IT Trends Research

Trainee Information	
Student Name	
Student ID	
Student CRN	
Department	
E-mail	

My grade

90/100

- Student must fill all the fields in the above table

الخطوات:

1 - **اكتب تعريف عن الموضوع اللي بتتكلم عنه**.. ع الأقل هنا تستخدم من ٣ الى ٥ مصادر.. تعريفات،، ليش تم تصميم هالتقنية؟؟ وش تساعد فيه؟؟ وش تحتاج هالتقنية عشان تشتغل؟؟ وضح اكثر في التعريف

2 - **الامر الثاني تسوي مراجعة أدبية.. وهنا المحك**،، على الأقل بتحتاج من ٥ الى ٧ مصادر عشان تكتب هالفقرة.. المراجعة الأدبية تكون بشغلات مثلاً

a. زي ما سويت انا هنا،، جبت المشاكل في التقنية اللي تكلمت عنها،، وجبت بعض الحلول المقترحة لها
b. ممكن تكتب مقارنه عن عدة منتجات للتقنية اللي بتتكلم عنها ومنافعها ومضارها
c. تكتب عن التقنية اللي تتكلم عنها بترتيب معين مثلاً:
    i. إيجابيات
    ii. سلبيات
    iii. كيف ممكن نطورها
    iv. كيف ممكن نستخدمها في مجالات أوسع

3 - **الحين الميثدولجي او المنهجية حقت التقنية**.. لما تتكلم عن البرامج ومنهجياتها فتتكلم عن Agile, Waterfall.. مثلاً موضوعي عن أنظمة الشركات ان كتبت فيها عن ان الأنظمة لها منهجيات مثلاً ان النظام يكون موجود في سيرفرات الشركة او كلاود او عن طريق الويب سايت.. وهنا ممكن تحتاج من مصدرين الى ٤ مصادر..

4 - **الخاتمة ما راح يكون فيها أي مصدر**.. الخاتمة حقتك انت.. كيف تقدر تلخص كل الأمور اللي ذكرناها فوق بعشر الى عشرين سطر.. تعيد الصياغة وتختصر قد ما تقدر..

5 - اخر شي تسوي قائمة (ليست) للمصادر اللي جبت منها كلامك.. تذكر: **المصادر تجيب منها معلومات مو نصوص،، لا تقتبس الا اذا الشغلة صعب تغير فيها..**

Introduction:

Most of enterprises go forward digitalization, which means all their work managed by one system in way save time and cost and increase productivities and efficiency. There are seven elements can be digitally transformed in enterprises which are:

1- Business model (the way of gaining money).
2- Organization structure (the way of managing).
3- People (the most important resources).
4- Processes (the way of working).
5- IT capacity (the way of managing information).
6- Offer (products and services provided by organization).
7- Engagement model (the way of managing relationship with others) (Teodora Ivanović, 2020).

Enterprise Resource Planning (ERP) is one tool of digital business transformation. ERP system is information system used by enterprises to gain benefits and facilities for all organization's functions. ERP system became important information system in the world business for many enterprises even for small and medium. ERP system has different kind of modules which serve each function based on the neutral of its work. For example:

1- *Finance*: which include payable and receivable accounts, fixed assets, general ledger, and different kinds of financial operations.
2- *Marketing* and sales: Pre and post sales activities, customers information, marketing, and other marketing and sales operations.
3- *Plant maintenance*: include organization performance, delivery, product quality, and other production processes.
4- *Human Resources*: include interviews, payroll, training, and other HR processes.

5- *Quality Management System*: include quality planning, quality inspection, quality control and support procurement.
6- *Manufacturing engineering*: material schedule prancing, cost management, workflow management, and other manufacturing duties.
7- *Data Wearhouse*: Capture and process data automatically to use it out of enterprise's application.

ERP has some characteristics:

1- *Integration* is the most important characteristic.
2- *Real-time responding* is significant characteristic.
3- *All module in ERP update* in real-time on database.
4- *Reliability*.

In general, we can mention the advantages of ERP system:

- High performance.
- Low cost.
- Improving business process (Mohammad Amini Valashani1, 2020).
- Low time (Nelli V. Syreyshchikovaa, 2019).

Literature Review

ERP Problems Root Cause Analysis (RCA)

Some researchers go to say that the main problem is lacking customer services (António Amadoa, 2020). However, this is not enough to answer about problem causes. RCA could discuss some factors like:

1- *ERP Selection*: The best selection of ERP system is the minimal system need to customization to work fine with enterprise functions whether it is cloud or traditional.
2- *ERP Implementation*: If the selection was good, the second factor could be the problem which is implementation. The lack of top management support, high change request on the system, change the business processes, and poor consultant make implementation phase failed.
3- *ERP Usage*: After a good selection and implementation, ERP could be failure because of poor definition of the benefit of usage. It is important to enterprise to know what the benefit expectations from ERP system to gain it.
4- *Data quality*: It could be one of the ERP problems. Data quality means that the data fit to be used, consistent and accurate, meeting employee and customer needs, and providing right information to make a good decision.
5- *Master data management*: the process of creating and maintaining a single master record – or single source of truth – for each person, place, and thing in a business.
6- *Control of Business processes*: If there are two company use different kind of ERP, and they need to exchange information between each other the control of business process will be difficult and may cause ERP failure.

7- *User interface*: it could be one reason of problem because the difficulty of using interface leads to make users making mistakes. This is the reason of poor data quality.

8- *Functionality*: The best feature of ERP is integration, but at the same time, some enterprises don't focus on all feature, but they need one attribute more than other. In this case ERP system will not be a good solution.

9- *Database / Data Model*: ERP as product has one database or data model standard. This is one problem of the ERP system. Some enterprises provide different kind of products, and each one has a special processes which is not provided by ERP system except if we customize it. More customizations consider a problem (the first problem of ERP system).

10- *Infrastructure*: There are some aspects could be caused problem for ERP system like:

   a. Modern hardware: ERP system needs high performance hardware which means high cost.
   b. Software architecture: need to be adapted according to business needs which means more time and high cost.
   c. Scalability: the business goes rapidly and need to be scalability.

11- *Adaptation*: ERP system usually has standardization which make it stable, but some changes could happen in some layers, so ERP system should have capability to adapt some aspects like:

   a. user-experience layer
   b. business process
   c. enterprise systems functionality

In general, the first three causes of problem may come from the system's design and architecture (Benedict Bender, 2021).

Some ideas to solve ERP problems.

We could say that ERP is a project which need the good preparation for plan, scop, schedule, and cost; otherwise, the ERP system will be poor. After a good preparation, ERP system needs to follow up during implementation phase (Hietala, 2020).

It is good to mention here that we can fix most of these problem during four phases which are:

1- *analysis the problem*.
2- *Modification implementation*.
3- *Revision and accept modification*.
4- *The migration* (António Amadoa, 2020).

Also, there are six factors for Critical Success Factors (CSF) for ERP system:

1- *Security*.
2- *Project management*.
3- *Communication*.
4- *Compliance*.
5- *Network*.
6- *Organization resistance* (Qian Huang, 2021).

Here are also some measures we have to know before evaluation the problems:

1- *Information Quality*: it could be measured it by evaluated the output like accuracy, reliability, timeliness, relevance on decision, completeness, and format.
2- *System Quality*: it could be measured in easiness to access, quality of integration, dependability, simplicity of learning, resource and investment usage, system flexibility, reaction time, and use of function.

3- *Service Quality*: it could be measured by individual impact and organizational impact and how the system could provide its services to both individual and organization.
4- *Organisational Readiness*: it is a company's capacity to effectively accept, utilize, and profit from information technology.
5- *Benefit*: strengthening the firm's competitiveness, improving production flexibility, system integration, and process innovation, as well as increasing the efficiency and efficacy of information flow.
6- *Top Management Support*: It could be measured by full commitment from senior executives and support the change of IS to be digitalized. (Mohamed Soliman, 2017)

Some recommendations will affect positively to avoid ERP failures:

1- ERP system needs to have policies, procedures, rules, standards, and strategies to make the work with ERP more efficient, secure, integrity, accessibility, and standardization.
2- Users in different level have to get training of ERP to optimal usage.
3- Any implementation of the ERP system needs:
    a. Space of time.
    b. Hard work.
    c. High knowledge consultants.
    d. Flexible source for cost (if there is some change during implementation).
    e. Following the best practices (Farhan Mahar, 2020).

Methodology (or Applications)

ERP comes three different types (architecture):

1. Cloud ERP: It used to implement system faster because it doesn't need hardware or special software. One more advantage is availability and transparency because it is totally depending on internet (Teodora Ivanović, 2020). It comes with different models like:
    a. Infrastructure as a Service (IaaS): enterprises can control on database, applications, run time, and security without hardware control.
    b. Platform as a Service (PaaS): It provides an appropriate way for the client to create and implement applications on a Cloud or local environment.
    c. Software as a Service (SaaS): The Cloud service providers have total control and manage the software, applications, and the computing infrastructure, and enterprise can get benefit from cloud application also. Access could be done from different client computers through the Internet by using the web browser interface.
2. Traditional ERP: This is type is the most common type. This type comes from information provider, and implement locally on On-Premises, then the enterprise has control on all application, infrastructure, and hardware. The most important feature of this type is security because all information will be stored inside enterprise servers. There are a lot of information system provider like
    a. SAP: It is old ERP provider since more than 30 years.
    b. Oracle: It provides with a hybrid combination of operating systems and virtual environments.
    c. Odoo: It is open-source ERP system (Odoo, n.d.)
    d. IFS: It provides with Cloud software for companies, composable software on a single platform, and choice, portability & evergreen (IFS, n.d.)

3. Web-based ERP: It is an incorporation between Cloud and Traditional ERP system. it is used the architecture of three Tiers, and this type of architecture is different from traditional ERP, which is used two-tired (client-server architecture). It is like traditional ERP in security, and it provide with Cloud ERP features. (MAMOUN HADIDI, 2020)

Conclusion:

ERP system is a software packages which integrate to provide a good service to all business functions by sharing information and workflow. ERP consider as digital business transformation, which is became so important recently, to improve productivity, increase sales, enhance customer relationship, and compete other enterprise. Although the ERP system has many benefits, the system faces major challenges that it must overcome in order to function well. The most common problems is came from poor selection, planning, implementation, usage, project management, and low knowledgeable consultants. There are some ways to avoid these kinds of difficulties like preparing a good planning to have ERP system, and planning should answer some questions like what the expected benefits from the ERP system are, and which kind of ERP system can provide these benefits. Also, it is important to follow up the work during implementation to avoid any issues. On another aspect, management should enforce digital business transformation and compliant it, and a good training could help staff to work with the system effective and efficient.

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