects the quality of your service, or provides the necessary automation, it could be time to switch the ERP [19].

**Qualified resources to maintain ERP difficult to find.** Ultimately, with an obsolete ERP system, the corporation runs the risk of a shortage of skills to maintain his information system [19].

It can be tricky to determine when the ERP should be upgraded. However, if we take time to evaluate the current system, red flags will greatly guide your decision. ERP software was created to make a business run more smoothly and effectively. ERP should not hold on to outdated programs because the users feel comfortable working with them. An educated risk should be taken in order to reap the rewards of efficiency [7].

#### 4 USE CASE: CONSIDER SWITCHING THE ERP PROVIDER

The different alternatives and possibilities relevant for a medium-sized enterprise that is planning to replace its ERP system will be discussed in this chapter. The current ERP system has reached the end of its technical lifecycle and the company is considering different options regarding the implementation of a new state-of-the-art ERP system. The enterprise is running the ERP System provided by SAP: ECC 6.0 (ERP Central Component) on-site. SAP has been the ERP supplier in the company for the last 25 years.

The strategic decision at hand is to migrate into a new ERP. The SAP ECC system has achieved the latest upgrade available, and the ERP supplier has announced that there will be no more upgrades. On top of that, official support from the provider is expected to end in 2030. Once the decision about migration is taken, another critical question arises: should the company keep the same ERP provider or look elsewhere? Shall the company migrate to the new SAP ERP system (S/4HANA) or to another one. This question that

at first sight can seem easy to answer, is in fact complicated and involves several issues to ponder. We may assume for example, that if the users complain about missing functionalities in the current ERP system, the right decision would be to change of provider. But many other topics must be contemplated before taking this decision: the new ERP from the supplier could contain all or many of the functionalities that users were complaining about, and so the issue would be solved without the need to switch of provider.

Companies must think indeed through all the implications before deciding to change of ERP supplier, since the consequences could be disastrous. In this case study, we gather all available and relevant information about the company in order to assess the upsides and downsides of switching of ERP supplier. We do not intend to propose the right decision in this matter, but to identify and analyze the different pros and cons that should be considered to make this decision. Below, we detail the main topics concerning our case study to contemplate the possibility to change of ERP supplier, and we divide them into 4 main areas: Costs, risks, functionalities, and opportunities.

**Cost** are one of the main drivers for changing of ERP Supplier (if not the main reason). The ERP market is a segmented Market, almost 40% of the market does not belong to any of the top 10 ERP providers (SAP was the leader in 2019 with a market share of 24%) [22]. It is possible to find other ERP providers cheaper than SAP, the question is if those ERP systems are comparable to the new SAP S/4HANA ERP solution. This is the right time to negotiate a better rate with the ERP provider, since the company has the leverage to move to another supplier. SAP has special prices below the average market price for the industry concerned in our case study.

Other costs must be taken into consideration as well, such as the cost of adaptation: the client has an IT department with years of experience in SAP. A change in the ERP provider would lead to an extra cost since the internal consultants should be trained in the new ERP and maybe new resources with experience in the new ERP system would be required. Data migration costs would be lower migrating from SAP ECC into SAP S/4HANA since SAP has already in place standard data migration tools for this purpose. Furthermore, most of SAP ECC master data characteristics are the same in S/4HANA (field lengths, tables etc.) so, no conversion or low level of conversion would be needed. If required, the standard data conversion programs would take care of it in an automated manner. A change in the ERP provider would trigger higher license and maintenance costs for 3<sup>rd</sup> party systems (compared to SAP connectors).

**Risk** is a very sensitive topic for management, and when it comes to the Information Management of the company (the operational information depending on the ERP system) even more, since the transactional business process in the company rely on the ERP system. A GAP analysis is in order, to identify all the functionalities that are mandatory to run the business but that are not available in the new system. In case of switching the ERP provider it must be assured that all 3<sup>rd</sup> party connectors are working as well with the new ERP system. Data migration risks are higher with a new ERP tool. Hidden costs can emerge due to unrecognized migration tasks. SAP functions have been known and used in-house for over 25 years; with a new system this know-how is lost and the risk to

slow down the business process during the first years using the new tool is not banal.

**Functionalities** are paramount when talking about an ERP system. In the use case company, there are several non-standard payroll functions as well as organization management & workflow integrated transactions. There are a bunch of identified z-programs (non-standard transactions) that simplify everyday life and should be considered as well in the scope. A new system has new technology and therefore new functionalities are available. All new and available functionalities of the current provider should be analyzed before moving to a new ERP supplier. SAP users have been complaining during decades about SAP graphical user interface (SAP GUI); to solve this common issue, SAP developed a brand-new user interface to improve SAP user experience called FIORI. This new user interface is available but still not common or known among SAP users. Documentation and support are key factors; SAP has a large portfolio of training materials and a vast community as well as well-organized support tool. Issues concerning S/4HANA are commented and shared within the SAP community, so it is easier to find the solution.

The new system has to offer new Opportunities in order to improve the current business processes and in terms of automation, standardization and control compared with the current ERP system. Out-of-the box analytical tools exist with S/4HANA on Fiori. A cloud solution is also available. SAP standard connectors from / to S/4HANA into SAP and non-SAP Business Intelligence tools are defined. SAP large portfolio of products to be integrated within S/4HANA, such as predictive analytics or machine learning are in place.

It is also common for big ERP suppliers and for specialized ERP providers to offer specific industry ERP solutions.

The main pain points depicted in the case study, that lead management to put on the table the prospect of a new ERP supplier where: **Usability & User Experience, cost of licenses, complexity, readiness for a cloud solution, and scalability.**

In our case study, it is not mandatory to switch the ERP provider to address the four issues detailed above concerning the present SAP ECC system; since they could be resolved with the new SAP ERP system: S/4HANA. Usability & user experience improve radically thanks to the new SAP user interface FIORI. The costs of licenses could be reduced via negotiation with the SAP account manager. The customer can leverage the fact that could move to another ERP supplier. In fact, it exists an offer for the Industry concerned in our case study where S/4HANA licenses are below the average market price. The "s" in S/4HANA stands for "simplicity". SAP reviewed all business process to optimize them and offer best practices to be implemented or taken at least into consideration. The number of tables has been reduced as well, along with the simplification of the business scenarios, reducing complexity in favor of straightforwardness. S/4HANA present both on-site and cloud solutions, so that the customer can pick the solution that suits the best the company requirements.

## 5 CONCLUSIONS

Enterprise Resource Planning (ERP) systems are the backbone of companies' transactional and operational information. There are

many advantages with a centralized-system approach such as ERP' systems; among others they bring value added to the enterprises with integration, automation, standardization, and control of the business processes. ERP's are catalysts for business innovation and a key point concerning enterprises' digital transformation. Within the strategic decisions to make within a company, those related to the modification of internal management processes are the most complex to lead, since all the operational and transactional business process are involved. There is no written date on which we are told that 'after x years the ERP must be changed'. Switching our business software should occur when the tool no longer meets the expectations set for achieving the business objectives. In this context, companies have 3 main potential paths to enhance and evolve ERP's systems: updates, upgrades, and migrations. In this paper we pinpointed the main key indicators to uncover the need for an ERP switch. The use case illustrates a medium-sized enterprise considering switching its ERP system. We focus the case study in four main areas: costs, risks, functionalities, and opportunities. The indicators are just guidelines, each enterprise is different and must align those indicators with its strategy.

## REFERENCES

- [1] Wilfinger, Daniela and Batalla, Sergi. 2021. Erfolgsstories der Digitalisierung --: Good Practices für die digitale Transformation. Digital Material Valley Styria (DMVS). Kapfenberg. ISBN 978-3-200-08038-6. p. 208-2013.
- [2] Tschandl, Martin and Kogleck, Rico. 2019 Business Digitalization: New Business Models, Smart Production and Human side of Digitalization. Leycam. Wien. ISBN 978-3-7011-0441-3. p. 3-10.
- [3] Piazzolo, Felix and Felderer, Michael. 2013. Novel Methods and Technologies for Enterprise Information Systems. Springer. Heidelberg. ISBN 978-3-319-07054-4. p. 1-4.
- [4] Sylob. Les 5 raisons de changer votre logiciel ERP. Retrieved on January 18th, 2022 from <https://www.sylob.com/blog/logiciel-erp/5-raisons-changer-logiciel-erp>
- [5] Pemeco. When should you upgrade your ERP or consider replacing it? Retrieved on January 18th, 2022 from <https://www.pemeco.com/upgrade-or-replace-your-erp-system/>
- [6] Actio. 5 razones para cambiar tu ERP. Retrieved on January 17th, 2022 from <https://www.actiobp.com/5-razones-para-cambiar-tu-erp/>
- [7] ERP focus. 5 signs you need to upgrade your ERP this year. Retrieved on January 17th, 2022 from <https://www.erpfocus.com/five-signs-you-need-to-upgrade-your-erp-in-2015-3128>
- [8] Acumatica. 7 Signs It's Time to Change Your ERP System. Retrieved on January 17th, 2022 from <https://www.acumatica.com/blog/7-signs-time-to-change-your-erp-system/>
- [9] Entrartes. 5 Signs It's Time To Switch Your ERP Provider or Vendor. Retrieved on January 17th, 2022 from <https://www.entartes.com/blog/when-it-is-time-to-switch-your-erp-vendor>
- [10] Interempresas. Diez razones para cambiar de ERP en una pyme. Retrieved on January 17th, 2022 from <https://www.interempresas.net/TIC/Articulos/354864-Diez-razones-para-cambiar-de-ERP-en-una-pyme.html>
- [11] Artesap. Razones para cambiar de ERP. Retrieved on February 7th, 2022 from <https://www.artesap.com/razones-para-cambiar-de-erp/#:~:text=Las%20razones%20clave%20para%20cambiar%20un%20sistema%20ERP,eficiencia%20en%20el%20procesamiento%20es%20un%20coste%20oculto.>
- [12] Microtech. 6 Razones por las que debes cambiar de ERP. Retrieved on February 7th, 2022 from <https://www.microtech.es/blog/6-razones-por-las-que-debes-cambiar-de-erp>
- [13] Noray. Razones para cambiar de ERP. Retrieved on January 17th, 2022 from <https://www.noray.com/blog/razones-para-cambiar-de-erp/>
- [14] Netsoft. 7 razones por las que debería cambiar de ERP en su empresa. Retrieved on February 7th, 2022 from <https://netsoft.com/2021/06/15/7-razones-por-las-que-deberia-cambiar-de-erp-en-su-empresa/>
- [15] Microsip. Software ERP: 5 razones por las que debes cambiarlo. Retrieved on February 8th, 2022 from <https://blog.microsip.com/software-erp-razones-para-cambiarlo/>
- [16] Clipper. 5 raisons changer votre ERP ou de le faire évoluer. Retrieved on February 8th, 2022 from <https://www.clipper-erp.com/blog/5-raisons-de-faire-evoluer-ou-de-changer-votre-erp>

- [17] Lemagit. Quand faut-il changer d'ERP ? Quand faut-il le faire évoluer ? Retrieved on February 8th, 2022 from <https://www.lemagit.fr/conseil/Quand-faut-il-changer-dERP-Quand-faut-il-le-faire-evoluer>
- [18] Isatech. INFOGRAPHIE : 5 RAISONS DE CHANGER D'ERP. Retrieved on February 9th, 2022 from <https://www.isatech.fr/5-raisons-changer-erp>
- [19] Mon ERP Industriel, Quand faut-il changer d'ERP ? Retrieved on February 9th, 2022 from <https://www.mon-erp-industriel.fr/changer-erp/>
- [20] Gestium. Changer d'ERP, c'est pas compliqué ! Retrieved on February 10th, 2022 from <https://www.gestium.com/changer-derp-cest-pas-complique/>
- [21] Multiviewcorp. 10 Signs It's Time to Change Your ERP Provider. Retrieved on February 10th, 2022 from <https://multiviewcorp.com/blogs/10-signs-its-time-to-change-your-erp-provider/>
- [22] Clutch. ERP Market Share (in %). Retrieved on March 7th, 2022 from <https://www.infoclutch.com/installed-base/erp/sap-erp/>