DIGITAL INNOVATION IN WAREHOUSE MANAGEMENT: BUILDING A COLLABORATIVE WORK CULTURE WITH GOOGLE WORKSPACE AT BPKP SULUT

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Abstract

Efficient warehouse management is crucial for organizations to ensure smooth operations and optimal inventory management. In the digital era, technological innovation plays a significant role in enhancing management effectiveness. One widely used technology is Google Workspace, which offers various tools to support team collaboration. This study aims to explore the challenges faced by BPKP Sulut in implementing Google Workspace for warehouse management and how this tool can foster a collaborative work culture within the organization. Using a qualitative approach, the research involves interviews with employees and an analysis of the utilization of Google Workspace features in inventory management activities. The findings reveal that Google Workspace improves team communication and work efficiency, although there are implementation challenges that need to be addressed. This study provides recommendations on effective implementation strategies and ways to integrate a collaborative work culture into the organization.

Keywords: Digital Innovation, Warehouse Management, Google Workspace, Collaboration, BPKP Sulut

Introduction

Warehouse management is a crucial aspect of organizational operations, particularly for ensuring the smooth distribution of goods and materials. According to KPPN (2022), "The Inventory Module is a component of the SAKTI Application used for managing financial transactions related to inventory, including the recording and accounting of inventory items."

In recent years, advancements in digital technology have created opportunities for organizations to optimize inventory management and improve existing systems. In Indonesia, the Financial and Development Supervisory Agency (BPKP) of North Sulawesi (Sulut) is seeking to adopt digital innovation by utilizing Google Workspace to enhance its warehouse management system.

Google Workspace, which includes tools such as Google Sheets, Google Drive, and Google Meet, provides cloud-based solutions that enable real-time data access and facilitate team collaboration in daily operations. This research aims to analyze the challenges faced by BPKP Sulut in implementing Google Workspace for warehouse management and how these tools can foster a collaborative work culture within the organization.

Additionally, the use of Google Workspace can assist leadership in planning procurement for the upcoming year, thereby increasing budget efficiency. Below is an example of a chart generated to serve as a reference for inventory procurement planning.
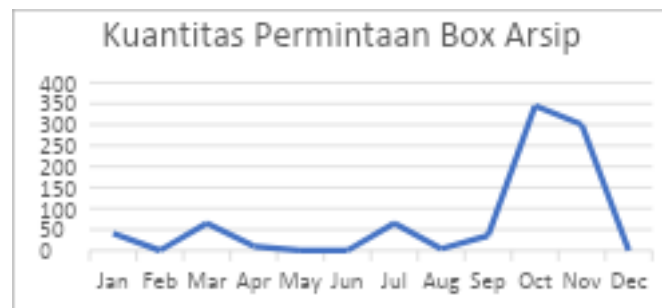
Figure 1
Archive Box Expenditures for 2024 BPKP Sulawesi Utara

According to Heryanto & Hernawati (2022), digitalization in office environments, including the use of applications such as Google Workspace, can enhance work efficiency. Meanwhile, Krisnandi et al. (2019) highlighted that effective collaboration within an organization can be achieved through tools that facilitate communication and information sharing.

Therefore, this study focuses on the implementation of Google Workspace in warehouse management at BPKP Sulut and the challenges encountered in fostering a collaborative work culture. The research aims to analyze the impact of Google Workspace on the effectiveness and efficiency of warehouse management at the North Sulawesi Provincial Representative Office of BPKP. This study takes the perspective of BPKP employees acting as inventory management officers.

However, the adoption of this technology is not without challenges. According to Krisnandi et al. (2019), resistance to change and a lack of technological understanding are the primary obstacles to implementing digital innovations. This research seeks to explore the implementation of Google Workspace at BPKP Sulut, identify the challenges faced, and assess its impact on warehouse management efficiency and collaborative work culture.

Methods

This study employs a qualitative approach with a case study design. The primary data sources come from interviews with BPKP Sulut employees directly involved in using Google Workspace for warehouse management. These interviews aim to explore the challenges encountered, the benefits gained, and the impact of Google Workspace usage on fostering a collaborative work culture.

Additionally, the research includes document analysis of Google Workspace features used at BPKP Sulut, such as Google Sheets for warehouse data management and Google Drive for file sharing and documentation. The collected data is analyzed using both qualitative and quantitative data analysis techniques to provide a comprehensive overview of the effectiveness of this technology in enhancing efficiency and collaboration.

The metrics used in this research are measured in terms of time and labor efficiency, as well as error reduction.

Results and Discussions
Results

The research findings indicate that the implementation of Google Workspace at BPKP Sulut faced several challenges, primarily related to employee adaptation to new technology and insufficient training. Nevertheless, the use of Google Sheets for inventory management and Google Drive for data sharing has had a positive impact on work efficiency and has facilitated team communication.

Google Workspace also plays a crucial role in fostering a collaborative work culture. Features such as Google Meet and Google Chat enable employees to communicate directly, while Google Docs and Google Sheets simplify collaboration in creating and updating documents simultaneously. However, challenges remain due to unequal understanding among employees about the optimal use of these features.

In an interview with Trismantyo Saidi, one of the employees directly handling the application, he stated, "The warehouse application implemented in the form of Google Sheets is very user-friendly and addresses the issues found in the SAKTI application, making it significantly helpful in inventory transaction activities."

Based on the analysis, the benefits of this digital innovation include increased productivity, reduced errors in data management, and faster decision-making processes. However, achieving more effective implementation requires more intensive training and support.

In government inventory management activities, the use of the SAKTI application's inventory module has some shortcomings. These include the lack of real-time data, as purchased items cannot be recorded until the SP2D (Funding Disbursement Order) is issued, and employees are unable to view current stock levels in the warehouse. Furthermore, the separation of budgetary accounts for inventory and daily necessities prevents comprehensive recording within the application.

Discussions

Google Workspace provides a solution to the shortcomings of the SAKTI application, allowing incoming goods to be recorded immediately on Google Sheets. This enables items to be issued for employee use without waiting for the SP2D (Funding Disbursement Order) to be issued. Additionally,

Google Sheets allows employees to view stock levels directly, eliminating the need to visit the warehouse to check item availability. The sheet also facilitates the printing of detailed warehouse cards, making it easy to track outgoing transactions and the quantities of items taken by each employee. This data can be utilized for budgeting planning in the following year.

Since the current application is still basic, it only records incoming and outgoing items without specifying whether the items were purchased using the inventory budget or the daily needs budget. However, there are plans to add formulas to address this issue at the beginning of the year. Improvements to the application are also being directed towards the use of AppSheet, enabling employees to access and request items directly through Android devices.

The implementation of Google Workspace at BPKP Sulut has significantly improved warehouse management efficiency, as demonstrated by:

- **Reduced Processing Time**
  Before implementation, the average time required to issue inventory items was more than two days due to waiting for the SP2D. After adopting Google Sheets, this time was reduced to less than two hours after the items were received (a reduction of over 94%).
- **Reduced Recording Error**
  Inventory recording errors decreased from 30% to less than 5% because inventory sheets are reconciled with physical inventory counts before being inputted into the SAKTI application.
- **Enhanced Inventory Procurement Effectiveness**
  Collaboration through Google Workspace enables the analysis of statistical data on item usage, identifying periods of high demand. For example, the following is a report from the warehouse card generated via Google Sheets.

Table 1 Example of Archive Box Stock Card in Google Sheets

BPKP SULUT							
Kartu STOK							
Periode 01 Jan 2024 sd 19 Nov 2024							
Nama barang	A1-1 | Box Arsip						
Tanggal	**Ref**	**Keterangan**	**Jenis**	**QTY**	**QTY IN**	**QTY Out**	**Saldo**
							0
1-Jan-2024	Umum		In	200	200	0	200
5-Jan-2024	Frisca Pricillia Makasidamo		Out	2	0	2	198
9-Jan-2024	Frisca Pricillia Makasidamo		Out	3	0	3	195
13-Jan-2024	Ivo Nur Subiwa		Out	36	0	36	159
2-Mar-2024	Murry Surya Salu, S.E.		Out	15	0	15	144
6-Mar-2024	Rivo Dani Salu		Out	50	0	50	94
4-Apr-2024	Siti Aisyah Sukarno		Out	10	0	10	84
6-Jul-2024	Ivo Nur Subiwa		Out	23	0	23	61
7-Jul-2024	Edwin Ferdinand Angelbert Bella		Out	11	0	11	50
18-Jul-2024	Frisca Pricillia Makasidamo		Out	10	0	10	40
21-Jul-2024	Jonathan Kevin Paat		Out	10	0	10	30
27-Jul-2024	Risky Remon Ambar		Out	10	0	10	20

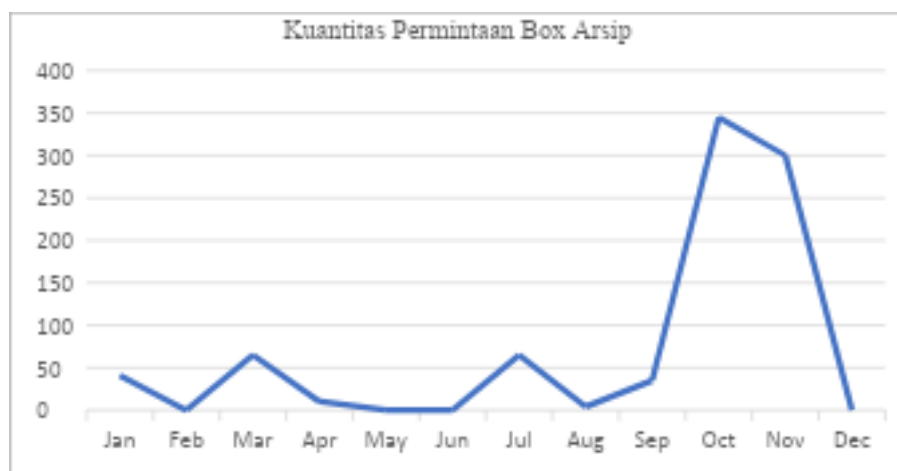|							
30-Jul-2024	Siti Aisyah Sukarno		Out	1	0	1	19
2-Aug-2024	Esther Kristhien Deacy Pijoh, S.E.		Out	4	0	4	15
2-Sep-2024	Esther Kristhien Deacy Pijoh, S.E.		Out	1	0	1	14
17-Sep-2024	Umum		In	1000	1000	0	1014
17-Sep-2024	Frisca Pricillia Makasidamo		Out	15	0	15	999
18-Sep-2024	Frisca Pricillia Makasidamo		Out	8	0	8	991
23-Sep-2024	Siti Aisyah Sukarno		Out	1	0	1	990
26-Sep-2024	Yunita Agmenia Kaloh		Out	10	0	10	980
4-Oct-2024	Edwin Ferdinand Angelbert Bella		Out	100	0	100	880
14-Oct-2024	Yunita Agmenia Kaloh		Out	10	0	10	870
16-Oct-2024	Rivo Dani Salu		Out	25	0	25	845
16-Oct-2024	Rivo Dani Salu		Out	50	0	50	795
23-Oct-2024	Frisca Pricillia Makasidamo		Out	10	0	10	785
30-Oct-2024	Jonathan Kevin Paat		Out	50	0	50	735
30-Oct-2024	Gloanda Debora Tulangi		Out	50	0	50	685
31-Oct-2024	Alri August Tumilaar		Out	50	0	50	635
1-Nov-2024	Taufik Hidayat, A.Md.		Out	300	0	300	335

Figure 2
Graph of Archive Box Request Quantity

With this data, the leadership can determine when inventory items need to be purchased and how much should be prepared for future procurement. Additionally, this supporting data can be used to identify and predict when the demand for goods will increase.

Conclusions

The adoption of Google Workspace at BPKP Sulut has significantly improved the efficiency and effectiveness of warehouse management. By utilizing tools such as Google Sheets and Google Drive, the organization has achieved faster inventory recording, reduced errors, and improved team collaboration.

These enhancements have been instrumental in addressing the shortcomings of the existing SAKTI application, particularly in real-time data access and stock visibility.

Despite these benefits, the implementation process has faced challenges, including resistance to change and varying levels of technological expertise among employees. Addressing these challenges through targeted training and support will be critical for further optimization. The integration of additional features, such as AppSheet, promises even greater advancements, allowing employees to access and manage inventory directly from mobile devices.

Overall, this initiative underscores the transformative potential of digital innovation in warehouse management, demonstrating how tools like Google Workspace can enable a collaborative and efficient work culture.

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