

Gamification Based Approach For Teaching Enterprise Resource Planning To Management Students

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Abstract

There has been an ever growing demand for students and professionals possessing the skills of Enterprise Resource Planning (ERP). The management students are required to possess the knowledge and skill sets of Enterprise Resource Planning (ERP) packages for getting better career opportunities and prospects. The training of the practical skills of ERP have developed rapidly over past few years. As a result ERP is gaining popularity among the students and working professionals. In the similar lines, teaching for ERP subject to the students becomes an important aspect in the Higher Education & Institutes. This research paper focuses on identification of the suitable methodologies for teaching ERP as a subject to students. In this research paper, we have considered and reviewed gamification based approach for teaching ERP to post graduate management students. The main advantage of gamification is that it helps in motivating the students to learn more and more about the subject, thereby leading to enhanced learning process. The gamification supports students in learning the subject and offers adequate solutions for educational needs & requirements of the new generation of the students. A systematic literature review and mapping highlighting key issues and challenges have been presented in the research paper.

Keywords: Enterprise Resource Planning (ERP), Management Education, Practical Training of ERP, Gamification

Introduction:

Enterprise Resource Planning (ERP):

Enterprise Resource Planning (ERP) can be defined as software system which helps corporates to streamline their core business processes which provides unified view of the business activities. There are various advantages and benefits of the learning the Enterprise Resource Planning (ERP) as demand for professionals with ERP skillsets is increasing. The corporates and MNCs are investing heavily in these systems pertaining to the business intelligence capabilities, managing the business transactions and operations effectively and efficiently. However it is not limited to the above advantages of the ERP, it is the fact that ERP is providing end to end solutions for entire business processes. There are various vendors offering ERP solutions like SAP, Oracle, JD

Edwards, Zoho etc. The requirements of corporates are met by ERP and in the similar lines requirements for Higher Educational Institutes can also be met by ERP. Figure 1 describes the requirements of HEIs. Figure 2 gives the snapshot of various activities performed in HEIs. As mentioned in the Educational & Research Activities are the major sets of activities in HEIs. Activities for Finance & Accounts and HR forms the minor sets of activities [1] [2] [3].

Figure 1 describes the ERP modules in HEIs [2].



Figure 1 ERP Modules in HEIs



Figure 2 Activities in HEIs

Gamification

Gamification is considered as one of the most prominent and emergent teaching technologies in the education. Gamification provides adequate solutions for meets the educational requirements of the students. Gamification started in the areas of marketing and business development around the year 2008. The main and prominent aim of gamification is to transform the experiences when is the game is being played. The gamification will include the insertion of cases that requires excel based solutioning. The gamification enhances the outcome of the curriculum. It transforms the learning environment while moving away from the standard learning environment and making learning a fun [2] [3].

Literature Review

The authors have done the literature review for the research papers in the area of the gamification and teaching Enterprise Resource Planning (ERP). In [1], the authors have presented a suitable methodology for teaching Enterprise Resource Planning to under-graduate students in Mauritius. On the basis of the findings of the research, the authors have implemented a web based simulation game. This was evaluated by another tertiary institution and it was found that understanding of ERP concept is better post implementation of simulation game. In [2] , the authors have presented a case study of failed implementation of ERP for manufacturing

organization. In [3], the authors have examined and performed cost benefit analysis of Enterprise Resource Planning (ERP) in curriculum and benefits which are envisaged. The authors have also captured the important benefits of introducing the ERP in curriculum. In [4], the authors have described and presented the experiences in the field of teaching Enterprise Resource Planning (ERP) and comparison of the methods was also presented. The important conclusion presented in the paper is that students expect support and guidance from teachers while learning subjects like ERP. The students do not expect “ready-made solutions” from teachers while the teachers are teaching subjects like ERP.

In [5], the author have presented the practices of various teaching modalities in nursing college in Saudi Arabia. During the research it is found that Kinesthetic is most preferred style of learning. The second most prominent style of teaching is Visual. In [6], the authors have presented a joint effort and collaboration between Riga Technical University and the University of Rostock to improve introductory ERP training by adding an internationalization component to the required curriculum. The case study incorporating training approach, relevant study materials and appropriate technical environment has been developed. In [7] [8], the authors have developed a strategy for automatic assessment for practical skills of ERP based on Massive Open Online Course (MOOC). In [9], the authors have focused on pre-implementation phase of SAP software in Purdue University. This research study provides a feedback for pre-implementation in a higher education institution.

In [10], the authors have presented research results in the field of ERP systems and how ERP systems can be used and utilized in higher education institutions like Universities and Colleges. The study also captures the various case studies from the practices so that there can be similarities & differences between Slovenian Higher Educational institutes and other global institutes (based on the world trends). In [11], the authors have performed research for evaluating the deployment of Education ERP system in the University. Also the research paper has identified the main and critical success factors which impact and influence the success of deployment.

In [12], the authors have studied and presented an different view and perspective from users point of view about the acceptance of Enterprise Resource Planning systems. The research paper also captures the best practices for usage of the ERP system. The authors have performed the investigation about the role of training of ERP systems leading to the improvised usage of the systems [13]. On the basis of the research performed and the collection of data, the authors have presented a model for training which could be of high relevance for researchers as well as users of the ERP systems [13].

In [14], the authors have studied and performed analysis of the critical factors which have significant impact and influence on the performance of students in logistics management. The study utilized Interpretive Structural Modeling (ISM) and MICMAC analysis. In [15], the authors have highlighted and captured the experiences with playing the ERP based game with the students.

Procure to Pay Process

Industry is expecting new recruits should be aware of various modules of Enterprise Resource Planning (ERP) like Procure to Pay (P2P), Order to Cash (O2C) etc. Figure 3 denotes the Procure to Pay Process starting from creating of Business Case to Vendor Payment. The approval of Business Case, Purchase Requisition and Purchase Order is as per Delegation of Authority (DoA).

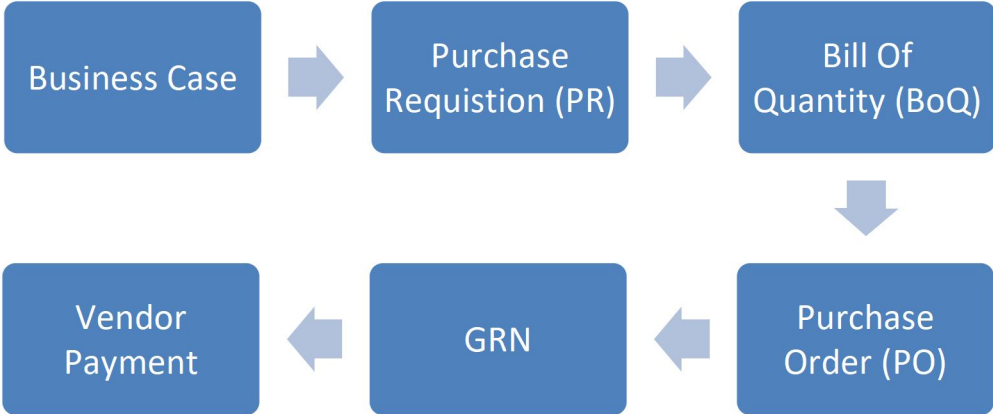
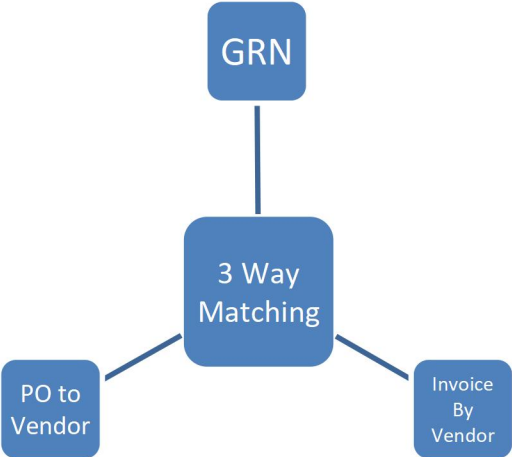


Figure 3 Procure to Pay Process

Figure 4 describes the 3 way matching process before moving ahead with the Vendor Payment. The matching of following items is done:

- PO Given to the Vendor
- GRN of the Material (Received at Warehouse)
- Invoice submitted by the Vendor



**Figure 4 3 Way Matching before the Vendor Payment
Order to Cash Process:**

Figure 5 denotes the Order to Cash Process.

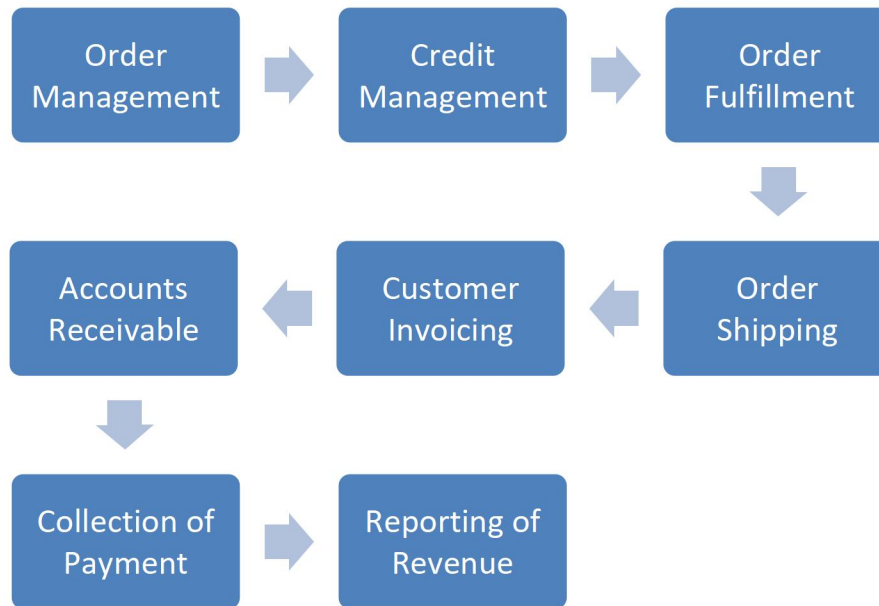


Figure 5 Order to Cash Process

Formation of Student Groups:

In order to have the understanding of the Procure to Pay (P2P) process, we divide the students in the groups. A batch usually consists of 60 students so than in that case we form 6 groups consisting of 10 students each. Table I and II describes the details of roles for Procure to Pay Process for Capital Expenditure (CAPEX) and Operational Expenditure (OPEX).

Table I Details of Roles for Capital Expenditure (CAPEX)

| Process Name | Role | Group | Required Screenshots (details as per Fig No) |
|----------------------|---------------------------------------|-------|--|
| Procure to Pay (P2P) | Creation of Business Case in SAP | 1 (A) | |
| Procure to Pay (P2P) | Creation of Purchase Requisition (PR) | 1 (A) | Details captured in Figure 6 |
| Procure to Pay (P2P) | Creation of Bill of Quantity (BoQ) | 1(B) | |
| Procure to Pay (P2P) | User for Spare Parts | 1(C) | |
| Procure to Pay (P2P) | User for Services | 1 (D) | |
| Procure to Pay (P2P) | Creation of Purchase Order in SAP | 1(E) | Details captured in Figure 7 |

| | | | |
|-----------------------------|--|------|------------------------------|
| Procure to Pay (P2P) | Vendor Supplies the material to Warehouse | 1(F) | |
| Procure to Pay (P2P) | Quality Check at Warehouse | 1(G) | |
| Procure to Pay (P2P) | GRN at Warehouse | 1(H) | Details captured in Figure 8 |
| Procure to Pay (P2P) | Vendor sends the Invoice | 1(F) | |
| Procure to Pay (P2P) | Checking & Matching of the Invoice by Vendor, Purchase Order with GRN | 1(I) | Details captured in Figure 9 |
| Procure to Pay (P2P) | Making the Payment to the Vendor post completion of the 3 way matching | 1(J) | Details captured in Figure 9 |

Table II Details of Roles for Operational Expenditure (OPEX)

| Process Name | Role | Group | Required Screenshots |
|-----------------------------|--|-------|---|
| Procure to Pay (P2P) | Creation of Business Case in SAP | 1 (A) | |
| Procure to Pay (P2P) | Creation of Purchase Requisition (PR) | 1 (A) | |
| Procure to Pay (P2P) | Creation of Bill of Quantity (BoQ) | 1(B) | |
| Procure to Pay (P2P) | User for Spare Parts | 1(C) | |
| Procure to Pay (P2P) | User for Services | 1 (D) | |
| Procure to Pay (P2P) | Creation of Purchase Order in SAP | 1(E) | Details captured in Figure 10 (Screenshot for Analytics View for Purchase Order (PO)) |
| Procure to Pay (P2P) | Vendor Supplies the material to Warehouse | 1(F) | |
| Procure to Pay (P2P) | Quality Check at Warehouse | 1(G) | |
| Procure to Pay (P2P) | GRN at Warehouse | 1(H) | |
| Procure to Pay (P2P) | Vendor sends the Invoice | 1(F) | |
| Procure to Pay (P2P) | Checking & Matching of the Invoice by Vendor, Purchase Order with GRN | 1(I) | |
| Procure to Pay (P2P) | Making the Payment to the Vendor post completion of the 3 way matching | 1(J) | |

Managerial Implications:

Enterprise Resource Planning (ERP) is responsible for facilitation of the continuous and streamlined flow of the information & details with an organization. This is mainly possible due to the storage of data in common databases. An ERP system presents the holistic view of the company by reduction in the redundancy of information & knowledge by providing real time access to information. ERP helps in running the business operations seamlessly. The gamified system for teaching & training to ERP improves the students learning. Using gamification, the students are able to understand the business processes in detail and understand terms associated with the processes. For example Purchase Order (PO) can be understood in a better way while punching the entire and using the same.

Conclusion

This research paper focuses on gamification-based approach for teaching ERP to the management students. ERP technology is transitioning from traditional transaction focused “on premise” based software to the “Digital Cloud based Intelligent System”. The main aim of gamification approach for teaching ERP to management students is that they should be able to understand the functions and business processes effectively. The Gamification approach enhances the learning by understanding the concept in detail and stimulating the fun in learning.

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SAP Screen Shots:

1. Purchase Requisition Creation :

Figure 6 captures the screenshot for the creation of the Purchase Requisition (PR).

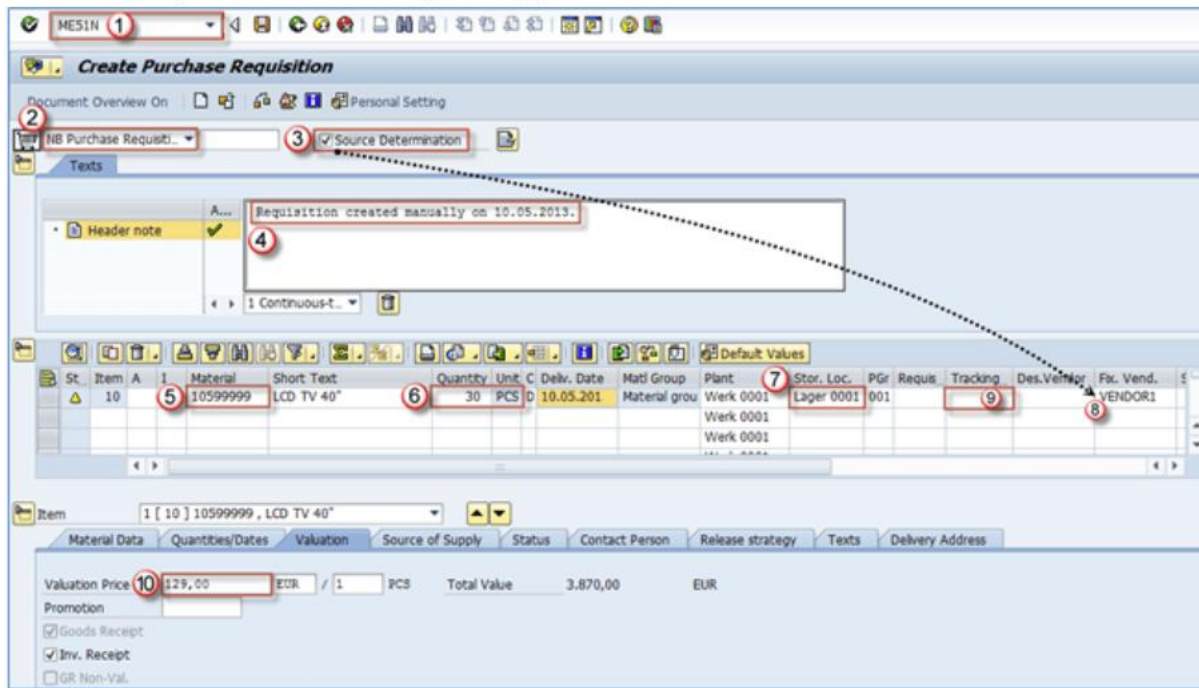
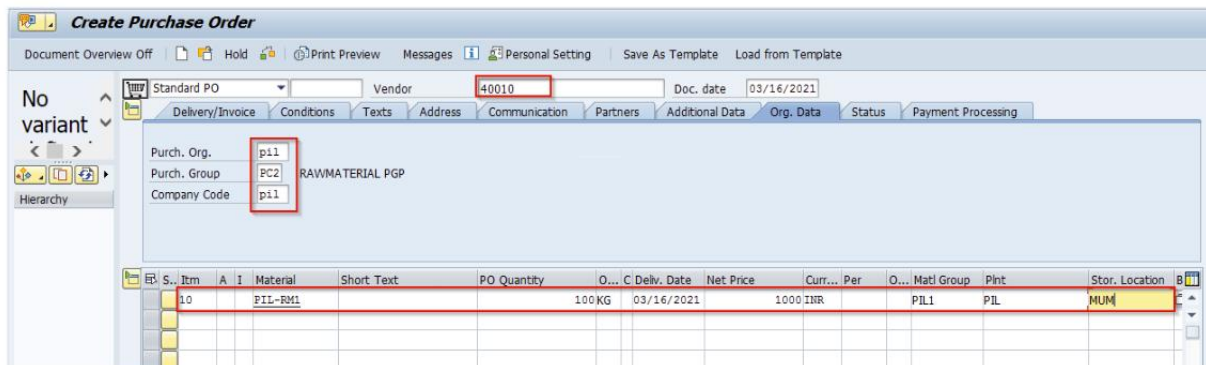


Figure 6 Creation of Purchase Requisition (PR)

2. Purchase Order Creation

Figure 7 captures the screenshot for the creation of the Purchase Order (PO).



Click on enter and save.

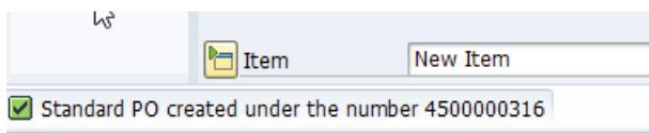


Figure 7 Creation of Purchase Order

3. GRN Creation

Figure 8 captures the screenshot for the creation of Goods Receipt Note (GRN).

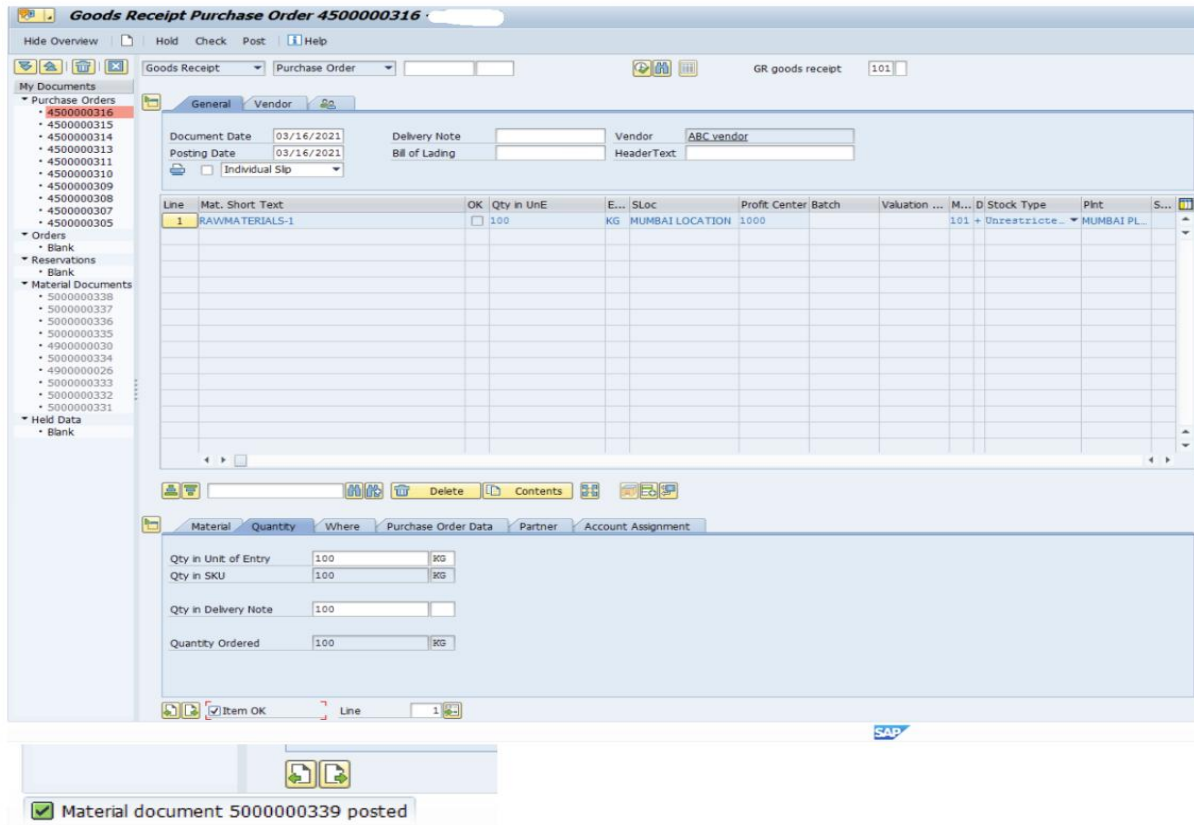


Figure 8 Screenshot for Creation of GRN

4. Vendor Payment

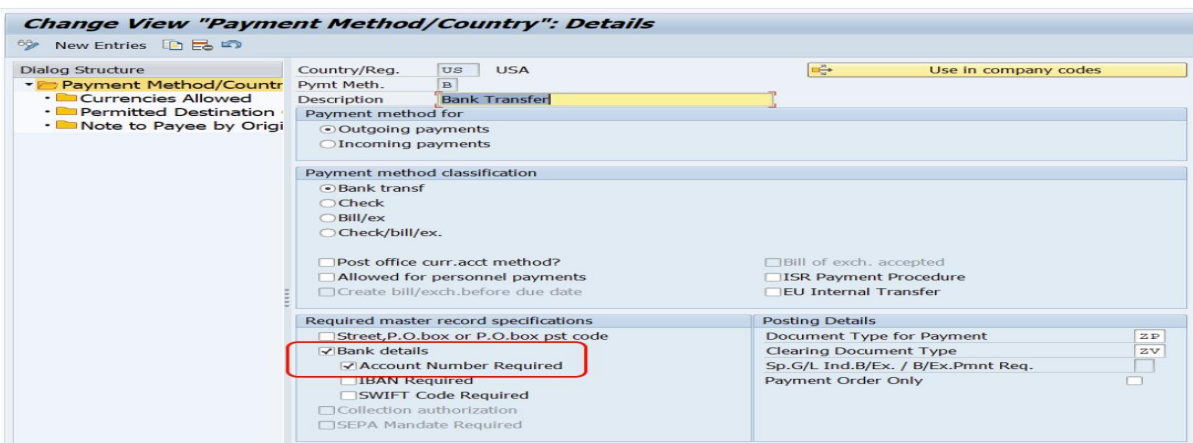


Figure 9 captures the screenshot for the screenshot for the payment to the vendor.

Figure 9 Screenshot for the Payment to the Vendor

5. Purchase Order Analytics View

Figure 10 captures the screenshot for analytics view of the Purchase Order (PO).

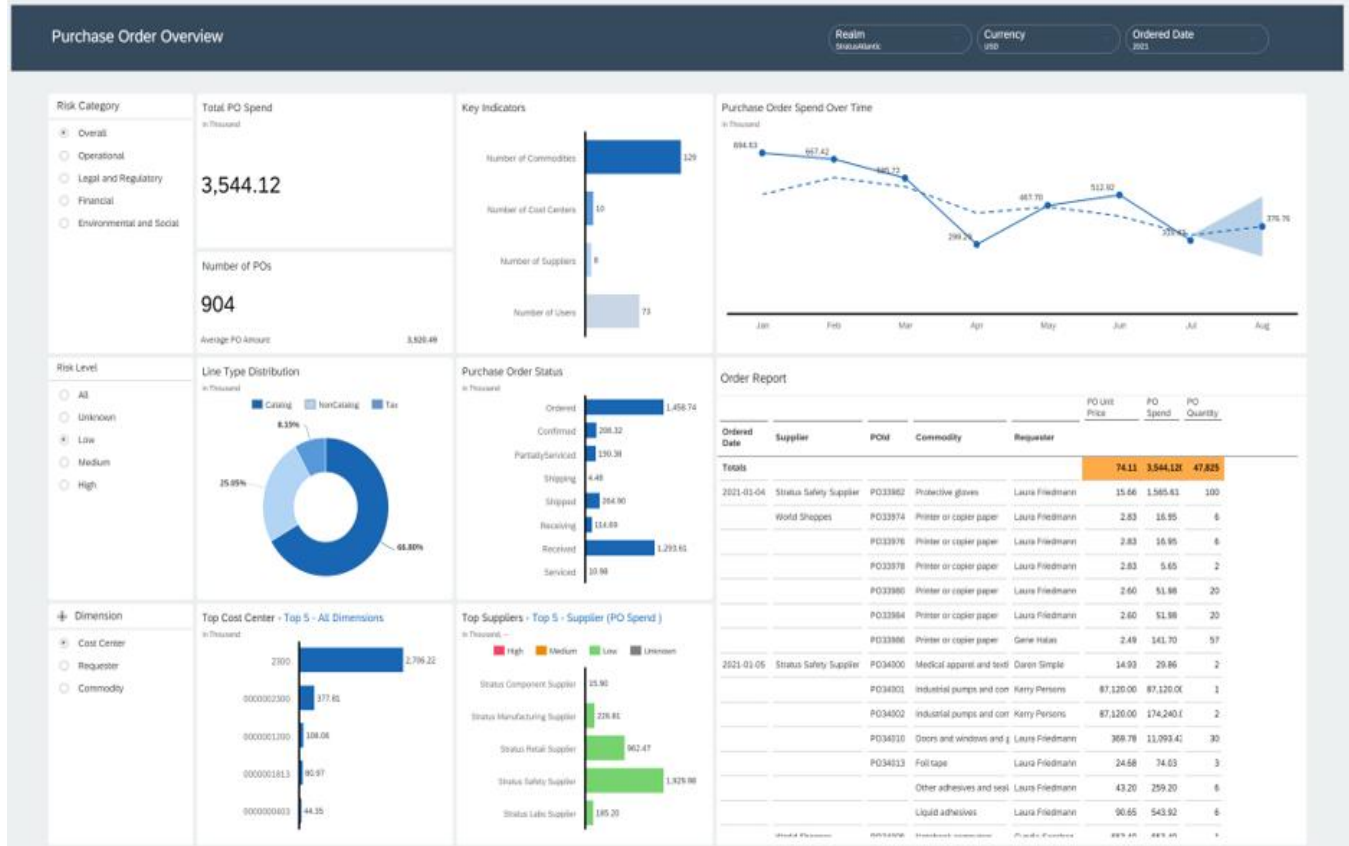


Figure 10 Screenshot for Analytics View for Purchase Order (PO)