STRAIGHT THROUGH PROCESSING 101

A Complete Guide

www.klearstack.com

Table of Contents

Introduction

Innovation isthe keyto bringing efficiency toand boosting productivity inan organization. Routine and mundane tasks areslowly being taken over byautomation across different industries. Automation has theability not only tospeed upthe processes but also can increase accuracy which in turnreduces human errors. Straight Through Processing isone suchaddition todocumenting automationprocesses thatcan help inboostingoperationalefficiency inan organization.

When itcomes toprocessing invoices, receipts, purchase orders andso on, anorganization has todeal with tons ofpaperwork. Apart from that, human intervention isa must atall stages. This cancreate certain delays inprocessing critical documents and leading to backlogs and delays inthe production &distribution ofgoods and services. Itis estimated that employees spent upto **40% oftheir time only searching documents manually.** Combining the strengths ofadvanced OCRtechnology and Straight Through Processing, such delays canbe reduced drastically.

Understanding
Straight through processing

Straight Through Processing (STP) isa process that makes document processing completely automated and requires almost zero human intervention. From the very beginning till the end, any type ofdocuments, beit invoices, receipts, purchase orders, identification documents,all ofthem areprocessedwithoutany manual inputs.

STP isa part of**Intelligent Document Processing (IDP)** and using self-learning Artificial Intelligence technology, the entire process can beupgraded automatically. Unstructured and unorganized documentscan alsobe processedthrough STP.

Stages of Automated Document Processing

AI with Self-learning Capabilities

Incoming Documents

Pre-processing and Auto-rejection

Document Classification

Extraction

Post-Processing

Data Validation with Rule Engine

Exception Queue

Straight-through Processing

Human in Loop

Exception Handling

Integration
QuickBooks, SAP, RPA tools

1. Pre-processing & Auto-rejection

The first stage filters out the documents that cannot be processed due totheir sub-standard image quality. Documents from different devices arecollated here. These documents canbe electronic such ase-mails or PDFs orcan behandwritten orscanned images of printed files. Documents that the system identifies as sub-par quality arerejected automatically. Documents can berejected dueto their faded print, zoomed out images, anoverlap oftext among various other reasons. The documents that aredetected and can beprocessed are sentthrough for thedocumentclassificationstage.

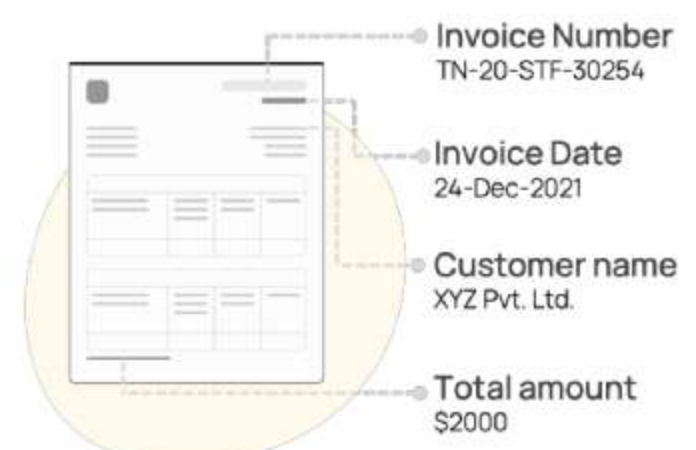Noise Reduction

De-skewing

Binarization

2. Document Classification

Invoice

Insurance Policy

Legal document
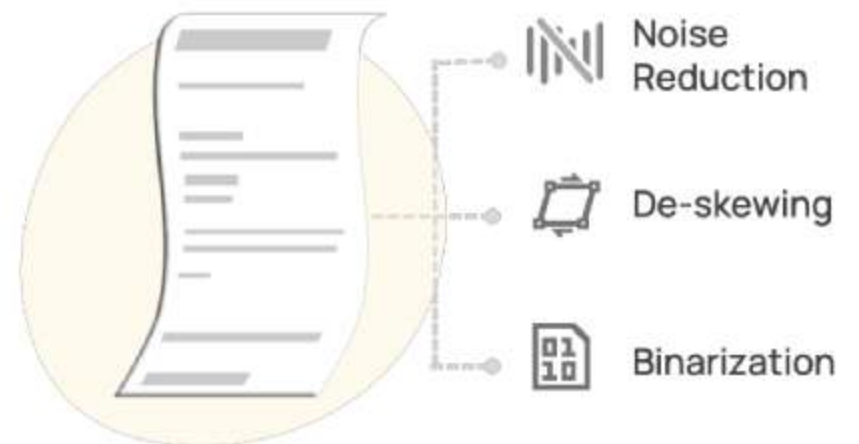
Purchase order

At times, documents may contain multiple pages inone document that arenot related toone another. For example, purchase order and aninvoice might have been scanned ormerged while sending itvia email. The technology canidentify whether this document isan invoice, areceipt, apurchase order and separate them accordingly. Unstructured data can also beprocessed through theKlearStack AItechnology.
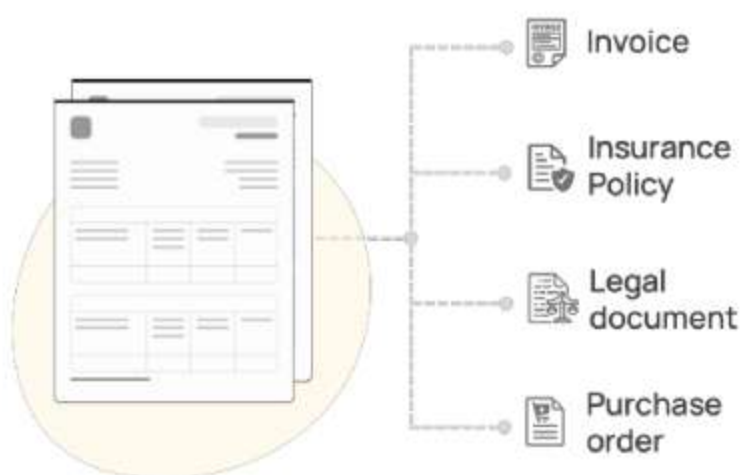
3. Data Extraction

The data from the document isextracted atthis stage. Fields like document number, description details, amount, quantity, date etc. areextracted. This stage is the most crucial ofthe entire process asSTP ishighly dependent onthe accuracy ofdata that isbeing extracted.

Invoice Number
TN-20-STF-30254

Invoice Date
24-Dec-2021

Customer name
XYZ Pvt. Ltd.

Total amount
$2000

4. Post-Processing

Once the data isextracted, the data isformatted and standardized. Some documents may have dates written in 01-JAN-2022 and some documents may have dates formatted in01-01-22. Inthe post-processing stage, data from allfields areformatted sothat when the data is processedfurther, itis structured uniformly.

Invoice Date
24-Dec-2021

24.12.21

5. Data Validation

Rule based Engine

98% Accuracy

Input missing metadata

This isthe last stage before STP. Organizations can create custom data validations whereinthe documents that match thedata validation criteria areprocessed. Say for example theorganization wants toprocess documents that have purchase orders between USD 100,000 and USD 1,000,000, itcan bedone soand only those documents that match these criteria are processed. Different sets ofuser-defined criteria canbe set bythe organizationfor data validation.

6. Straight-through-processing

With the help ofsoftware integrations such asSAP or QuickBooks, Straight Through Processing is accomplished. Data from documents that have met the validation criteria willnow bedirectly betransferred to the integrated software. Data that did not match the data validation criteria will bepushed tothe exception queue.

Only atthis stage, human intervention isrequired for the data that did not gothrough anyof theabove layers. The AI technology comes with self-learning capabilities and therefore through identifying such errors, thesystem learns and improvesthe documentprocessingaccuracy.

STP
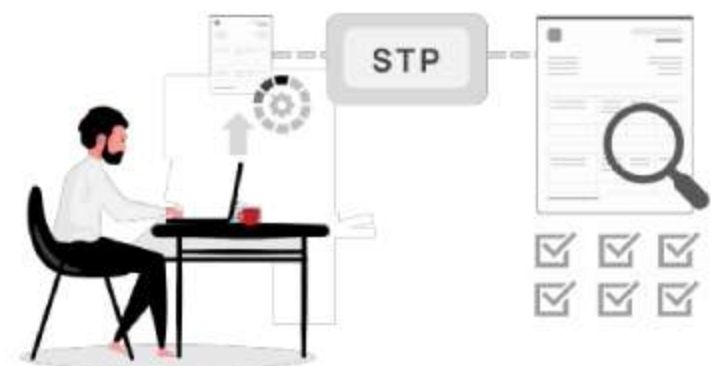
STP Automation Process

STP document processing has **five crucial steps** involved. We will deep dive into each step to understand how exactly the entire process is executed without any human intervention.

1. Data capture Accuracy

The first step once the documents are uploaded is to identify how accurately the data has been captured. Advanced OCR along with context-based AI technology will detect, automatically extract and capture the fields. Invoice numbers, billing amount, date, invoice total, supplier name, customer name, currency, line-item description, line-item quantity, line-item rate, line-item code, line item total etc are some of the many fields that will be captured automatically.

Once the data is captured, it can be manually checked whether the right information has been extracted for the right field. In case it has not, it can be amended and next time a similar document is uploaded, the self-learning AI technology will recognize it and capture the data accordingly.

2. Confidence Score

After the data is captured by the system, a confidence score is generated. In very simple terms, the confidence score is a metric to understand the probability of accuracy of information from the documents. The confidence score is based on the fields that have captured data, the quality of the document scanned and so on.

KlearStack AI calculates the confidence score per field and the overall confidence score for the document. KlearStack AI recommends keeping the minimum confidence score threshold at 85% or higher to extract and process documents as accurately as possible. However, organizations can amend the confidence score threshold as per their process tolerance. This option is given to the KlearStack users as each organization has unique processes to handle invoices, receipts and such documents.

So if the organization has set the confidence score to 70% and the document uploaded shows a confidence score of 65, KlearStack STP will flag it as an exception and stop the document automation process. If the confidence score of a document uploaded is 75, documents will proceed to the next stage of STP – Data Validation.

3. Data Validation

At this stage, customizable data validation rules set bythe organization arematched with the documents uploaded. There isno limit asto how many data validation criteria can beset by the organization. This stage helps tofilter out documents that should proceed withthe next steps ofSTP.

Say theorganization wants tohave atleast 1manual review and approval step for invoices above USD 50,000 value. Ifthis data validation rule isset bythe organization, invoices that have atotal billingamount above USD 50,000, willbe sentto the next stage. Ifthe value of an invoice isless thanUSD 50,000, KlearStack STP willnot allow thedocuments toproceed to the next stage.

4. Data Reconciliation

This isthe second last stage inthe STP automation process. Users can set cross-document type reconciliation rules for checking data integrity across multiple data sources. For example, the POreference number from anewly processed invoice canbe cross-checked with thePO number from the corresponding purchase order. This process isvery important because itvalidates ifthe transaction matches witha previously processed document ofthe same number ornot, that had thesame item descriptions,quantityof goodsand totalbilling amount.

Let ussay the customer raised apurchase order with thenumber PO1234 towards a supplier. Once theorder isfulfilled, the supplier willshare theinvoice with the customer with thesame purchase order number, PO1234. Thesystem atthis stage will reconcile these documents. Itwill match the purchase order ofthe supplier and invoice of the manufacturer toensure that documents ofthe same transaction arebeing processed.

5. Data Transformation

This isthe final stage ofthe STP document automation process. Theoriginal predicted data from the documents istransformed and converted asper the user's needs. Iffor example thesupplier isusing alphanumeric for their stock inventory identification codes, and thecustomer isusing alphanumeric codes, thedocuments willmatch and transform codes asper the suppliers' numeric codes and customer's alphanumeric code format.

With this, theSTP document process isover, and the extracted data will bearchived onthe QuickBooks orSAP-integrated software. IfKlearStack APIis used, the data can bethen stored with any integration.

Benefits of STP

No Human Intervention

STP is a 100% automated process for digitizing, capturing data from and archiving documents. Thereis norequirement for any manual intervention throughout theprocess. By removing manual intervention, allocation of human resources can bemade more wisely. Critical thinking and creativity are where thehuman capital canshine onand leave themundane tasks ofdata entry to technology.

Market Flexibility

Market conditions arequite dynamic in nature. Notwo quarters ina financial year will provide the same results. Atthe peak business quarter, itmay get difficult to process tons ofdocuments and validate them accordingly. STP enabled automation can play ahuge role tomanage theinflux of documents that need tobe digitized and stored. Irrespective ofhow your business quarter has been, STP can ensure the seamlessfunctioningof thebusiness.

Operational Efficiency

Since thereis nohuman intervention and STP enables complete automation, theoverall operations of the organization become efficient andindependent. Asthe data is automatically validated and stored onthe cloud oron-prem, asthe preference may be, any department of the organization can access thedata easily. This does not disrupt the entire operational flow and ensures that the data, which was once unstructured and not well organized, iseasily accessible across various departmentsdue toSTP.

Improving Accuracy

STP, along with advanced OCRand IDP technology, ensures that the entire document automation process iserror-free. Manual data entry may leadto various clerical errors while entering thedata. Thanks tostate-of-the-art data extraction and data validation solutions, documents are digitized accurately. All types of invoices, receipts and other documents can be accurately processed withthe help of STP.

Cost Reduction

Technology and automation can help businesses to reduce their cost due to economies of scale. The same applies to STP as well. More than a thousand documents can be automatically processed at a minimal cost. If manual labour is to be put in place, there would be a higher cost associated with it. STP provides end-to-end automated document processing and therefore, there is no additional or recurring cost associated with it.

Faster Processing Time

Complete automation means you are bound to save time. STP can speed up the document processing time and make sure the data is extracted accurately. Manual processing of data is a very time-consuming process and as mentioned above, can cause errors as well. As documents are processed more quickly than compared to the manual data entry method, more documents can be processed in lesser time.

Reputation Management

Goodwill is the most important intangible asset for any organization. Goodwill in the industry can be built through extraordinary services and timely payments for the goods or services purchased. STP will help to build a reputation for your organization in the industry as it will provide you with the advantage to automate your invoices and receipt processes. This means that payments will be made on time to the client without any errors.

The Road Ahead

Straight Through Processing seems to be a promising way to add a layer of data validation to document automation processes. AI-driven technology has the ability to extract information from any type of document to reduce human intervention. Having said that, true automation cannot be achieved without highly accurate data extraction.

For data tobe accurately captured, recognized and processed, the documents that arebeing scanned need tobe clear. Documents that have faded orhandwritten text, may not beprocessed at all. Thisis thereason whyhuman interventionis required while processingdocuments.

Data extraction from electronic documents such asPDFs, email can beautomated with more than 90% accuracy. Data insuch types ofdocuments isclear and therefore, the technology can capture and process data accurately. Insuch cases, trueautomation with data validation can beachieved through STP.

With theadvancement intechnologies, that day isnot far wherein complete document automation willtake place without any human intervention, even incases ofdocuments that are not electronicallyavailable.

About **KlearStack**

KlearStack isan industry leader when itcomes todocument automation and extraction. Our aim is toprovide template-free data extraction solutions toorganisations toimprove theirbusiness efficiency and structure unstructured data. OurAI-driven technology takes care of**end-to-end document automation** and extractsdata with nearly **90% accuracy.**

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