# Business benefits from the implementation of ERP systems especially in Navision

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## Abstract

*The business market nowadays is becoming increasingly dynamic day by day. From the smallest business up to the biggest one, each one needs to implement the system of automation. That's why ERP Systems are for. ERP stands for Enterprise Resource Planning and is a software user by organization to manage daily business activities such as: accounting, procurement, project management, risk management and compliance, and supply chain operations. Starting from the ancient ERP systems (MRP – Material Requirements Planning) and the latest version of Business Central, this technology is developing so quickly. Too much information is coming around and this study is focused on the relationship Customer – Vendor. A treatment on how we can deal with different use cases with debtor customers so we can go far away to aim what we want from our business. The purpose of the study is to analyze how Customer Experience processes can develop for being managed by automating certain processes in Dynamics Navision. What can we develop besides our analysis, to reduce the company's debt as much as possible? Throughout the study the literature review methodology is used by analytical research about the topic, analyzing the new tendencies, their impact on the business and summarizing academic research. Also, descriptive use cases in applied to analyze the use and impact of Debtor Customer Experience in daily economic activity in these companies. The study concludes that Customer Experience, although it is customer centric, is aligned directly with business' incomings and it is very important to improve debt management.*

## Introduction

ERP stands for Enterprise Resource Planning, translated into Albanian: Enterprise resource planning systems. ERP is software that serves different businesses in the automation and management of key processes with the main goal of optimal performance. Such software coordinates the flow of data between different business processes. Within this software, various business departments are connected, such as: finance, marketing, human resources, supplies, services, sales, etc. The ERP system, as mentioned above, is a type of software application designed and produced specifically for use by small, medium or large businesses. ERP systems support all aspects of financial management, human resources, supply chain management or production. The term ERP was first used in the 1990s by the Gartner Group, but enterprise resource planning systems have their roots deep in the manufacturing industry and can trace their history back to the 1960s. At this time, manufacturers needed a better way to manage, track, and control their inventory. Basic software solutions, known as MRPs or Material Requirements Planning systems were developed to meet their needs. These systems helped manufacturers monitor inventory, reconcile balances, as well as included very basic manufacturing, purchasing, and delivery functions. Through the 1970s more and more manufacturers started to adopt MRP systems, and the systems themselves got more sophisticated. By the 1980s MRP systems evolved into what became known as MRP II or Manufacturing Resource Planning systems. More manufacturing processes were added into the original MRP systems, and these MRP II systems had expanded capabilities and were better able to handle scheduling and production processes.

In the 1990s the first true ERP systems came into use. These systems further expanded beyond the basic inventory control and manufacturing processes of previous iterations to include other departments and functions, such as accounting, finance, and sales. These systems set the stage for ERP solutions as we've come to know them today, by integrating multiple processes and departments into one system.

## Methodology

This study aims to give answers to the following research questions:

- What can we plan to develop to minimize the debt amount for the business?
- Why do we choose this way and how can we develop this?

The methodology that this study uses is literature review by semi-systematic review approach accompanied with a use-case on how will work our development.

## Literature review

### ERP Systems

As mentioned above, ERP systems are anything but basic and have little resemblance to the ERP of decades ago. They are now delivered via the cloud and use the latest technologies such as artificial intelligence (AI) and machine learning. Their aim is to provide intelligent automation, greater efficiency, and instant insight across the business. Modern cloud ERP software also connects internal operations with business partners and networks around the world, giving companies the collaboration, agility, and speed they need to be competitive today.

### Pros and cons of ERP

Pro: Improves efficiency - Through an ERP system, businesses can simplify and facilitate many of their processes, reduce duplication of efforts for a certain task as well as to automate tasks or services/ certain needs.

Pro: Better decision making - Through an ERP system the business can get real-time information on each operation and what happens in it. This enables information at any time thus allowing the business to make decisions based on real data, react quickly to market changes as well as optimize its performance.

Pro: Increases collaboration - Given that ERP summarizes several departments company in a single software, this will gradually bring one better communication and cooperation through them for a certain purpose. This helps to eliminate individual work without cooperation, increases transparency at work and strongly promotes cooperation and teamwork.

Pro: Reduction of costs - By simplifying and automating processes, it is reduced the possibility of error during the work process as well as improved productivity I company. In this way a business can reduce many other costs by investing in an ERP system.

Cons: High costs - Implementing an ERP system is quite expensive. It requires a large investment with significant amounts upfront specifically in hardware, software, training, employees, and maintainers/developers.

Cons: Complex system - Today's ERP systems are complex and often sometimes difficult to implement and to understand the way they work. The job requires professionalism and a lot of very important configurations and fulfils every need and business requirement.

Cons: Integration challenge - Often the integration of the ERP system itself with existing systems business can be quite challenging. This can lead to inconsistencies in systems and errors in the processing of existing business data.

Cons: User's Adoption - Implementing an ERP system in a company normally requires and brings significant changes in business processes. Something like this can be difficult for employees to adapt to. If this situation lasts in time will lead to resistance and reduced productivity on the part of adaptation of the staff to the system.

## Cost of ERP

According to a survey done by Mabert, Soni and Venkatamaran (Mabert, 2003) were given a snapshot of the experiences of small and large businesses among 497 respondents. From there

found that approximately 50% of businesses have annual revenues of less than $250 million per year and with less than 1000 workers included. Small businesses have up to 10 employees and up to 2 million in annual revenue. While the biggest business reaches up to 240,000 distributed employees and revenues of 100 billion dollars per year. The summary of the cost of implementing a typical ERP system was found as follows:

- Cost for Software (purchase of packages): 30% of total cost
- Hardware cost (servers, network, connections): 18% of the total cost
- Consulting (during implementation): 25% of the total cost
- Training (for project participants and users): 10% of the total cost
- Implementation team (full time/part time): 14% of total cost
- Others: 3.3%

Considering the millions of dollars needed to implement an ERP (of $150,000 to $750,000 for an average business) two components have figures relatively significant and account for most of the investment. Consultancy accounted for 25% of the total cost and the cost for the implementation team. Then as it is known and noticed, the highest costs are occupied by software and hardware, and then approximately 50% of other costs used for labor.

## ERP Market

ERP is a market that has taken off a lot these days and in 2022 it is valued at $54.76 billion and expected to expand at an annual rate of consisting of 11.0% from 2023 to 2030. Some of the key factors listed which promote the growth of this market are the continuous increases in requests for decisions driven by data and information, transparency in various processes in business, need for operational growth, etc. However, some are also co-listed factors that can almost restrain the growth of the market starting from the high costs of investment and maintenance as well as the increasing availability of open-source applications source.



**Type of Software**

35.0%

65.0%

■ Cloud (hosted, managed services, or SaaS)　　■ On-premise
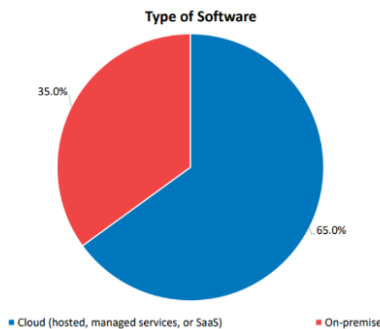
**FIGURE 1:** Type of software

Source: The 2022 ERP Report from Panorama Consulting Group(page.13), 2022

The list of major ERP vendors is as follows:

- Microsoft
- SAP
- Oracle ERP
- Sage
- Epicor
- Info

*What is Navision?*

Dynamics NAV is an enterprise resource planning application that assists business in different departments such as finance, production, relationship management with customers, analytics, and marketing of large and medium-sized companies as well as branches local of international organizations. This application uses language as programming language C/AL and is part of Microsoft Dynamics along with its smart applications business.

*Designing Application Objects*

Tables: Tables are used to store data. For example, a business application may contain a customer table that stores information about each customer, such as, name, address, telephone number, and contact person.

Reports: Reports are used to present data. We use filters and sorting to select the data that we want to present in a report.

XMLports: XMLports are used to import and export data in .xml, .txt, or .csv format.

Codeunits: A codeunit contains user-defined functions that are written in C/AL code. We can use the functions in a codeunit from the other objects in your application.

MenuSuites: A MenuSuite object contains the set of menus that are displayed in the navigation pane.

Pages: Pages display data from the database and allow users to enter new data into the database.

Queries: A query specifies a set of data from the database.

## Case Study

*Analysis*

ERP systems provide several automated functions depending on the customer's requirement. What I have covered below is the automation of a process, which is intended to warn the company about debtor customers. Often it can happen that a company's large debts turn out to be fatal for them, so it is necessary to keep such situations under control. With the request of the finance department attached below, the development department should automate the checking of the value of the debt and the value of the customer's invoice at the moment that these

values equal each other. Knowing this fact, the business will pull back demanding payment of the loan from the customer and not adding the value of the debt to the company. The purpose of this automation is to help the finance department by keeping under control debtor customers.

Date: __/__/____

### REQUEST FOR DEV/IT DEPARTMENT

Based on work practice, the business analysis manager sends this request to DEV/IT department:

- For debtor customers with an amount greater than the value of the current invoice, you are not giving the opportunity to make further sales/purchases until the settlement of obligation.
- For this, we want you to develop an option, an action/field within the interface users to make it possible to warn the company and block the customer invoice.
- This development is required to minimize the amount of debt in the company, automatically reducing the possibility of bankruptcy risk.

Business Analyst's Signature

## Development

First, to have a working environment we need to download the Microsoft application Dynamics NAV by following the steps below. We make sure that the system is updated and that we have enough memory for it to download the application along with its components. We make sure to check all the Hardware and Software Requirements on the website Dynamics NAV. We go to the main page of Microsoft Dynamics NAV and to the download option and select W1 (Worldwide one version that is universal) to download (Figure 2).

**FIGURE 2:** The first step to download Microsoft application dynamics NAV

Then we will see that a folder will be downloaded which we must extract (figure 3&4).



**FIGURE 3:** The downloaded folder
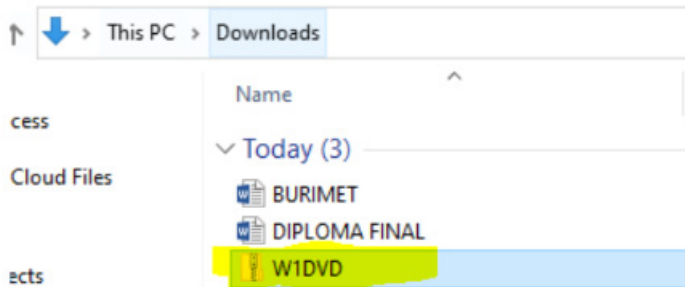


**FIGURE 4:** The folder to be extracted.
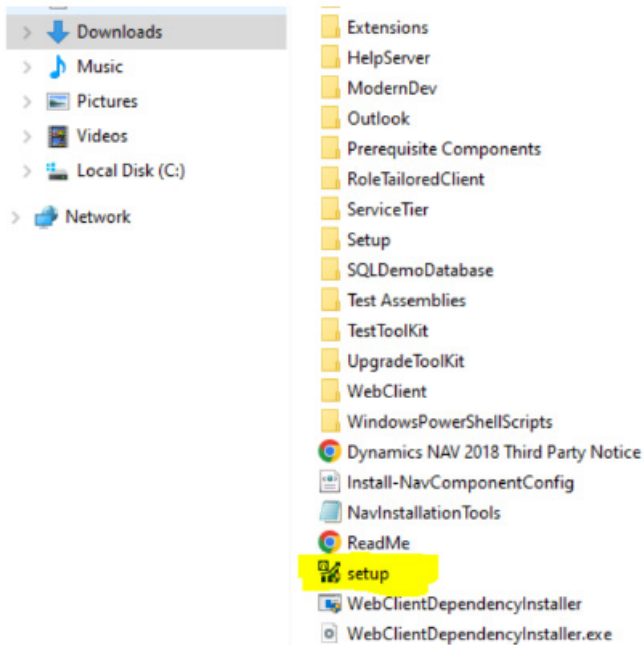
**FIGURE 5:** "Set up" option to download the program.

Choose an installation option → Custom and then choose all the options we need for the program as in the picture (figure 6&7).
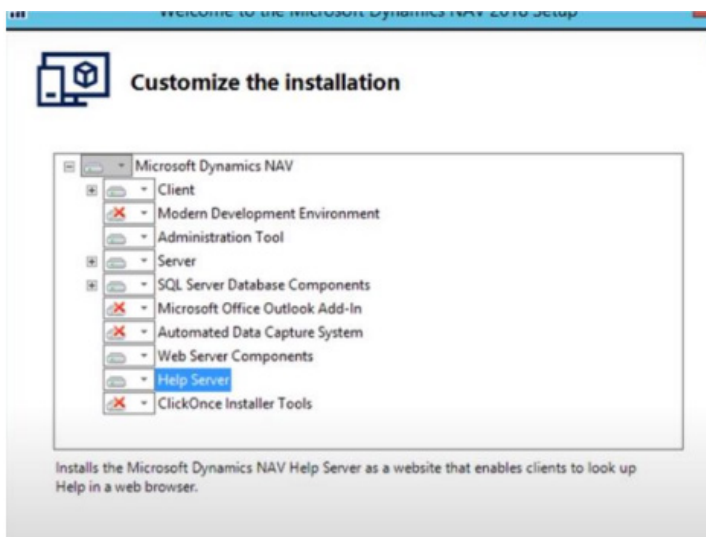


**FIGURE 6:** The customization of the installation
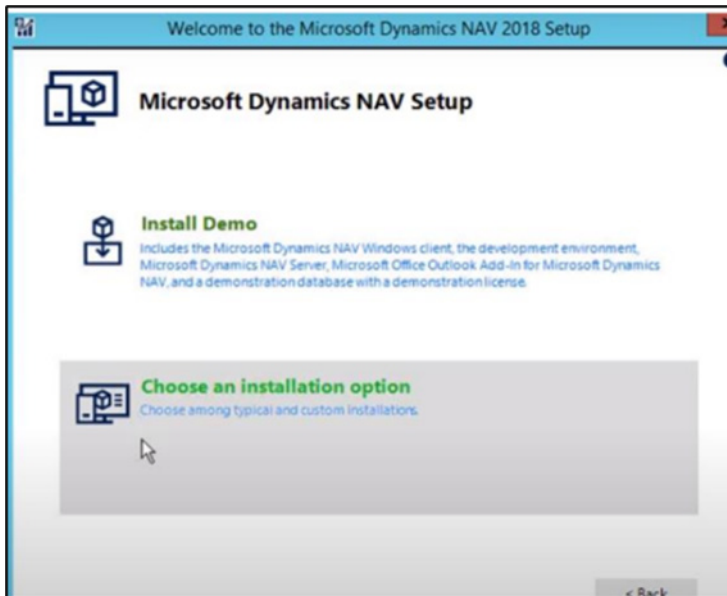
**FIGURE 7:** The choice of the installation option

After the full installation is completed on our computer, we have the NAV application that offers user services and the development environment where we can make changes regarding our client's requests. To implement the required changes, open the development environment (Figure 8).
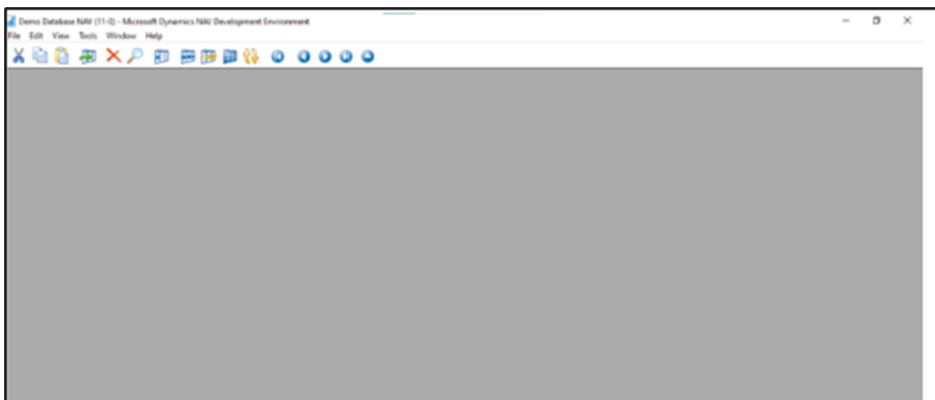


**FIGURE 8:** The development environment

In File →Database →Open option we can open the downloaded database together with the application. In this way everything will be saved in the database (Figure 9&10).
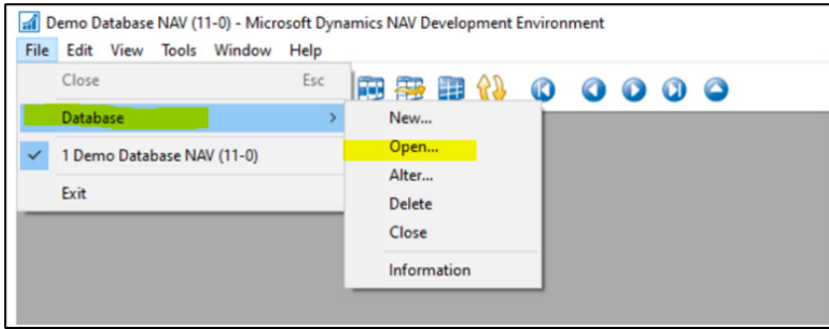
**FIGURE 9:** The opening of the downloaded database
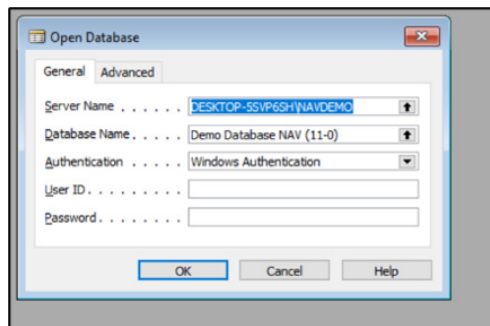


**FIGURE 10:THE** storage of the downloaded database and the aplication

Then in Tools → Object designer will open the development environment for the database that we have chosen to work with and will show us all the objects such as pay tables, reports, etc.
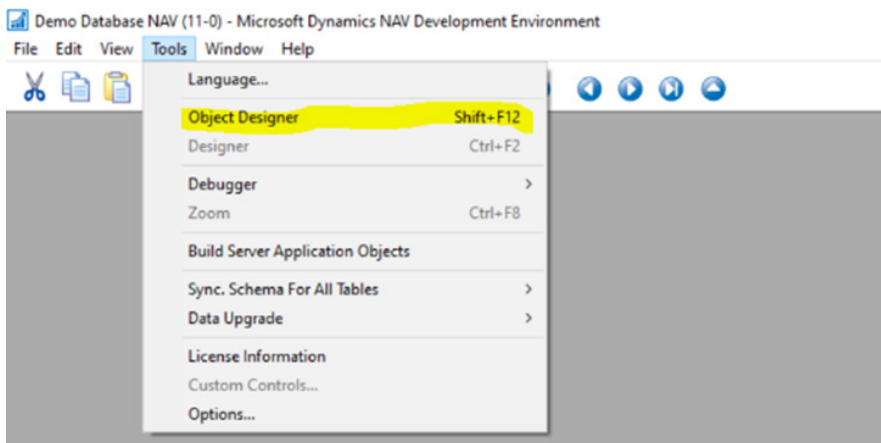


**FIGURE 11:** The opening of the development environment for the database

We go to the Customer table (Figure 12) and add a new field called "Credit Limit - UET DPL" which will present the amount of credit (debt that a certain customer has against the company) of type decimal because it will store a numeric value.



**FIGURE 12:** The customer table option

We have added other functionalities such as: editability, this field can be edited, is set the connection to the sales line table that will be seen later and some other options (Figure 13). The field will appear on the client's page together with other data referring to that client (Figure 14).



**FIGURE 13:** The functionalities that can be edited.



**FIGURE 14:** The appearance of data referring to the client.

To display this field to the user in his interface found on the "Customer Card" page, we add it to the General data (figure 15/16).



**FIGURE 15:** The added field to user interface
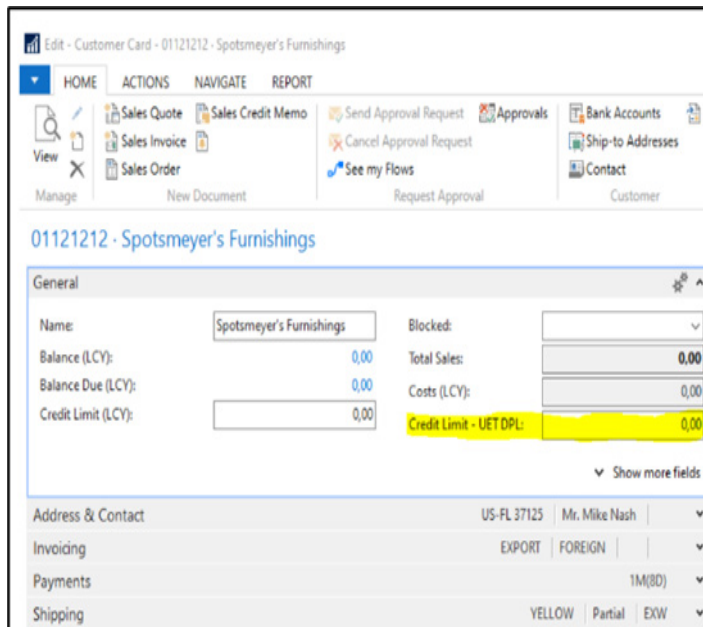


**FIGURE 16:** Customer Card page

We need all this from the moment a customer receives a sales invoice, we need to know if this customer has reached his limit or not. For this we need a trigger in the invoices part, so we need to work with the sales table named "Sales Line" where the needed data is given for this customer. For this we will need to add a code at the moment of validation of the quantity of products because at this moment the total amount of the bill changes automatically. This is the moment when the invoice total changes and the moment where the credit check will be done until the limit amount, so we can decide whether a purchase will be made to this customer or not.

The code will be added to the end of the standard NAV code.

For the code you need:

- To capture the customer by creating a new local variable that captures the table customer.
- Use "Sell-to-customer No" to identify specific clients.

So, at this moment we will have an invoice completion and a customer reaches the amount of his credit equal to the invoice, this invoice cannot proceed until the debt is paid off.

## Example

1. We created the profile of a customer "European University of Tirana" (Figure 17) with all the data such as in the photo. The value of the credit amount he has is 1000.00 ALL. The deadline we have left for payments is 21 days.



**FIGURE 17:** The profile of customer "European University of Tirana"

2. We created an invoice for our client (Figure 18).

**FIGURE 18:** The invoice for the client European University of Tirana

Here we can avoid that when the total bill is less than the system credit value it works without issue. But, in the opposite case we will get the following error (Figure 19).



**FIGURE 19:** The error view when the total bill is greater than the system credit value.

## Conclusions

This work itself is an attempt to provide a clear example of how automation works in ERP systems and how it directly impacts in developing the economic activity of a business. The main purpose of this work is to unfold a use-case of how a certain department through business analysis makes the request for change and then the development department and technology will be the one who has the

responsibility to finalize the request. ERP systems will continue to develop and easily adapt to customer requirements. With a user-friendly space for development and combining it directly with the client's environment, the work is simplified much more than going through stages of tests and presentations with clients. The dynamism of this application should be able to be tested and tried by everyone so that cost and obstacles won't matter despite small implementation's issue, and they should not be considerate as a reason for the elimination of automation in a business life. Automation has always been and always will be important in business life and is rapidly expanding its circle.

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