

Implementation of Laboratory Services and Online Consultation at Taksu Laboratory Clinic by using ODOO ERP

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ABSTRACT

The development of technology information makes a lot of new technology that can be used to simplify company work, make multiple company try to apply that new technology in their own company. One of them is Taksu Laboratorium Klinik which is engaged in the field of health and health testing. Taksu Laboratorium Klinik already have a information system but still not used to it's maximal capacity dan did not have a customer relationship management on consultation between patient and doctor. Application that can solve this problem is Odoo ERP. Odoo ERP is an enterprise resource planning application that can help company to solve a complex problem. Odoo ERP is an open source that makes it the best application for a new company which is in need for an affordable application development. Modules developed at Taksu Laboratorium Klinik enterprise resource planning system is Sales Module, Customer Relationship Management Module, Invoice Module, Livechat Module, and Website Module. The Odoo system with these modules will later connect Taksu Laboratorium Klinik data, so that an interconnected Enterprise Resource Planning application can be realized.

KEYWORDS: Implementation, Service, Consultation, ERP, Odoo

1. INTRODUCTION

The laboratory clinic business is a business engaged in health checks such as checking blood sugar, cholesterol, triglycerides. Many people in general need health checks to find out what diseases they suffer, making the health check business a good opportunity. The public or patients can take advantage of the health check business to assist in providing quick, easy, and accurate health checks. so that the facility for health checks and consultations on the results of health checks becomes an attractive business opportunity for many health education graduates to set up their own clinic business. Taksu Clinical Laboratory is one of the health check businesses located in Tabanan Regency that serves various kinds of health checks such as blood sugar checks, heart function checks, and others. Taksu Clinical Laboratory has experienced health workers and works closely with four doctors who are experts in their fields, besides that Taksu Clinical Laboratory has collaborated with many hospitals. With the many collaborations carried out by the Clinical Laboratory

Taksu, there will be many problems that will make the health check service process less than optimal.

Solutions that can be used as alternatives such as opening service orders via telephone or whatsapp, but these methods are still less effective because the admin records orders for patient health check services manually. Another way is to create a website page for the Clinical Laboratory Taksu, this method is quite good but only with a website page so there is no system that connects the website and sales arrangements, health consultations, scheduling, and purchasing medical equipment stock. With the consideration of these alternatives, the existence of an Enterprise Resource Planning system that can handle orders for health check services and others can be a solution to the problems faced by the Clinical Laboratory Taksu. Enterprise Resource Planning is a consolidated process of collecting and organizing business data through an integrated software suite. Based on this understanding, the Enterprise Resource

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Planning tool is an application that automates business functions such as production, sales reports, accounting, and others. Currently available Enterprise Resource Resource Planning tools are Openbravo, Hashmicro, Odoo, and others. Openbravo is an example of an existing open source Enterprise Resource Planning application and has modules that can be used to deal with the problems faced by Taksu Clinical Laboratory, but the author chooses to use Odoo because it is an open source application that is more widely used for enterprise applications. Resource Planning. The Enterprise Resource Planning system that will later be created can help patients who want to order health check services online and for Taksu Clinical Laboratories to assist in scheduling patient health checks. In addition, it can also be a place for patients who want to consult about the results of a health check using the available live chat system.

Research that applies Odoo application software in overcoming similar problems has been carried out in research with the title "Implementation of Enterprise Resource Planning (Erp) and Management of Relationships with Customers for Sales Information Systems at Soviah Stores" (Rimen & Akbar, 2016) and provides a solution for a system that can help manage sales, purchasing, inventory, and customer relationship management systems. Based on the solutions in previous research using business application software, this research can provide solutions in overcoming problems that occur in Taksu Clinical Laboratories by implementing Enterprise Resource Planning (ERP) applications using Odoo 13. Odoo is an Enterprise Resource Planning (ERP) application.) is modern and has a variety of modules that are open source so it is appropriate to use application development for this research. Another advantage gained from using odoo is that the available modules can be used easily and are easy to understand to be developed into an integrated ERP system. The modules owned by Odoo ERP are Project Management, Manufacturing, Finance, Accounting, Human Resources, and others. The modules developed at Taksu Clinical Laboratory are Sales Module, Customer Relationship Management, Website, Live Chat, Inventory, Purchase, Report, and others.

Research Method / Proposed Method

The research carried out is research on the implementation of Laboratory Services and Online Consultation at Taksu Clinical Laboratories by Utilizing Odoo Erp. This research consists of six stages of the research process, namely literature study, data collection, data processing, data analysis,

system testing and implementation, as well as conclusions and suggestions. Each stage of the research will be explained in the image below. The following are the stages of planning the process of implementing laboratory services and online consultation at Taksu Clinical Laboratories by Utilizing Odoo Erp.

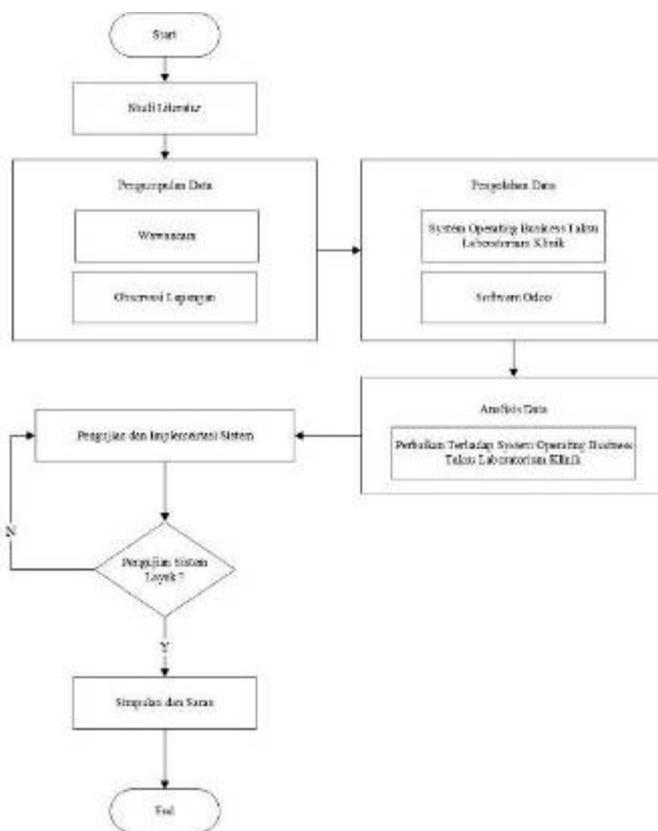


Figure 1 Research Step

Picture 1 shows the research flow used for the Implementation of Laboratory Services and Online Consultation at Taksu Clinical Laboratories by Utilizing Odoo Erp.

1.1. Enterprise Resource Planning Definition

ERP system is an integrated business solution for companies to achieve strong competitive goals with competitors. ERP systems enable companies to integrate business functions into unified and integrated business processes. For companies that implement ERP systems, a difficult and big problem faced is to integrate separate systems in the company, moving separate functional areas into a computer system that can serve the needs of different departments.

1.2. Odoo Definition

Odoo is an open source software, which can help companies in corporate resource planning. Odoo is similar to many other open source ERP applications, and customized programming, support, and other services are also provided by an active global community.

Odoo is another alternative to open source ERP applications besides Microsoft Dynamics, Netsuite, OFBiz, Adempiere, Dolibarr, Compiere and other ERP planning systems. Odoo is licensed under the terms of the AGPL license. AGPL stands for Affero General Public License which is a free or free software license.

2. Literature Study

The literature study was carried out by collecting several theories, methods related to the problems in the research carried out, namely using ERP and the software used for implementation, namely Odoo. Literature studies are obtained from various sources including books, journals, articles, or scientific works that are used to strengthen the theoretical basis in research, one example of a journal that is used as a literature review is research conducted by Dhani Adiatma Rimen and Ricky Akbar with the topic of Enterprise Applications. Resource Planning (Erp) and Management of Relationships with Customers for Sales Information Systems at Soviah Stores which discusses the implementation of an Enterprise Resource Planning system that is able to handle sales records and build relationships with customers. Next is research by Christian Hardjono in a journal entitled Design and Implementation of Erp (Enterprise Resource Planning) Sales And Warehouse Management Module on Cv. Brada who discussed the implementation of Enterprise Resource Planning in a furniture company that wants to have a computerized system for its furniture items.

3. Result and Discussion

Results and discussion on the Odoo application in building shop research. The ERP system implementation process starts from the process of creating a database, and installing the required modules. After the installation has been done, it will continue with the process of adjusting the application to the needs that have been defined previously

3.1. Database Configuration

Database configuration is the initial setup process to start running Odoo applications. The database configuration carried out consists of database creation, database recovery, database backup, database duplication, database deletion, and database password changes.




Figure 2 Database Configuration

The first configuration is done after the Odoo application installation process is database creation. Database creation functions as a data storage area that begins with the Manage Database option at the beginning of the Odoo application page which then displays a display like the image above. The option contained in the database configuration is Restore Database which is used to restore a previously deleted database. The Backup Database option is used to create a backup database, the Duplicate Database option is used to duplicate the database, and the Delete option is used to delete the Database. The next option is Set Master Password which is used to change the database password for admin.

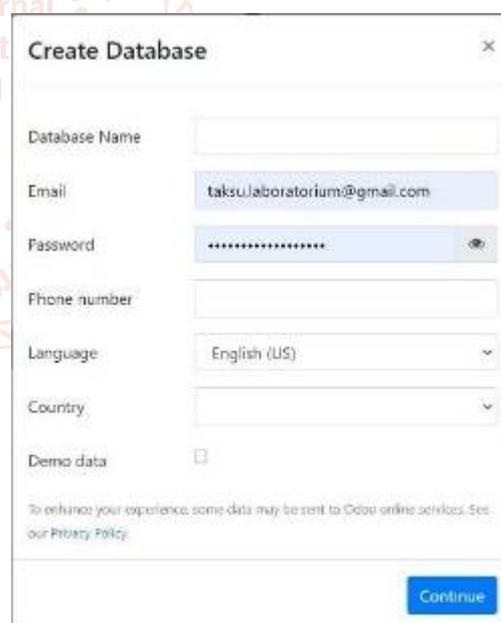


Figure 3 Creating New Database

Creating a new database starts by entering the name of the database you want to create, then entering your email address and password. The next step is to enter the mobile number and choose the language to be used in Odoo along with the country, then select Continue.



Figure 4 Odoo Login

The picture above is a login form display to enter the Odoo system. The email option is a command to enter the email that has been registered with Odoo, and the password that was previously created.

3.2. Sales Module

Sales module is a module used for managing and classifying sales orders such as creating new orders and reviewing existing orders. Making sales orders (Sales Orders) in full starting from customer Quotations, sales orders, delivery of goods, making invoices for down payment (DP), making full payment invoices. The following are the stages in the Sales module.

Quotations is a way to add a new order to the Sales Module, to activate the Quotations mode, it can be done on the Sales > Order > Quotations menu option then select the Create button to create a new Quotations.



Figure 5 Create Quotation

Quotations will then change to Sales Orders containing patient health service orders. Patients can order health check services directly or through the available website, if the patient comes directly to place an order, the order will be made via Quotation > Create and the order data will be added to the system as shown above. Quotation consists of patient name, patient address, order expiration date, health check service order, price, and total price.



Figure 6 Invoice

Invoice has three types of options, namely Regular Invoice, Down Payment (Percentage), Down Payment (Fixed Amount). Regular Invoice is a type of payment with a full payment method, Down Payment (Percentage) is a type of payment with a payment method according to a percentage of the total cost required, and Down Payment (Fixed Amount) is a type of payment with an amount agreed by both parties of the total cost.

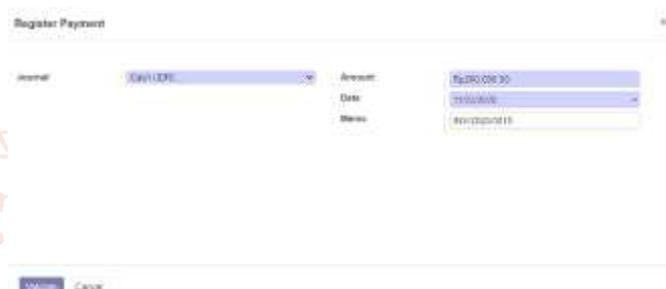


Figure 7 Register Payment

Register Payment is a process in the system used to register payments made by patients. Register Payment consists of payment method, payment amount, date, and invoice number

3.3. Purchase Module

Purchase module is a module that functions to process purchases of goods to suppliers of Taksu Clinical Laboratory. Request For Quotations is the process of requesting the purchase of medical equipment for the Taksu Clinical Laboratory to the supplier, in Odoo Request For Quotation is used to send a request for the purchase of medical devices to the supplier, after the supplier confirms the availability of goods, the clinic can proceed to the purchase process or cancel the purchase of goods.



Figure 8 Request For Quotation

Request For Quotation consists of the name of the supplier, the date of order, the name of the medical device ordered, the description, the number of orders, the price, and the total price. The Confirm Order

option will confirm the order so that the order status changes to Purchase Order.

3.4. Inventory Module

The Inventory module is a module provided by Odoo to handle goods entering the clinical laboratory's Taksu warehouse, inventory of goods, and managing medical device storage. The Inventory module can manage the availability of an item based on the Minimum Quantity and Maximum Quantity in order to avoid excess or shortage of product stock. Receipt of goods from suppliers is done automatically when the purchase admin confirms receipt of goods. The next inventory admin only needs to validate the number of medical device items that come according to the order.



Figure 9 Validation of Goods Receipt from Supplier

Validation of receipt of medical device orders can be done through the Inventory > Receipts > reference number option for a list of products sent by suppliers. The validate option is used to validate the number of items received is in accordance with the order that was sent previously.

3.5. Invoice Module

The Invoice module is a module provided by Odoo to handle the recording of every transaction made in the Sales module. Invoice module can see the status of payments made by patients. The Invoice module can also manage the verification of payments made by patients, for example, if there is an unpaid health check service order in the Sales module, it can be verified in this module.

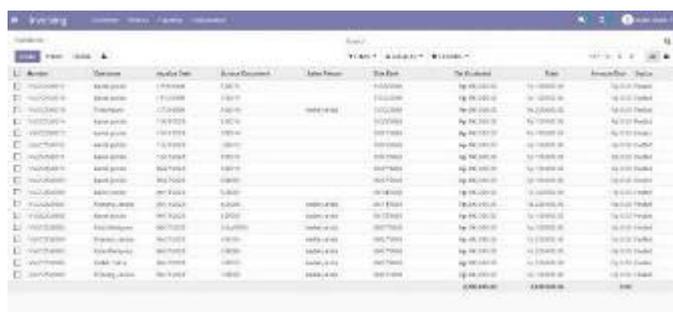


Figure 10 Invoice

The Invoice module has all invoices created by the system, starting from Sales Invoices, Purchase Order

Invoices, Invoices for receiving goods from Suppliers, and others.

3.6. Scheduling Module

Scheduling Health Checks is a process where the admin discusses the schedule for health checks to the Taksu Clinical Laboratory with patients. In this process the admin will conduct a discussion by contacting the patient directly. The admin in this process will create a reminder in the CRM (Customer Relationship Management) calendar to discuss the patient's health check schedule.

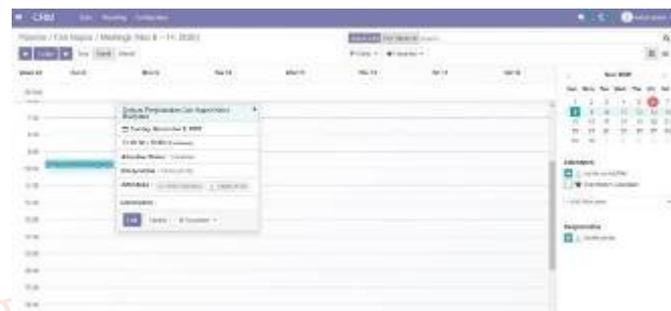


Figure 11 Health Check Scheduling

The scheduling process starts from the admin creating a reminder to have a discussion with the patient to schedule his health check. When the patient agrees with the health check schedule, the reminder status becomes Accepted, otherwise the reminder status becomes Canceled and when the discussion has not been carried out, the reminder status becomes Uncertain.

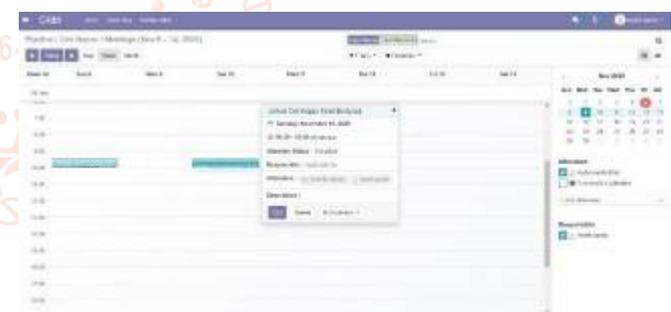


Figure 12 Health Check Entry

Picture 12 shows the appearance of the Health Check Entry contained in the CRM (Customer Relationship Management) module. The picture above shows an example where the admin creates a reminder on the calendar of the CRM (Customer Relationship Management) module to be a reminder that on that date there are patients who will come to Taksu Clinical Laboratory to do a health check. The reminder status will change when the patient comes to the clinic to become Accepted, then if the patient has not arrived, it will become Uncertain and become Rejected if the patient cancels.

3.7. Website Module

The Home menu on the Clinical Laboratory Taksu website contains information about the profile of the

Clinical Laboratory Taksu and photos of the services provided by the Clinical Laboratory Taksu. The Home menu also contains the contact of the Clinical Laboratory Taksu and an email that can be used to submit criticisms and suggestions regarding the services provided by the Clinical Laboratory Taksu.



Figure 13 Website Home Page

The home display of this website contains the flow of health check services, shop, contact us, and sign in. This page provides information about the Clinical Laboratory Taksu and the flow of health check services available at the Clinical Laboratory Taksu. Shop menu is a menu that contains a display of any health check services available at Taksu Clinical Laboratory.

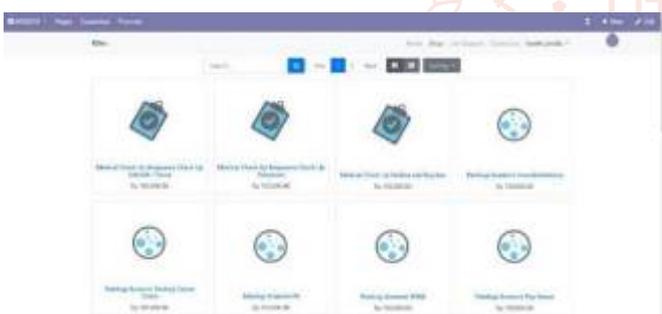


Figure 14 Shop Menu

Shop menu, on this page patients can choose the type of health check service they want to do. The Shop menu displays the types of health check services and the availability of these services, after selecting the desired service, the patient will be directed to the Payment process.



Figure 15 Website Payment Menu

The Payment menu on the website has two payment methods that can be done, namely by transfer and direct payment. The transfer method is a payment method for transferring funds to the Taksu Clinical Laboratory account and direct payment is a cash

payment process. The admin in this process only needs to verify orders that come in through the website and payment, if they do not match then the order is not validated while if it is correct then the order will be validated.



Figure 16 Order To Invoice

The Order To Invoice process will appear when there are patients who have paid for their orders, for example like the picture above, namely payments using the Cash On Delivery method. The admin only needs to register the payments made by the patient.



Figure 17 Admin Register Payment

The Register Payment admin process will choose between the patient paying by bank (transfer) or Cash (COD). In accordance with the picture above, the choice used is Cash because the patient pays using the Cash method.



Figure 18 Payment Done

This page will show that the order made by the patient has been paid and confirmed by the admin.

3.8. Modul Konsultasi

Patient online consultation is a feature provided on the Taksu Clinical Laboratory Website. By using the Live Chat feature, patients can ask questions about the services provided at Taksu Clinical Laboratory and also about the results of their health checks.



Figure 19 Patient Consultation View

Patients can do online consultations by simply opening the online consultation icon available on the website page and asking about the available services.



Figure 20 Admin Consultation View

The admin will answer the patient's questions through the available Discuss page which can only be accessed by the Admin of the Clinical Laboratory Taksu Website. The admin will answer all patient questions regarding the health check services available at the Clinical Laboratory Taksu and the results of the health checks carried out at the Clinical Laboratory Taksu.

4. Conclusion

The business process at Taksu Clinical Laboratory to serve patients who want to do a health check is still done manually. This business process that is still done manually has drawbacks, such as, patients who have to come to the clinic to order health check services, then there is no consulting service that can help patients understand the results of laboratory checks, then there is no integration between sales and service orders. making the process of ordering services longer in the process of providing data, and the process of ordering medical devices and checking incoming medical devices which are still done manually, with these shortcomings, the business process at Taksu Clinical Laboratory can be constrained. Problems in the Clinical Laboratory Taksu can be handled using Odoo 13, which can help business processes that were previously problematic to become better and produce the desired output. This implementation also improves existing business processes so that they can be adapted to the modules contained in Odoo. The modules used in this implementation are the Sales Module, Purchase Module, Inventory Module,

Invoice Module, Customer Relationship Management Module, Website Module, and Live Chat Module.

References

- [1] Akbar, F., Akbar, R., Mardaleni, & Netti. (2015). Implementasi Openbravo Pada Proses Transaksi Penjualan, Produksi Dan Sistem Inventory (Studi Kasus Pt. Nusantara Beta Farma). *TEKNOSI*, 01(01), 6.
- [2] Antari, D. D., Sukarsa, I. M., & Bayupati, I. P. A. (2016). Implementasi Proses Bisnis pada Perusahaan Retail Menggunakan Software Adempiere. *Merpati*, 2(1), 43–49. <https://doi.org/10.24843/JIM>
- [3] Dfd, S. (1989). Pengertian fungsi, dan data flow diagram (dfd). *Encep Suproatna*.
- [4] Guntur Setiawan. (2004). *Implementasi pada Birokrasi Pembangunan*. Jakarta: Balai Pustaka.
- [5] Hardjono, C., Informatika, F., & Telkom, U. (2017). Perancangan Dan Implementasi Erp (Enterprise Resource Planning) Modul Sales and Warehouse Management Pada Cv . Brada. *EProceedings of Engineering*, 4(3), 4983–4993.
- [6] Harsono, H. (2002). *Implementasi Kebijakan dan Politik*. PT. Mutiara Sumber Widya.
- [7] Jogiyanto, H. M. (1999). *Analisi dan disain Informasi : Pedekatan Terstruktur Teori dan Praktek Aplikasi Bisnis*. Andi Offset.
- [8] Kalakota, R., & Robinson, M. (2001). E-business 2.0: Roadmap for Success. *EAI Journal*, October, 1–30. <http://books.google.com.my/books?hl=en&lr=&id=fkXSp2Me0KAC&oi=fnd&pg=PR15&dq=kalakota+e-commerce+&ots=4CEnBhcujo&sig=1LLNQkT4gUGgZwRN618JNHNgz-Y>
- [9] Kotler, P. (2012). Marketing management/Philip Kotler, Kevin Lane Keller. In *Pearson Education International* (Vol. 817).
- [10] Newell, F. (2000). Loyalty.com: customer relationship management in the new era of Internet marketing. In *Choice Reviews Online* (Vol. 38, Issue 02). Mcgraw-Hill. <https://doi.org/10.5860/choice.38-1035>
- [11] Openerp, S., Mahardika, D. K., Sukarsa, I. M., & Buana, P. W. (2016). Pemodelan ERP pada Perusahaan Manufaktur dengan Software OpenERP7.0. *Merpati*, 2(1), 18–24. <https://doi.org/10.24843/JIM>

- [12] Postgresql. (2021). *About Postgresql*. <https://www.postgresql.org/about/>
- [13] Purwanto, H., Hananto, A. Z., Maulana, F., & Pratama, G. (2021). Penerapan Enterprise Resource Planning (Erp) Modul Sales Untuk Peningkatan Penjualan Little Ink's Bandung. *JITTER*, 07(03), 6.
- [14] Rimen, D. A., & Akbar, R. (2016). Penerapan Enterprise Resource Planning (ERP) dan Pengelolaan Hubungan dengan Pelanggan untuk Sistem Informasi Penjualan pada Toko SOVIAH. *Jurnal Nasional Teknologi Dan Sistem Informasi*, 2(2), 85–96. <https://doi.org/10.25077/teknosi.v2i2.2016.85-96>
- [15] Sumner, M. (2014). *Pearson New International Edition: Enterprise Resource Planning, 1st Edition*.
- [16] Usman, N. (2002). *Konteks Implementasi Berbasis Kurikulum*. CV. Sinar.

