

# Document Understanding Competitive Landscape



# UiPath Document Understanding vs. Competition

## Vs. RPA vendors, including those offering IDP\*

**E.g., Automation Anywhere,  
Microsoft, WorkFusion**

- Superior scalability & best-of-breed end-to-end automation platform
- Broader in-house capabilities for IDP (AI, pre-trained ML models, OCR, etc)
  - Pace of IDP innovation
  - Ease of use
- Flexible & customizable IDP solutions
- Open & extensible IDP partner framework
  - Higher market impact

## Vs. Legacy IDP vendors, including those starting to add RPA

**E.g., ABBYY, Kofax**

- Complete end-to-end automation platform combining AI & RPA, not just a point solution
- Pace of IDP innovation beyond structured documents
  - Ease of use, especially AI/ML
- Open & extensible partner framework including some of the legacy IDP tech

## Vs. Niche IDP vendors, including emerging and industry- specific vendors

**E.g., Hyperscience, Rossum, Indico,  
Instabase**

- Complete end-to-end automation platform combining AI & RPA for use cases across domains and industries
- Broader in-house capabilities for full range of IDP, AI, OCR, etc.
- Flexibility and customization, especially AI/ML
- Open & extensible partner framework including some of the niche IDP tech
- Faster time to value. Niche IDP tech has expensive & long implementation cycles
  - Higher market impact

# ABBYY Vantage

Hyperautomation Comparison

Pillar	Ui	ABBYY	Notes
Digitize (OCR)	●	◐	In-house OCR engine with no other solutions supported.
Classify	◐	◐	Black-box trainable classifier. No ability to bring your own or choose from different solutions. No page splitting capabilities. Good user experience similar to IKC.
Handwriting	◐	◐	ABBYY OCR supports handprinted text only, where the characters are written separately. No handwriting support.
Extract	◐	◐	Structured and semi-structured supported. Very good user experience, easy to create and deploy a skill. Large catalog of pre-defined solutions. Retraining capabilities once the skill is published (not continuous).
Human in the loop	◐	●	Validation station with human in the loop and validation rules. Comparable user experience.
Retraining	◐	◐	No ability to automatically capture validated data for retraining purposes / continuous feedback loop.
End 2 end processing	●	◐	Relies on application connectors and RPA platforms/3rd party integrations for end2end automation.

Differentiators

## Differentiator

## Value Driver



Handwriting text recognition

UiPath offers handwriting support as part of its OCR solution and can be easily integrated with other specialized 3rd party solutions.



Continuous Learning Loop

UiPath can capture the human validated exceptions and retrain both the extraction and classification models for continuous improvement of their performance.



End-to-end platform

UiPath offers an end-to-end intelligent document processing solution fully integrated into UiPath's platform enabling a fully automated enterprise.



DU framework

UiPath has an open and composable IDP framework built into its platform that enables extension of capabilities beyond what has been developed by UiPath directly and provides greater flexibility. This provides e.g. greater OCR vendor flexibility and bring your own classifier.



Bulk document upload

UiPath has embedded page splitting capabilities into its classification solutions that enables bulk document upload.

# Kofax One Pager

IDP Comparison

Pillar	Ui	KOFAX	Notes
Digitize (OCR)	●	●	In-house OCR engine (OmniPage), ABBYY Finereader, Tesseract. Voting feature may sound appealing but in practice it needs specialized knowledge and users mostly use Omnipage.
Classify	●	●	Layout based and/or Keyword-based classification. Trainable document splitter available based on layout. Preference for a separator.
Handwriting	●	●	Kofax OmniPage does not support handprint or handwriting. However, it can be retrained handwritten text as a graphic.
Extract	●	●	Structured and semi-structured supported via an intelligent template approach (user manually define a list of locators at design time). Invoice/PO templates but limited support for training and not user-friendly. No true template-less (ML-based) solution and unstructured documents support. More effort needed with labelling various templates / provide locators.. The extraction improvement is instant but narrow to that vendor only. Worse user experience.
HITL validation	●	●	Validation station with human in the loop and business rules validations. Database locators.
Retraining	●	●	Extraction improves slightly after user validation, limited to that vendor only. Some online learning available and specialist developers usually push projects files for retraining.
End-to-end processing	●	●	Basic and limited RPA platform, more mature BPM and DU solutions.

Differentiators

## Differentiator

## Value Driver



Extraction and retraining

UiPath offers extraction solutions for all document types with Regex, Form and Intelligent Form Extractors, pre-trained and custom ML-based extractors for semi-structured and unstructured documents. UiPath also has a hybrid rules/model-based approach and can capture the human validated data for continuous improvement of their performance.



Ease of use

UiPath users can easily create a DU process with drag-and-drop activities at each step and a low code/no code platform. Kofax users have indicated that it requires training and in-depth knowledge of the platform to get started.



End-to-end platform

UiPath offers an end-to-end intelligent document processing solution fully integrated into UiPath's platform enabling a fully automated enterprise.



DU framework

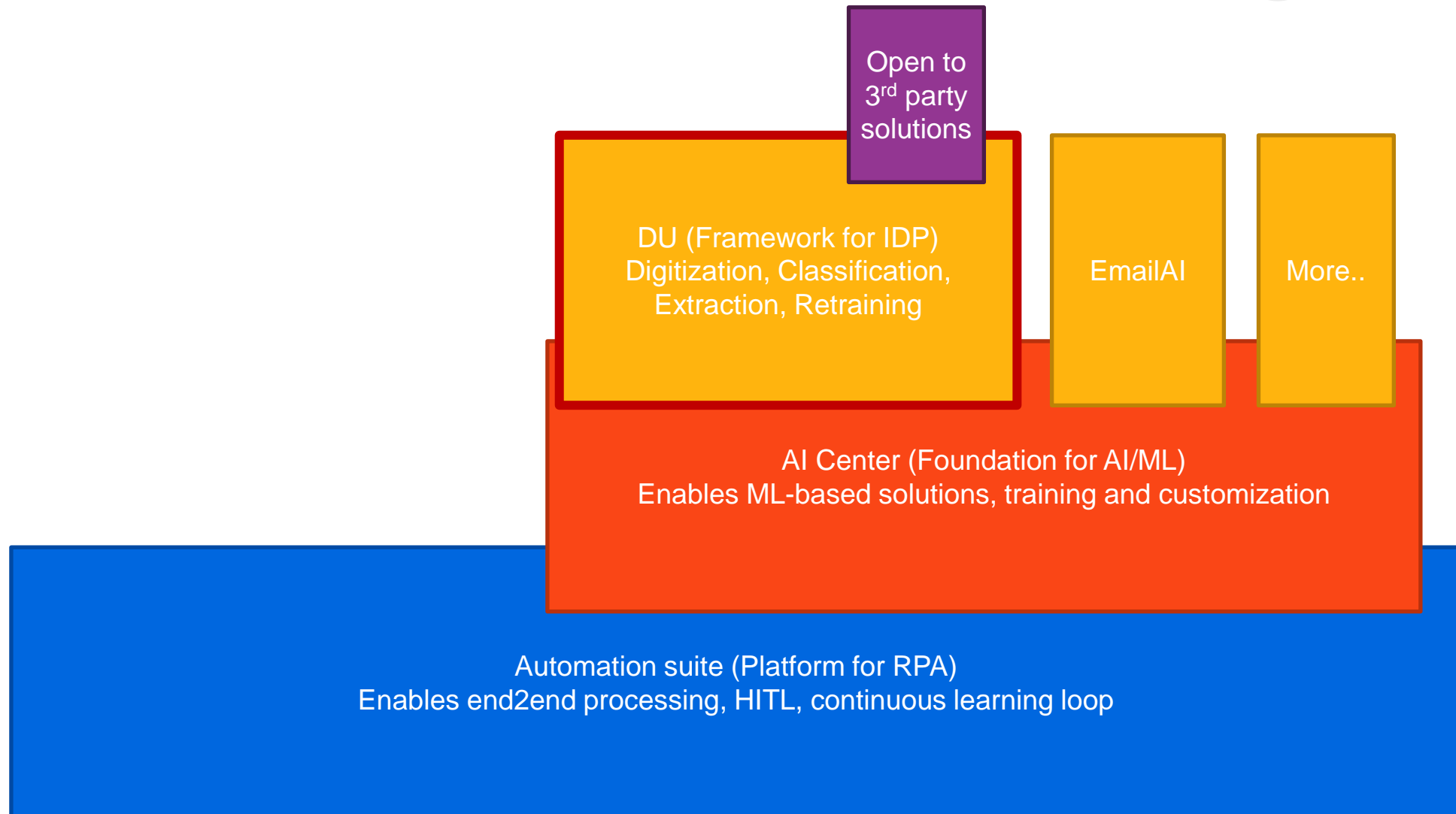
UiPath has an open and composable framework built into its platform that enables extension of capabilities beyond what has been developed by UiPath directly and provides greater flexibility.



Support and training

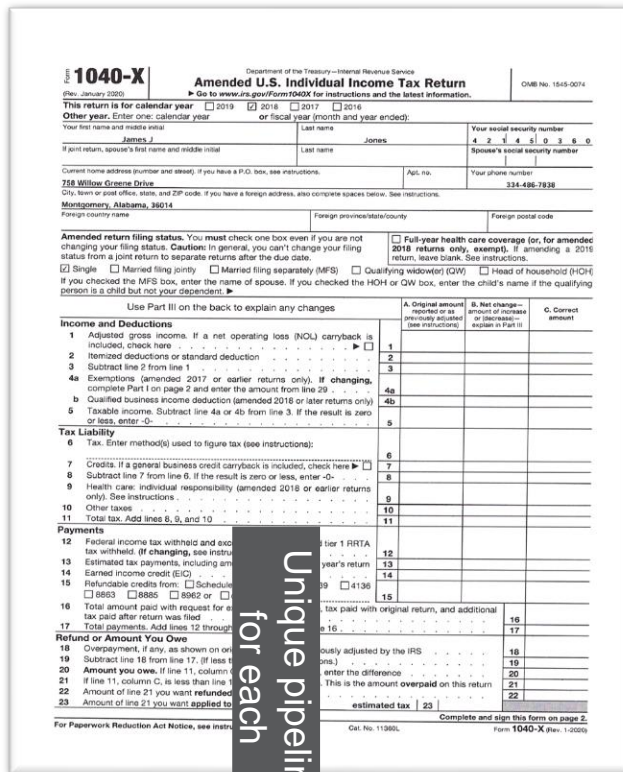
UiPath offers free training, Academy course, Forum, and a Community edition of the software to enable anyone to learn RPA, even business users. Clients expect Kofax to provide better training support at the time of purchase, having a limited number of certified developers globally and a bigger learning curve.

# UiPath Document Understanding (DU)



# What documents can be processed?

## Structured documents



Form 1040-X, Amended U.S. Individual Income Tax Return. The form is for the year 2018, filed by James J. Jones. It shows a total tax of \$23.00 and a refund of \$15,039.20. The form is divided into sections for income, deductions, tax liability, payments, and refund. A vertical arrow labeled 'Unique pipeline for each' points down from the form.

## Semi-structured documents



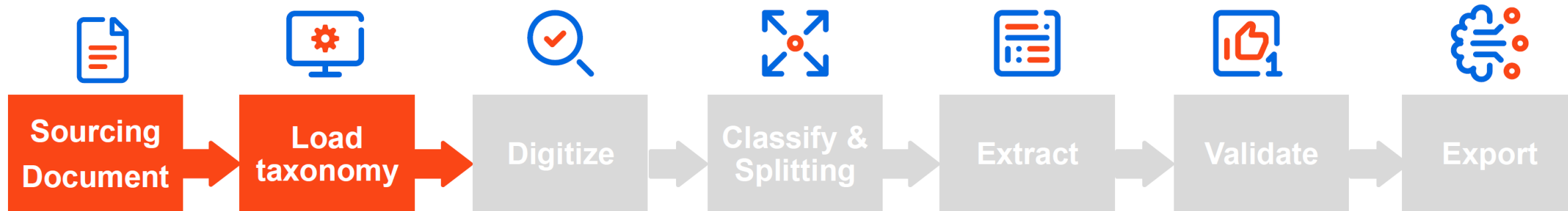
Move-For-You Co. Invoice No: 456200-TZE1. The invoice is dated 1 February 2020 and is for services provided to Tony Tzeng at 12345 Mango Lane, Seattle, WA 98108. The total fee including tax is \$15,039.20. The invoice is divided into sections for invoice details, methods of payment, and a payable section. A vertical arrow labeled 'Unique pipeline for each' points down from the invoice.

## Unstructured documents



Intel Corporation End User License Agreement for the Intel(R) Software Development Products (Version March 2015). The agreement defines terms such as 'Confidential Information', 'Excluded License', 'IPP Sample Source', 'Licensed Patent Claims', and 'Materials'. It outlines the terms of use, including restrictions on copying, distribution, and modification. A vertical arrow labeled 'Unique pipeline for each' points down from the agreement.

Document Understanding Framework for IDP  
Digitization, Classification, Extraction, Retraining



Add doc types and respective fields in Taxonomy Manager

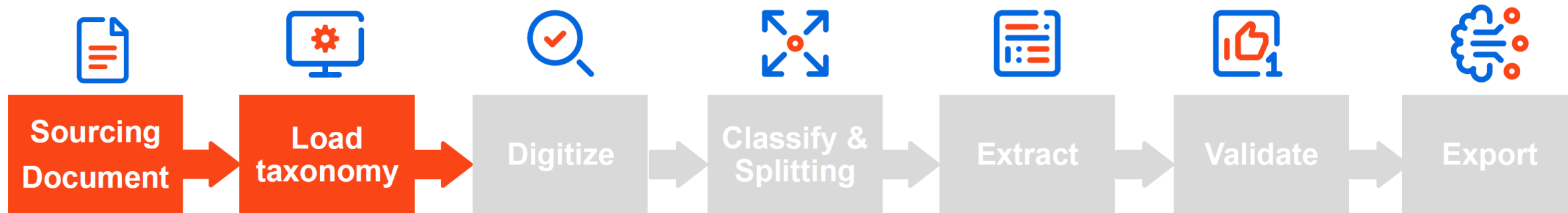
- ☒ Any fixed format (e.g., IRS forms)
- ☒ Invoices
- ☒ Receipts
- ☒ Purchase Orders
- ☒ Utility Bills
- ☒ W2
- ☒ W9
- ☒ Remittance Advices
- ☒ Passports
- ☒ Delivery Notes
- ☒ ID Cards
- ☒ Other custom semi-structured
- ☒ Contracts

Integration with different sources

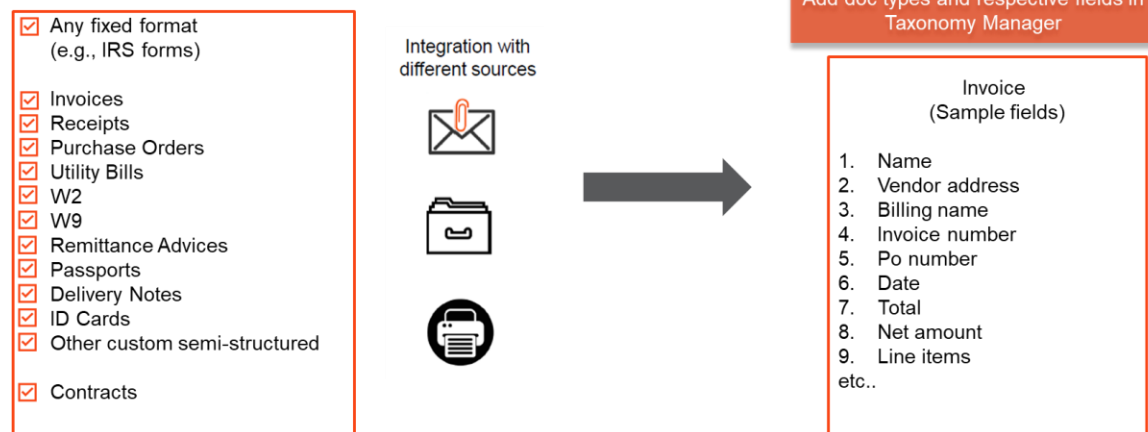


Invoice  
(Sample fields)

1. Name
2. Vendor address
3. Billing name
4. Invoice number
5. Po number
6. Date
7. Total
8. Net amount
9. Line items
- etc..



## UiPath DU Taxonomy




## General Industry Approach

1. Pre-defined document types and fields (template based)
2. Less document types supported, few have ML-based solutions
3. Less flexibility adding extra document types and fields
4. IDP vendor has far fewer incoming connectors to source the document pushing the burden of getting the document to a supported document source on the customer







**Move-For-You Co.**  
*We move so you don't need to move*  
 20800 ALMADEN AVE, SUITE 404  
 SAN JOSE, CA 95120-0520  
 T: +1 425 555 9876  
 F: +1 425 555 3456  
 E: billing@moveforyou-co.com  
 www.moveforyou-co.com

1 February 2020

PO: NP74006735

Bill To:

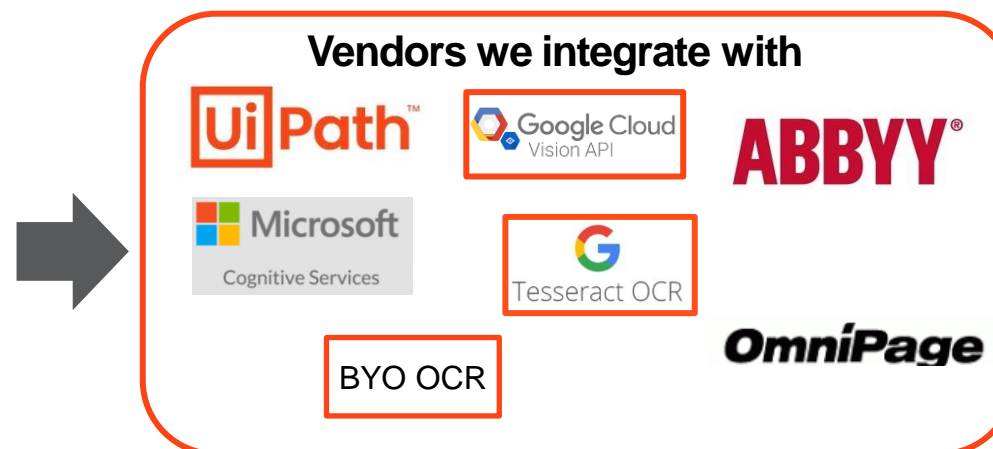
Invoice No: 456200-TZE1

Tony Tzeng  
 12345 Mango Lane  
 Seattle, WA 98108

INVOICE DETAILS	FEE
Packing services	\$1,282.00
Storage fees (1 month)	\$1,884.00
House move (white-glove service)	\$5,320.00
Vehicle storage and transport	\$5,186.00
Sales tax 10%	\$1,367.20
<b>Total Fee including Tax</b>	<b>\$15,039.20</b>

PAYABLE WITHIN 15 DAYS OF RECEIPT

Methods of payment  
 Personal Check: Move-For-You LLC  
 Wire Transfer: BigBank Co., Account 123456789-0987ABC



Move-For-You Co.  
 We move so you don't need to move  
 PO: NP74006735  
 1 February 2020  
 PAYABLE WITHIN 15 DAYS OF RECEIPT  
 20800 ALMADEN AVE, SUITE 404  
 SAN JOSE, CA 95120-0520  
 T: +1 425 555 9876  
 F: +1 425 555 3456  
 E: billing@moveforyou-co.com  
 www.moveforyou-co.com  
 Bill To:  
 Tony Tzeng  
 12345 Mango Lane  
 Seattle, WA 98108  
 INVOICE DETAILS  
 Packing services  
 Storage fees (1 month)  
 House move (white-glove service)  
 Vehicle storage and transport  
 Sales tax 10%  
 Total Fee including Tax



## UiPath DU Digitization



## General Industry Approach

1. Users select from a list of supported OCR solutions.
2. In-house solution or 3<sup>rd</sup> party integrations.
3. Typically fewer 3<sup>rd</sup> party integrations supported because of tight coupling to the IDP architecture
4. No possibility to bring your own custom solution because of proprietary integration and APIs



### Classification Solutions

Keyword-based Classifier

Intelligent Keyword Classifier

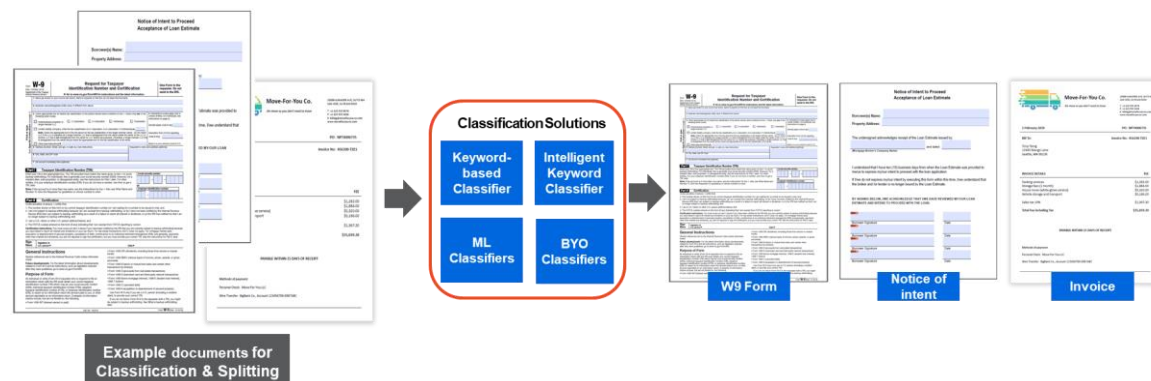
ML Classifiers

BYO Classifiers

Example documents for Classification & Splitting



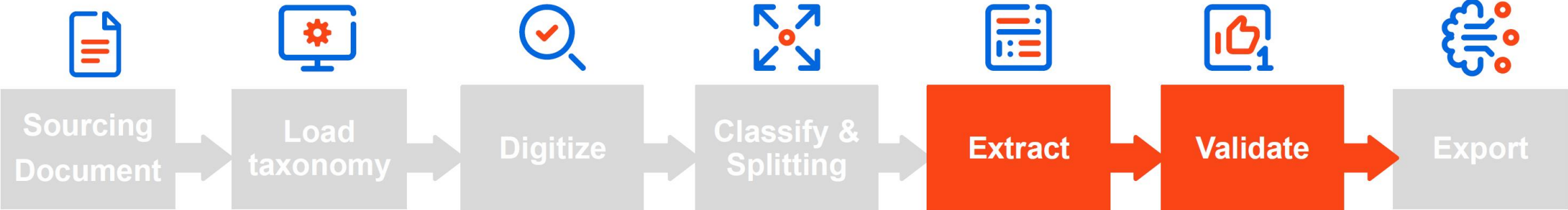
## UiPath DU Classification



## General Industry Approach

1. Most vendors offer layout or keyword-based classification
2. Most vendors support training on custom document types
3. Few have page splitting capabilities
4. Few support more intelligent ML-based solutions

# UiPath DU Framework



## Sample - Forms Extractor

## Sample - Intelligent Forms Extractor

**W-9**  
Form (Rev. October 2018)  
Department of the Treasury  
Internal Revenue Service

**Request for Taxpayer Identification Number and Certification**

Give Form to the requester. Do not send to the IRS.

Go to [www.irs.gov/FormW9](https://www.irs.gov/FormW9) for instructions and the latest information.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following boxes.

4 Exemptions (notes apply only to certain entities; not individuals; see instructions on page 3).

5 Address (number, street, and apt. or suite no.) See instructions.

6 City, state, and ZIP code

7 EIN (account number) (see page 3)

**Part I Taxpayer Identification Number (TIN)**

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, line 1. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN, later.

**Part II Certification**

Under penalty of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and

2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and

3. I am a U.S. citizen or other U.S. person (defined below); and

4. The FATCA codes entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest, paid, acquisition or abandonment of secured property, cancellation of debt, contribution to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part I, later.

**Sign Here**

Signature of U.S. person

**General Instructions**

Section references are to the Internal Revenue Code unless otherwise noted.

**Future developments.** For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to [www.irs.gov/FormW9](https://www.irs.gov/FormW9).

**Purpose of Form**

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by broker)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1099-H (home mortgage interest), 1099-E (student loan interest), 1098-T (tuition)
- Form 1099-C (cancelled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.

OMB No. 1545-0047

Form W-9 (Rev. 10-2018)

**Uniform Residential Loan Application**

This application is designed to be completed by the applicant(s) with the Lender's assistance. Applicants should complete this form as "Borrower" or "Co-Borrower," as applicable. Co-Borrower definitions may vary by lender and should be provided by the lender. The Lender will use the information provided on this form to determine the creditworthiness of the applicant(s) and to determine the appropriate interest rate and terms of the loan. The Lender will use the information provided on this form to determine the appropriate interest rate and terms of the loan. The Lender will use the information provided on this form to determine the appropriate interest rate and terms of the loan.

**I. TYPE OF MORTGAGE AND TERMS OF LOAN**

Mortgage Applied for: ☐ VA ☐ Conventional ☐ USDA/Rural ☐ Other (specify): \_\_\_\_\_

Agency Co-Insurer: \_\_\_\_\_ Lender Co-Insurer: \_\_\_\_\_

Interest Rate: \_\_\_\_\_ % No. of Months: \_\_\_\_\_ Amortization Type: ☐ Fixed Rate ☐ Other (specify): \_\_\_\_\_

Annual % Rate: \_\_\_\_\_ % No. of Months: \_\_\_\_\_ Amortization Type: ☐ Fixed Rate ☐ Other (specify): \_\_\_\_\_

**II. PROPERTY INFORMATION AND PURPOSE OF LOAN**

Subject Property Address (street, city, state & ZIP): \_\_\_\_\_ No. of Units: \_\_\_\_\_

Legal Description of Subject Property (attach description of acreage): \_\_\_\_\_ Year Built: \_\_\_\_\_

Purpose of Loan: ☐ Purchase ☐ Construction ☐ Other (specify): \_\_\_\_\_ Property will be: ☐ Primary Residence ☐ Secondary Residence ☐ Investment

**III. BORROWER INFORMATION**

Borrower's Name (include Jr. or Sr. if applicable): \_\_\_\_\_ Co-Borrower's Name (include Jr. or Sr. if applicable): \_\_\_\_\_

Social Security Number: \_\_\_\_\_ Date of Birth (MM/DD/YYYY): \_\_\_\_\_

Home Phone (incl. area code): \_\_\_\_\_ Cell Phone (incl. area code): \_\_\_\_\_

**IV. EMPLOYMENT INFORMATION**

Employer's Name: \_\_\_\_\_ Employer's Address (street, city, state, ZIP): \_\_\_\_\_

Position/Title/Type of Business: \_\_\_\_\_ Business Phone (incl. area code): \_\_\_\_\_

**Notice of Intent to Proceed Acceptance of Loan Estimate**

Borrower(s) Name: \_\_\_\_\_

Property Address: \_\_\_\_\_

The undersigned acknowledges receipt of the Loan Estimate issued by: \_\_\_\_\_ and dated \_\_\_\_\_ (Mortgage Broker's Company Name)

I understand that I have ten (10) business days from when the Loan Estimate was provided to me/us to express my/our intent to proceed with the loan application.

If I/we do not express my/our intent by executing this form within this time, I/we understand that the broker and/or lender is no longer bound by the Loan Estimate.

BY SIGNING BELOW, I/WE ACKNOWLEDGE THAT I/WE HAVE REVIEWED MY/OUR LOAN ESTIMATE AND INTEND TO PROCEED WITH THE LOAN.

Borrower Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Borrower Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Borrower Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Borrower Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**DEED OF TRUST**

**DEFINITIONS**

Words used in multiple sections of this document are defined below and other words are defined in Sections 3, 11, 13, 18, 20 and 21. Certain rules regarding the usage of words used in this document are also provided in Section 16.

(A) "Security Instrument" means this document, which is dated \_\_\_\_\_, together with all Riders to this document.

(B) "Borrower" is \_\_\_\_\_ Borrower is the trustor under this Security Instrument.

(C) "Lender" is \_\_\_\_\_ Lender is a \_\_\_\_\_ organized and existing under the laws of \_\_\_\_\_ Lender's address is \_\_\_\_\_ Lender is the beneficiary under this Security Instrument.

(D) "Trustee" is \_\_\_\_\_

(E) "Note" means the promissory note signed by Borrower and dated \_\_\_\_\_ The Note states that Borrower owes Lender Dollars (U.S. \$ \_\_\_\_\_) plus interest. Borrower has promised to pay this debt in regular Periodic Payments and to pay the debt in full not later than \_\_\_\_\_

(F) "Property" means the property that is described below under the heading "Transfer of Rights in the Property."

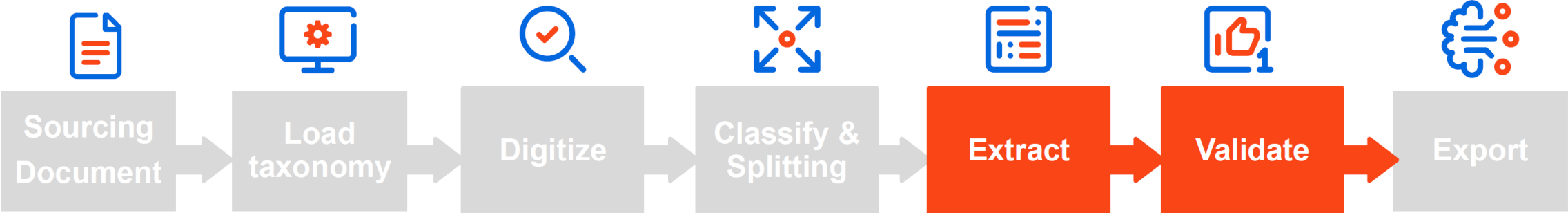
(G) "Loan" means the debt evidenced by the Note, plus interest, any prepayment charges and late charges due under the Note, and all sums due under this Security Instrument, plus interest.

(H) "Riders" means all Riders to this Security Instrument that are executed by Borrower. The following Riders are to be executed by Borrower [check box as applicable]:


- ☐ Adjustable Rate Rider
- ☐ Balloon Rider
- ☐ 1-4 Family Rider
- ☐ Condominium Rider
- ☐ Planned Unit Development Rider
- ☐ Biweekly Payment Rider
- ☐ Second Home Rider
- ☐ Other(s) [specify] \_\_\_\_\_



# UiPath DU Framework



## Sample – ML Based Extractor

 **Move-For-You Co.**  
We move so you don't need to move

20800 ALMADEN AVE, SUITE 404  
SAN JOSE, CA 95120-0920  
T: +1 425 555 9876  
F: +1 425 555 3456  
E: billing@moveforyou-co.com  
www.moveforyou-co.com

1 February 2020 PO: NP74006735

Bill To: Invoice No: 456200-TZE1

Tony Tseng  
12345 Mango Lane  
Seattle, WA 98108

INVOICE DETAILS	FEE
Packing services	\$1,282.00
Storage fees (1 month)	\$1,884.00
House move (white-glove service)	\$5,320.00
Vehicle storage and transport	\$5,186.00
Sales tax 10%	\$1,367.20
<b>Total Fee including Tax</b>	<b>\$15,039.20</b>

PAYABLE WITHIN 15 DAYS OF RECEIPT

Methods of payment

Personal Check: Move-For-You LLC

Wire Transfer: BigBank Co., Account 123456789-0987ABC

## Partner ML Models (E.g. Indico)

**SIMPLE MORTGAGE DEED**

This deed of Simple Mortgage is executed on \_\_\_\_\_ day of \_\_\_\_\_ month of \_\_\_\_\_ year by Sri./Smt. \_\_\_\_\_ S/o./W/o. \_\_\_\_\_, occupation \_\_\_\_\_, and \_\_\_\_\_ aged \_\_\_\_\_ years, residing at \_\_\_\_\_, herein after called the MORTGAGOR. <sup>1</sup>

In favour of

Sri./Smt. \_\_\_\_\_ S/o./W/o. \_\_\_\_\_, occupation \_\_\_\_\_, aged \_\_\_\_\_ years, residing at \_\_\_\_\_.

Herein referred to as the MORTGAGEE. <sup>2</sup>

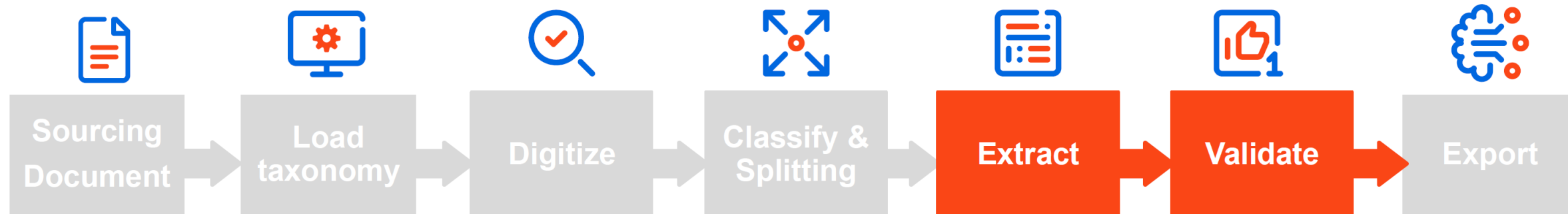
Whereas, the term Mortgagor and Mortgagee, unless repugnant to the context shall mean and include their representatives heirs, successors, executors, administrators, trustees, legal representatives and assigns.

Whereas, the Mortgagor herein, is the sole and absolute owner of immovable property <sup>3</sup> bearing No. \_\_\_\_\_ known as \_\_\_\_\_ situated at morefully described in the schedule hereunder written and herein after called the scheduled property.

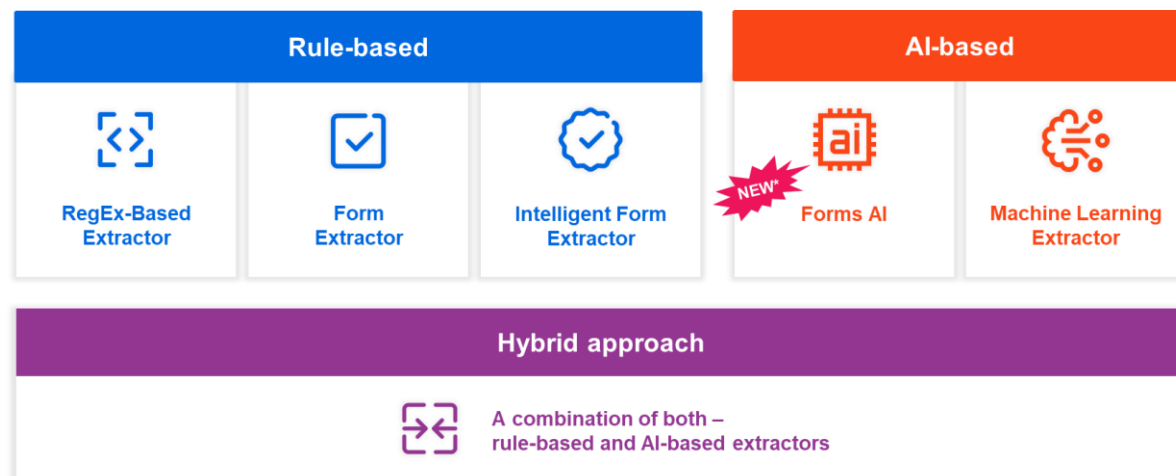
Whereas, the Mortgagor is the absolute owner, having acquired the property, by \_\_\_\_\_ and since then Mortgagor has been in possession and enjoyment of the schedule property and paying taxes and levies thereon, as sole and absolute owner thereof.

Whereas Mortgagor being in need of money for the purpose of \_\_\_\_\_, Mortgagee requested the Mortgagee to lend him a sum of Rs. \_\_\_\_\_ (Rs. \_\_\_\_\_ only) which the Mortgagee has agreed to do on the Mortgagor executing these presents with a view to secure the repayment thereof with interest as herein after provided.

NOW THIS DEED WITNESSETH that pursuant to the said agreement and in consideration of \_\_\_\_\_ the sum of \_\_\_\_\_ Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) lent and advanced by the Mortgagee to the Mortgagor on the execution of these presents (receipt whereof the Mortgagor hereby admit). He the Mortgagor hereby covenants with the Mortgagee that he the Mortgagor will pay to the Mortgagee the sum of Rs. \_\_\_\_\_

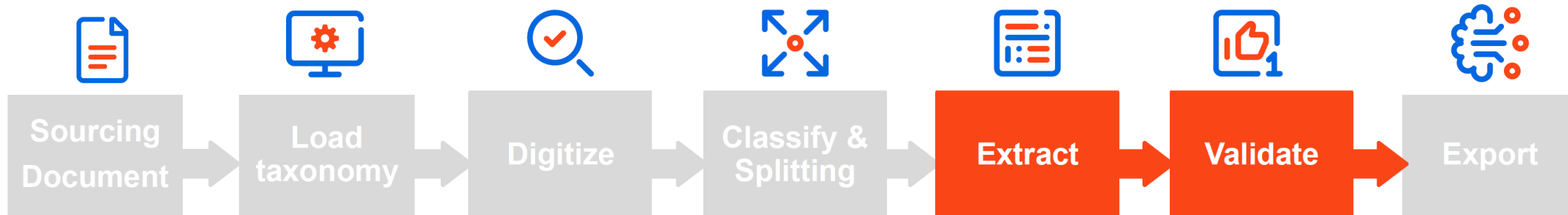


## UiPath DU Extraction



## General Industry Approach

1. In general form or template-based extraction
2. Few have true template-less ML-based extraction offering
3. Many rely on Intelligent template approach, with the template building itself behind the scenes.
4. Some can easily extend and train custom document extractors.
5. No hybrid approach supported.
6. No retraining with HITL.
7. Few support unstructured documents and contracts



### Classification Station

**RETURN FORM**

Before returning any item(s) it is important that you email a copy of this form to [returns@e-commerce.com](mailto:returns@e-commerce.com) alongside with the respective invoice and the receipt received when the item(s) were delivered. You will then receive a reference number along with instructions on how to return goods.

Customer No.: 143528 Customer Name: CHRISTOPHER WALLACE

Invoice Number: 2019-2201

Receipt Number: 5349

Please complete below the item(s) that you are returning:

Article No	Description	Qty	Unit Price	Reason for returning
1	T-SHIRT	2	10\$	F

Return codes: A: Too Small B: Too large C: Not liked D: Faulty E: Wrong item  
 (F) Other: MULTIPLE SIZES ORDERED TO SEE WHICH FITS

☒ Refund on your card ☐ Voucher on your account ☐ Exchange

Exchange Item(s):

New Item	Color	Size

Date: 15.10.2021 Signature: [Signature]

LAZY PANDA CLOTHING COMPANY

Discard changes Save

### Validation Station

**RETURN FORM**

Before returning any item(s) it is important that you email a copy of this form to [returns@e-commerce.com](mailto:returns@e-commerce.com) alongside with the respective invoice and the receipt received when the item(s) were delivered. You will then receive a reference number along with instructions on how to return goods.

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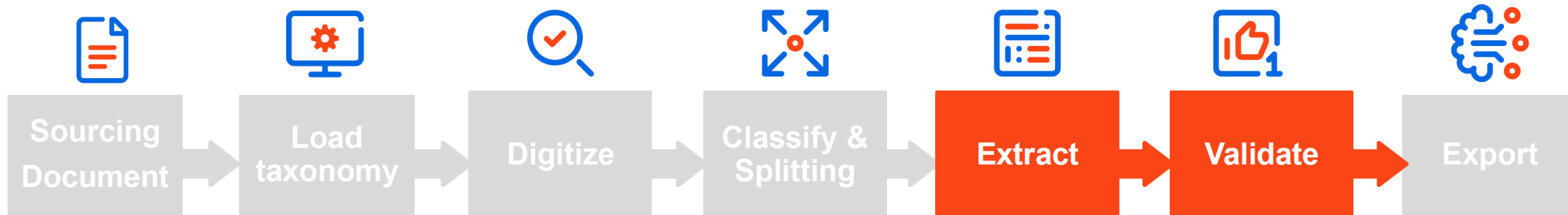
Exchange Item(s):

New Item	Color	Size

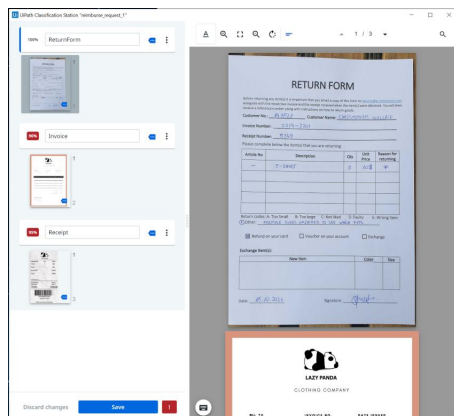
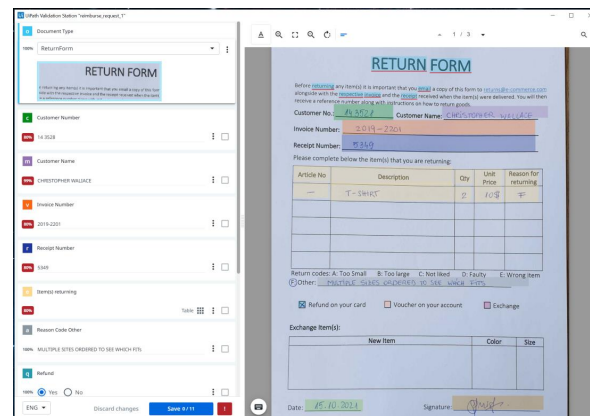
Date: 15.10.2021 Signature: [Signature]

Discard changes Save 0/11





## UiPath DU Classification & Extraction Validation

## General Industry Approach

1. Generally good HITL for extraction validation.
2. No continuous retraining loop for semi-structured documents.
3. Some update templates based on validations.