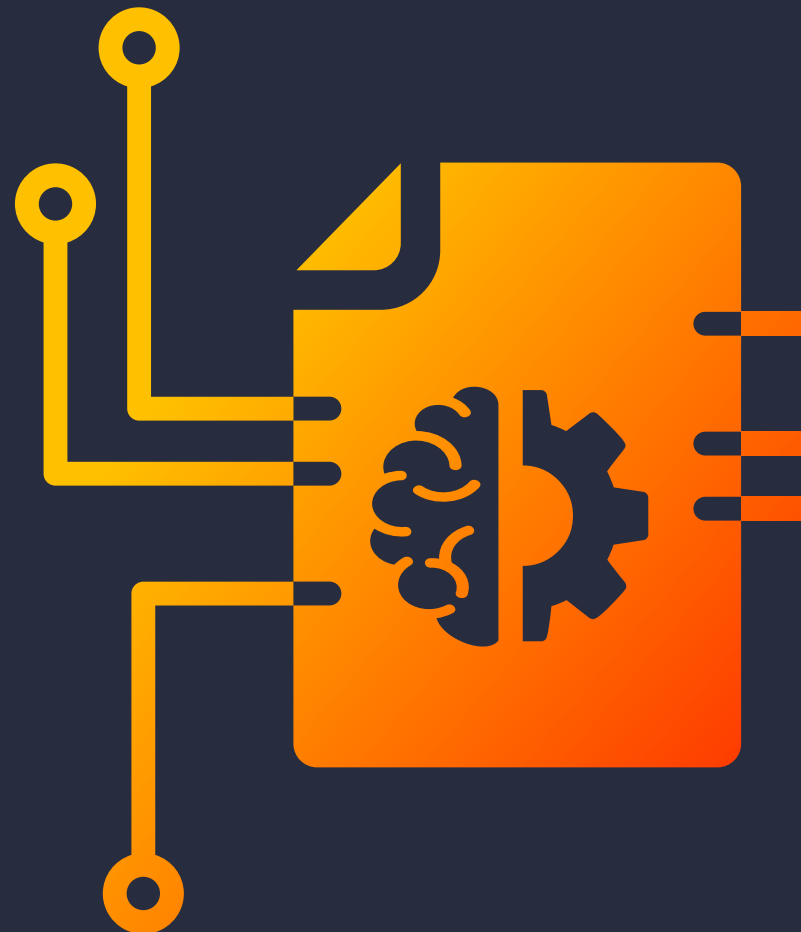




Introduction to Kim's Intelligent Automation Capability

Conceptual and Technical Briefing for the
Data Model and Inbound and Outbound integration



MARCH 2023

Kim Technologies Group, Inc © 2023



Index

- 1. Executive summary**
- 2. Intelligent automation**
Data assimilation and the Kim no-code philosophy
- 3. Starting with an MS Word document**
Turning Word into an automation platform
- 4. Enterprise objectives**
*Standard Operating Procedures (SOPs)
and Return on Investment (ROI)*
- 5. Integration model**
REST, OAuth, mapping and target system integrations
- 6. Enterprise search**
Exploiting the data model
- 7. Kim architecture**
Microsoft stack
- 8. Kim pricing model**
Licensed by Citizen Developer not consumers
- 9. Kim Patents**
No-code and recognize

1. Executive Summary

- 1.1 Anyone who has been provided with access to Kim's back-office (i.e. citizen developers / knowledge workers) can do what an expert software developer can do, without having to know anything about software development or coding.
- 1.2 Via an easy-to-use, drag-and-drop, no-code interface, these citizen developers / knowledge workers can create business applications, starting with an MS Word document and without leaving their browser or MS Teams (e.g. document automation and generation, self-service, compliance campaigns or integrations).
- 1.3 A key to Kim's success is that it uses universally known and available tools such as MS Word, your browser and MS Teams. This simplifies the user experience, reduces the need for business analysts and software development, reduces training and time to deployment, plus drives user adoption. Many end users never even see Kim!
- 1.4 One of Kim's secret sauces, and patents, is that all Kim's automations are initiated by an MS Word document that then becomes a web application with integration capability. Essentially Kim turns MS Word into an automation platform enabling enterprise web based applications that can support powerful corporate document and data flow. The resulting solution is either web application, rest service, document generation or a combination of all three when needed, with records management, audit, collaboration, campaign and other features.
- 1.5 Kim takes an organizations existing MS Word documents, the documents it has already invested in, and turns them into web applications and standard operating procedures that allow end users to:
 - i. generate forms, documents and create records;
 - ii. generate multiple documents off the items created in (i); and/or
 - iii. use the data captured in (i) and (ii) to populate other corporate systems with straight through processing via integration.
- 1.6 Each individual business application is a 'machine created and controlled' data model that establishes a context as part of the machine (i.e. as part of Kim). All Kim's capability - wizard driven configuration, records management, audit, document automation and generation, collaboration, campaigns, integration - become machine aware by the context of the data model. All of the data models live as part of a collective.
- 1.7 Kim's neural net generates and establishes a data model and context map from an MS Word document and then provides interfaces to further configure the application to have pre-deterministic outcomes. Having been configured by the citizen developer / knowledge worker the business will know what Kim will do and Kim will then deliver the expected output (i.e. the standard operating procedure and/or that straight through processing of the data).

- 1.8 Through its no-code/script integration model Kim reduces automation costs, decreases user training and makes it easy to integrate with and augment legacy and other systems with additional capability, unifying where desired. This all maps back to 'return on investment', reducing 'total cost of ownership' plus delivering a quicker 'time to market'.
- 1.9 Kim uses common integration, best REST auth protocols, with mapping and transformation capability to ensure Kim 'plays nicely' with an organization's existing systems. OAuth is the standard authentication used by REST. Kim handles three types – refresh token, client credential and certificate based – along with Basic Auth and Custom Header
- 1.10 Kim's mapping capability allows it to match an element from Kim's data model to an element in the target's interface. Additionally, Kim allows 'transformation' such as two fields from Kim become one target on the interface or vice versa. Kim also enables things like a date transformation. Whereas some products will integrate to a Salesforce activity, opportunity or other object, Kim is a more powerful and flexible open integration due to the ability to transform and map. Kim can send documents and attachments subject to the target systems capability.
- 1.11 Kim has been described as a type of universal robot for business operations that has the ability to collectively control and allow addition of multiple differing business applications / solutions.
- 1.12 Kim frees and activates the data trapped in all the MS Word documents organizations create every day (letters, forms, checklists, contracts, compliance records, etc.)
- 1.13 Organizations use Kim to solve tactical issues today, driving immediate value, secure in the knowledge that Kim can be their enterprise wide intelligent automation solution that combines corporate document flow. With Kim you know:
 - i. where your documents are;
 - ii. what is in your documents; and
 - iii. you can reuse the data to create other documents or populate other systems.
- 1.14 Only citizen developers / knowledge workers are charged a license fee and these users can create unlimited business applications and integrations.

2. Intelligent automation

Data assimilation and the Kim no-code philosophy

Kim has been designed so that anyone who has been given rights to access its back-office, let's call these individuals citizen developers / knowledge workers, can do what an expert software developer can do, without having to know anything about software development or coding.

Via an easy-to-use, drag-and-drop, no-code interface, these citizen developers / knowledge workers are provided, without them knowing it, with a generative technology to form a baseline contextually mapped application that can then be configured to form business applications / solutions (e.g. data capture, business operation, document automation and/or integrations) without leaving their browser or MS Teams.

These business solutions are designed to enable people to either:

- i. input information directly into Kim via a web application (see section 3); and / or
- ii. take data from another system that feeds Kim, which can then be added to in Kim via the Kim web application and sent back to the core system or to ANO systems (see section 5).

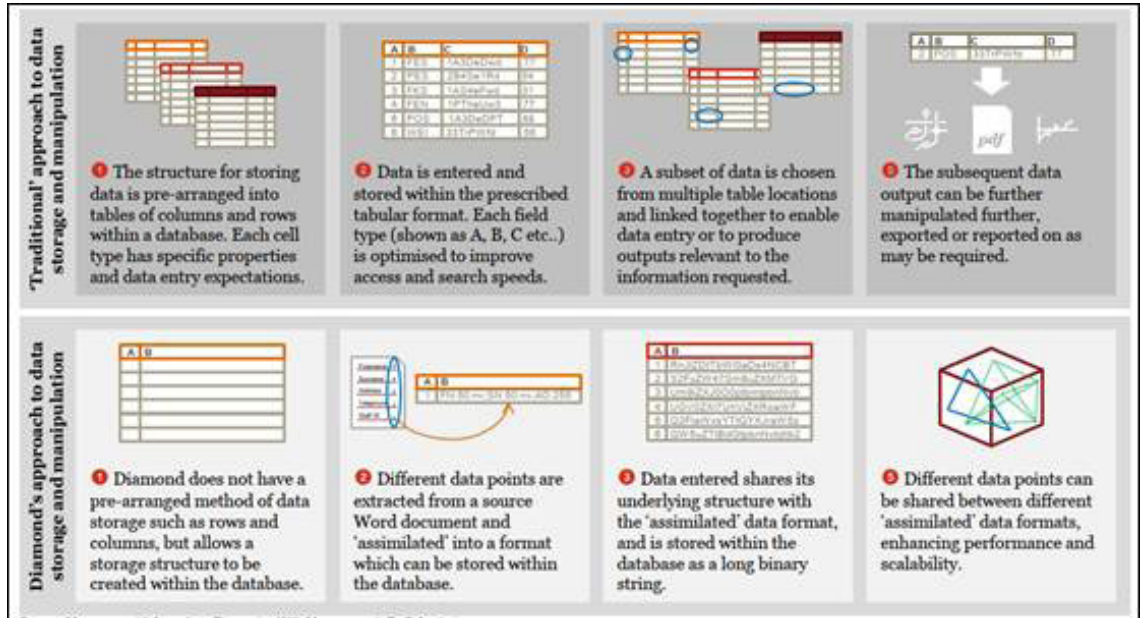
When the data is in the Kim web application and an end user presses 'submit' (or submission is automatic through an integration), Kim delivers the output (e.g. the self-service of a document to an end-user or the first draft of contract for legal / contract teams, the accurate and complete submission of a support request to a function, or straight through processing of data from Kim to other corporate systems). In the process avoiding error-ridden rekeying of data.

Kim is an environment that adapts to the data of other systems and allows that data to be used:

- i. solely in Kim;
- ii. partially in Kim; and / or
- iii. for straight through processing using Kim as an intermediary (aka machine intelligence resulting in intelligent automation).

In this sense Kim is a data assimilation machine (see *Diagram 1* and *Diagram 2*).

Diagram 1: Data Assimilation Model



Kim is machine intelligence (MI) not machine learning (ML). In AI terms Kim is a neural net. Kim forms the business application / solutions from the data model and the configuration. All applications are, to Kim, exactly the same thing. The only difference is how the data and rules apply along with the presentations of forms, documents or integrations that occur. The neural net is a series of layers (deep) with step in /step out logic acting in a forward model, with simple vectoring control around each data element for what is needed for the operation.

Kim's neural net is not fuzzy and it does not learn. It is operational for deterministic operations and repeatability is expected by the business for operations. However, the model is pretrained each time it starts a generative model and applies the configuration. Having been configured by the citizen developer / knowledge worker, the business will know what Kim will do and Kim will then deliver the expected output (i.e. the standard operating procedure and/or that straight through processing of the data).

Kim has been described as a type of universal robot for business operations that has the ability to collectively control and allow addition of multiple differing business applications / solutions.

Kim is partially a generative model that creates the data structure, mapping context whilst automatically forming interfaces. On top of this, there is a configuration layer allowing the citizen developer to specify how the configuration, the solution, is controlled via a Kim web application with full integration capability. The resulting web application, and its ability to integrate, is familiar to the end user's experiences and familiar to the teams that will utilize the integrations. Critically, Kim is able to adapt to data, operational and other changes.

Kim is an advanced, model driven, architecture delivering a no-code product to the cloud that handles enterprise systems.

All this power (and complexity) is initiated, and patent protected, by Kim starting with MS Word.

3. Starting with an MS Word document

Turning MS Word into an automation platform

A key to Kim's success is that it uses universally known and available tools such as MS Word, your browser and MS Teams. This simplifies the user experience, reduces the need for business analysts and software development, reduces training and time to deployment plus drives user adoption. Many end users never even see Kim!

All Kim's activities are initiated by MS Word (see Diagram 2). Essentially, Kim turns MS Word into an automation platform.

Diagram 2: Initiated by importing / uploading an MS Word document



This diagram summarises how MS Word (step 1) initiates Kim. It also shows that the data model has 'assimilation' as its key component. A due diligence report on Kim by a leading professional services firm concluded: "The way that Kim stores and manipulates data is both innovative and unique. By virtue of the design the software is inherently scalable and highly adaptable."

Kim uses MS Word as the initiating form because documents are the heartbeat of every organization. Think about all those letters, forms, checklists, compliance records and customer and supplier contracts generated every day. Now think about all the information, the data, trapped in these documents.

In practice the variable data in these documents are the business requirements (see Diagram 3). Why conduct time consuming requirements gathering exercises when the answer to the question 'what problem are you trying to solve' leads back to the variable data in a document.

For example:

- Problem to solve: I want all requests coming into a function (i.e. legal) to be complete and accurate so that we remove failure demand and can deliver self-service where appropriate (i.e. remove the need to go back and forth to the requestor to understand the actual ask so that we can allocate and prioritise the work correctly); and
- Requirements: Take the questions the legal team asks the requestor, plus any email template or request form, turn them into a web application and Kim will create a standard operating procedure for all requests (with the data insight that flows).

Diagram 3: The variable data in documents are the business requirements

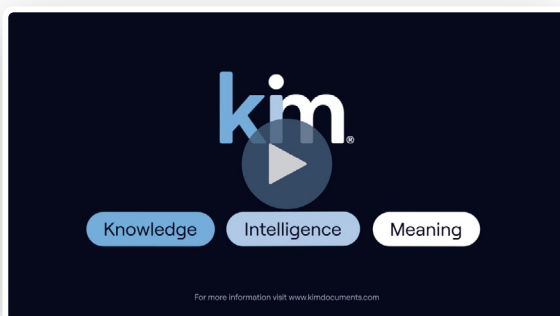
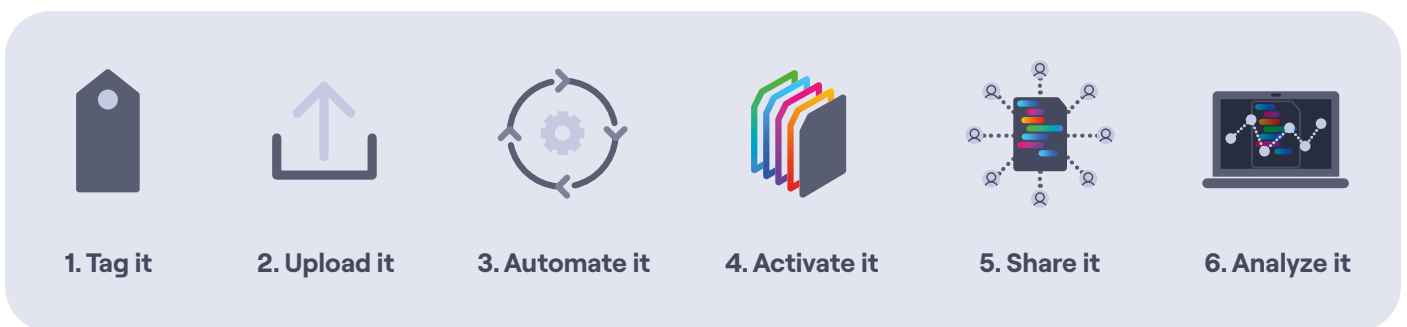
Letters	Forms	Checklists	Compliance Records	Contracts/Drafts
Offer Letter Candidate Name Candidate Address Offer Date Job Role Salary Notice Period ...	Intake/Request Form Requestor Name Business Unit Primary Request Type Secondary Request Type Counterparty Whose paper	InfoSec Questionnaire Vendor Name Vendor Address Vendor Registered Office Vendor Contact Vendor Finance Contact Vendor Product	Anti-Money Laundering Your Organization Name Your Responsible Person Confirm Policy in Place Confirm Policy Maintained Declaration Confirmation	Sales Contract Customer Name Customer Address Product Units Price Term
Example Templates				
Client Engagement, Invitation to Tender, Termination, Notices ...	Support Requests, Job Application, Holiday Request, Outside Counsel ...	Client On-Boarding, Vendor On-Boarding, Employee On-Boarding ...	Attendance at Compulsory Training, Attestations, Declarations ...	NDA, SoW, Employment Contract, Product Ts&Cs, Proposal Documents ...

The above are random examples of the data trapped in documents that Kim release and activates.

Imagine a world in which, with little effort, the information in all these ‘passive’ documents can be ‘activated’ and turned into data. This is what Kim does. Kim takes an organizations existing MS Word documents, the documents it has already invested in, and turns them into web applications and standard operating procedures that allow end users to:

- i. generate forms, documents and create records;
- ii. generate multiple documents off the items created in (i); and/or
- iii. use the data captured in (i) and (ii) to populate other corporate systems with straight through processing (see section 5).

Whether the document is a letter, form, checklist, compliance record or contract, or a .xls where the fields have been converted into MS Word, all a citizen developer does is take that MS Word document and:



See this video for a demonstration

4. Enterprise objectives

Standard Operating Procedures (SOPs) and Return on Investment (ROI)

All organizations want to do is increase productivity, drive digitization projects and reduce overall costs. They need to do this by only introducing new cost-effective tools into their tech stack that 'play nicely' with their existing systems.

These objectives require reduced automation costs, decreased user training, the creation and governance of standard operating procedures and the ability to integrate with and augment legacy and other systems with additional capability, unifying where desired. These all map back to 'return on investment', reducing 'total cost of ownership' plus delivering a quicker 'time to market'.

Kim helps organizations achieve these objectives by:

- i. automating and/or reducing the design, requirement and development needs to take solutions live, thereby reducing effort from weeks and months to hours and days;
- ii. reducing the number and different types of skills required in an enterprise by deskilling the tasks (i.e. citizen developers);
- iii. adapting and providing additional capabilities or data needs to existing systems, enhancing those environments for self-service and straight through processing;
- iv. quickly providing automated solutions where none existed by taking existing documents and turning them into web applications;
- v. modernizing interfaces on top of legacy systems (NOTE in this case, the legacy system will require REST service interfaces (or create middleware)) so that Kim can get data from those systems populating Kim web forms, gathering additional data, generating documents and either sending the data and or document(s) back to that system and/or to other systems; and
- vi. in some cases, reducing an organization's overall tech stack through (i) to (v).

As it operates Kim is:

- i. automatically unifying the data in a contextual data model, gaining history on each function, operation, user, time dimensions and other aspects; and
- ii. forming the data into a contextual model resulting in high reuse which, over time, enables decreasing skill requirements, consolidation of systems and work toward universal integrations.

In this way, organizations can use Kim to solve tactical issues today, driving immediate value, secure in the knowledge that Kim can be their enterprise wide corporate document flow solution. With Kim you know:

- i. where your documents are;
- ii. what is in your documents; and
- iii. you can reuse the data to create other documents or populate other systems.

5. Integration model

REST, OAuth, mapping and target system integrations

Kim has outbound and inbound integrations. The outbound integration is:

- i. REST based;
- ii. OAuth (token refresh, client credential and certificate);
- iii. Custom and Basic Authentication augmented; and
- iv. all auth types are augmented with the ability to map from / to Kim Data model which becomes a REST interface to the target system's REST interface. For example, for Salesforce integration Kim can map to any exposed Salesforce common or custom object using the same mechanism. In other words, there is not a separate integration specifically for Opportunity, Activity, Contact, etc (it is what was connected and what was mapped).

This same approach is used for any REST enabled endpoint that has an Auth / Data interface as described here. Further, the integration model is contextually aware of events – Kim Record Create, Record Update, and Manual User invocation to send data to a target system but also a GET capability to do a reverse map to get data from a REST enabled endpoint and bring that data into Kim.

The inbound integration is the ability to interact with the Applications. Also REST based – Create Records, Update Records, Enterprise Search, Get Status, Get/Create Notes, Get/Create Attachments. Where the Outbound API is acting upon Kim's event model to invoke a REST service, the Inbound API is an external service calling into Kim.

Kim uses common integration, best REST auth protocols, with mapping and transformation capability to ensure Kim 'plays nicely' with an organization's existing systems.

i. OAuth

OAuth is the standard authentication used by REST. Kim handles three types – refresh, client credential and certificate based – along with Basic Auth and Custom Headers. This will handle most REST integration needs customers have (see list later in this system) plus custom integrations to an organizations home-grown systems.

ii. Mapping and transformation

Each Kim configuration (see section 3) has a machine managed data model with elements identifiable by name. Each target system operating on REST will have an interface for that end point. For example, a Salesforce activity would have elements 1, 2, 3 etc with these names. Our mapping capability allows Kim to match an element from Kim's data model to an element in the target's interface. Additionally, we allow transformation such as two fields from Kim become one target on the interface or vice versa. Kim also enables things like a date transformation. Whereas some products will integrate to a Salesforce activity, opportunity or other object Kim is a more powerful and flexible open integration due to the ability to transform and map.

iii. Documents and attachments

Kim can manage documents and attachments subject to the target systems capability.

iv. Lists

Kim's mapping capability will support one level down on lists but not hierarchies and when supporting those lists there is an inner script.

An example of the simplicity in using Kim for integrations can be seen with this sales contract scenario. It took 90 minutes to take a new sales agreement, upload it into Kim, create the web application for users (including versioning), create the integration points and then take live. The solution provides data capture, data versioning, document generation, document versioning, webform, record management and these same operations are available using Kim's integration.

The steps taken over the 90 minutes were:

1. Took a sales agreement, tagged it, uploaded into the Kim and used the Kim drag and drop wizard to automate it and publish it (as in section 3);
2. At this point that sales agreement is ready to use. So I downloaded the integration services and opened Kim's Postman to call the services (NOTE ANO system such as Salesforce or SuccessFactors would call these services directly); and
3. Called the service and generated the document.

The screen shots that follow show a generated document resulting from this configuration, and the Postman REST used to create the document:

Diagram 5a: Tag and save sales agreement

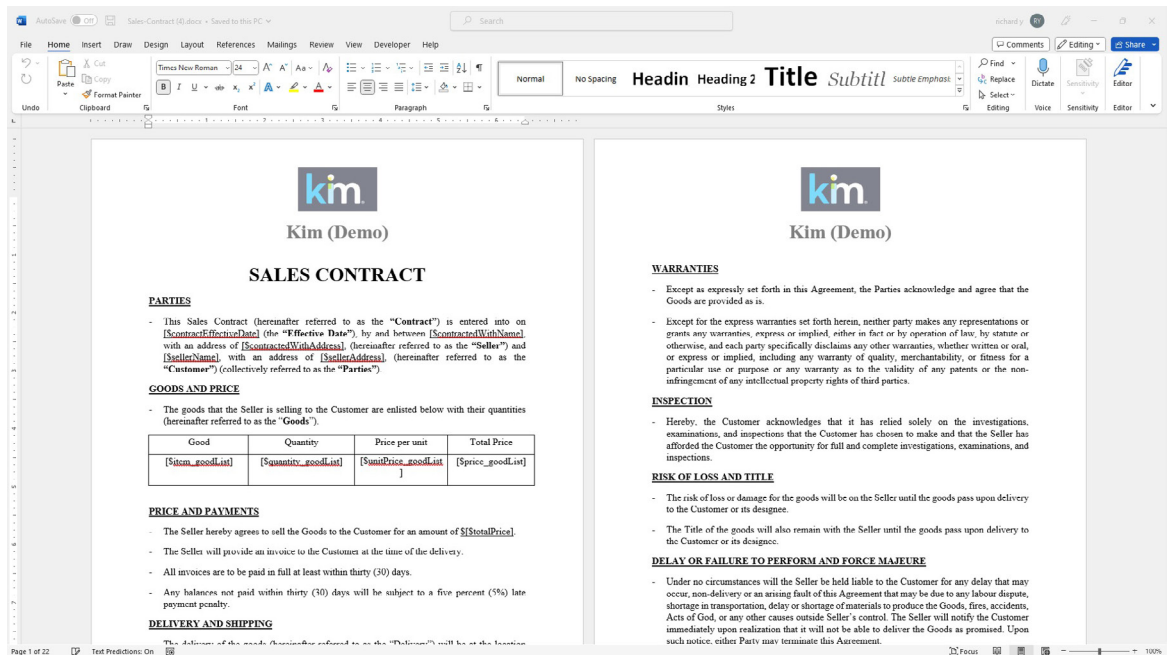


Diagram 5b: Use the Kim drag and drop wizard to create the web application

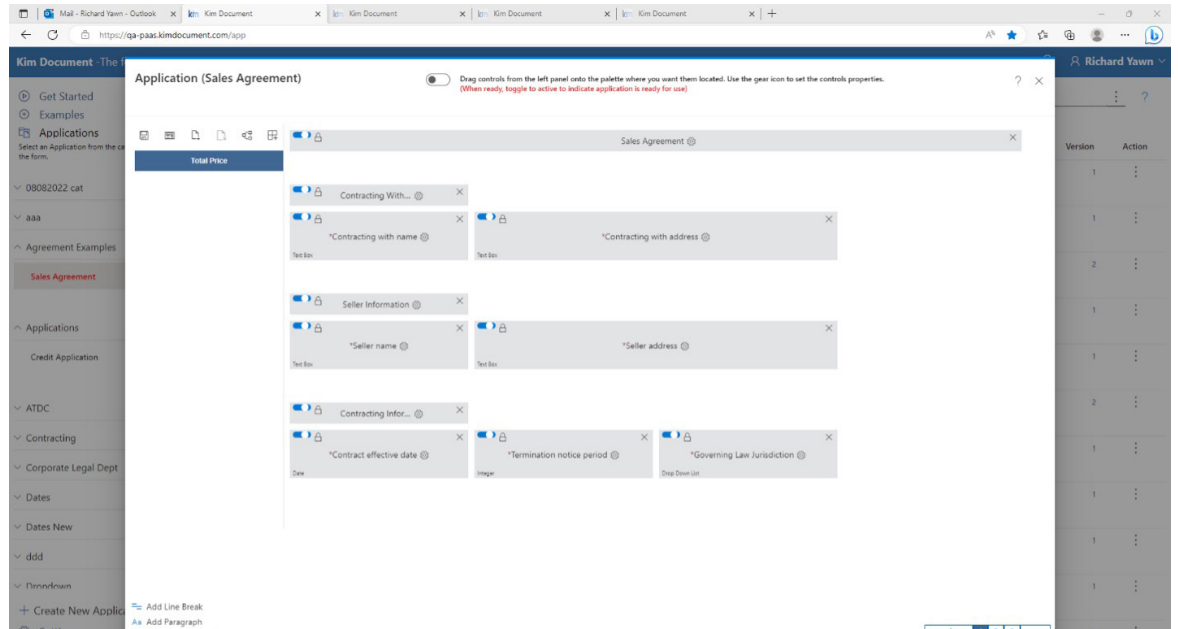


Diagram 5c: Publish the application so it is available to users

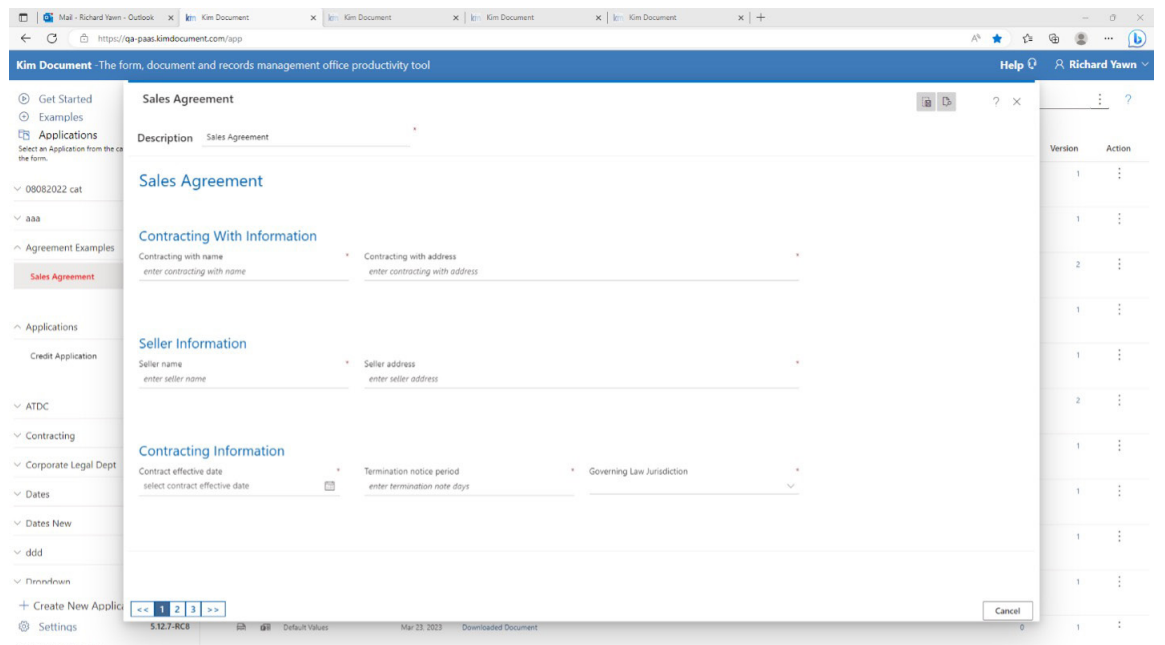
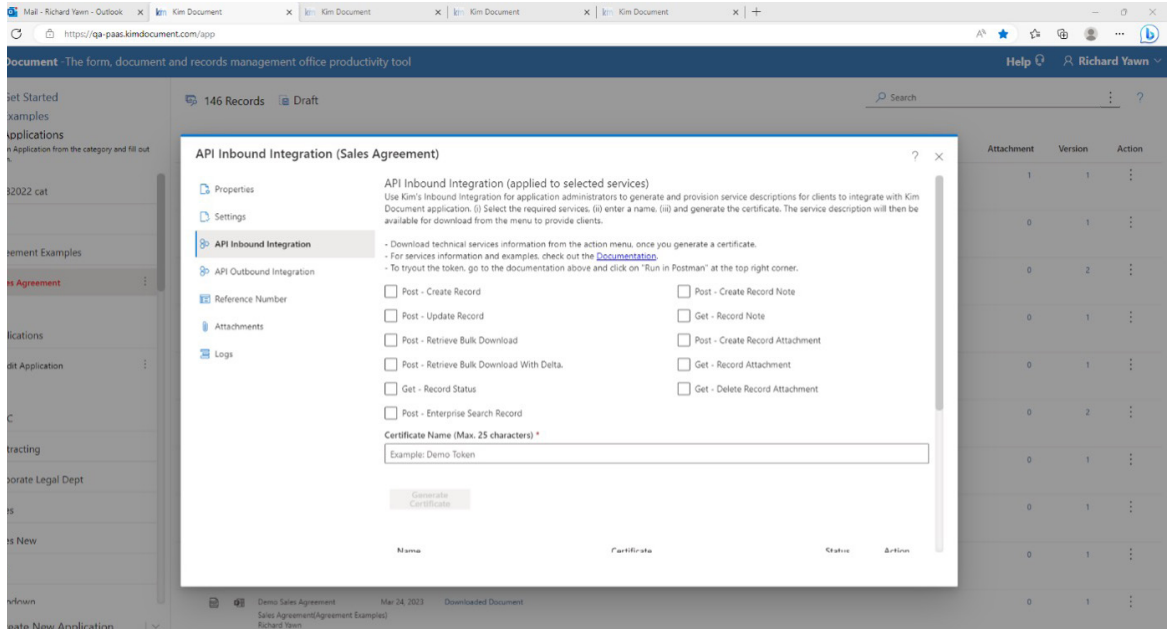
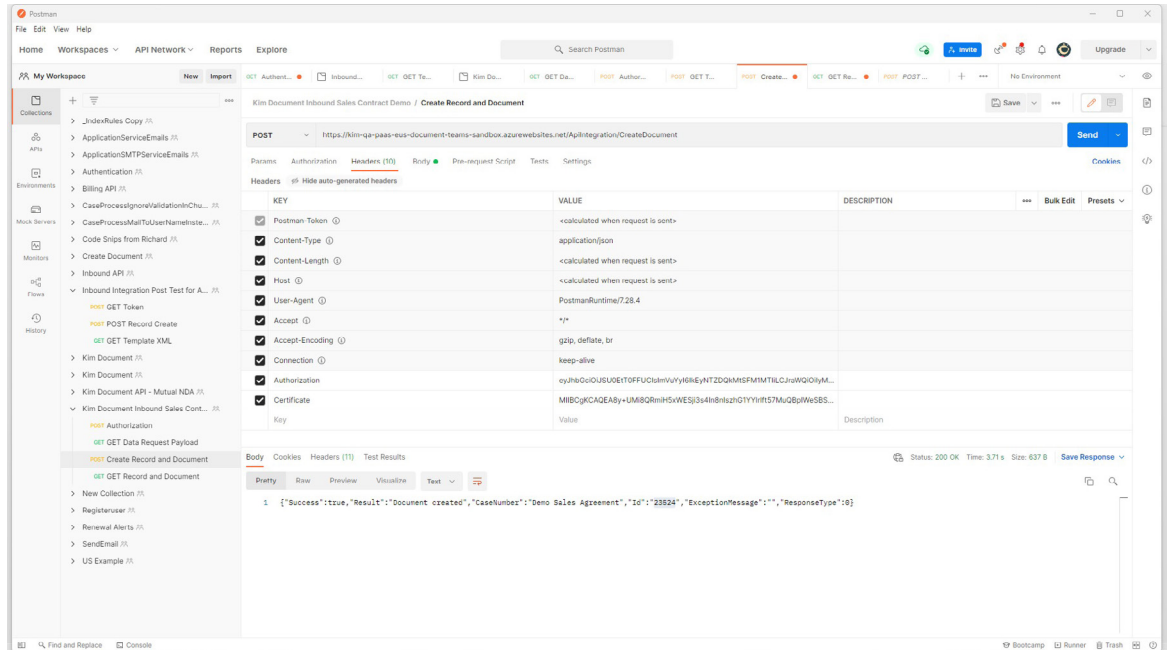


Diagram 5d: Use Kim's inbound integration token creator



The service description for integration is formed automatically when the solution (in this case the sales contract) is configured. Just download and give to developers.

Diagram 5e: Kim Postman service request



The above is a service request for creating the record / document, but the same process would occur to search, update, get status plus a host of other services.

The screenshots that follow show Kim’s outbound integration:

Diagram 6a: Open outbound integration

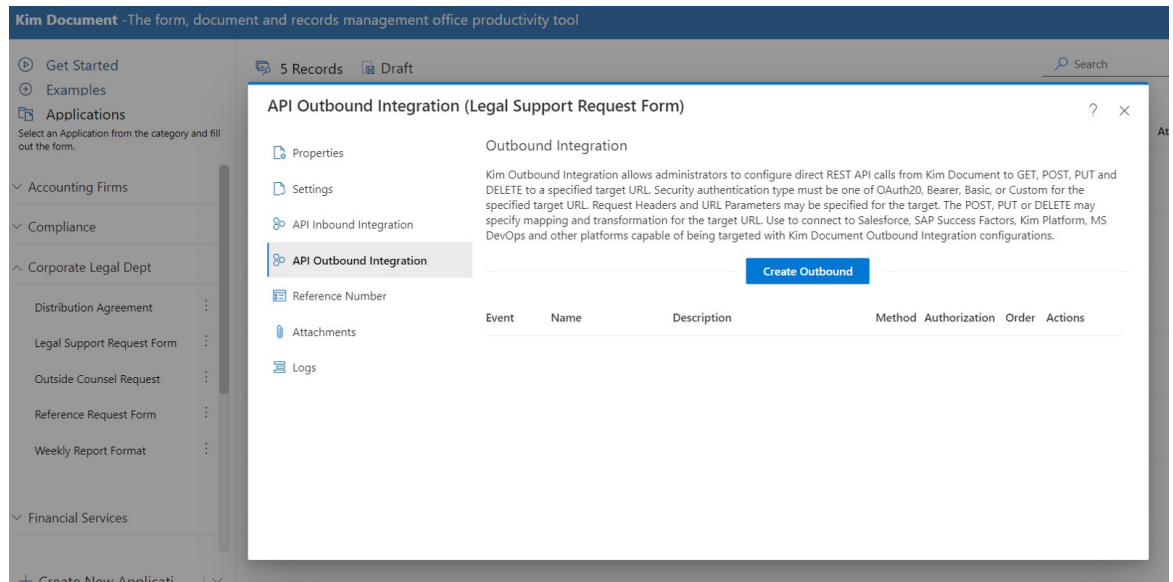


Diagram 6b: Name and specify event

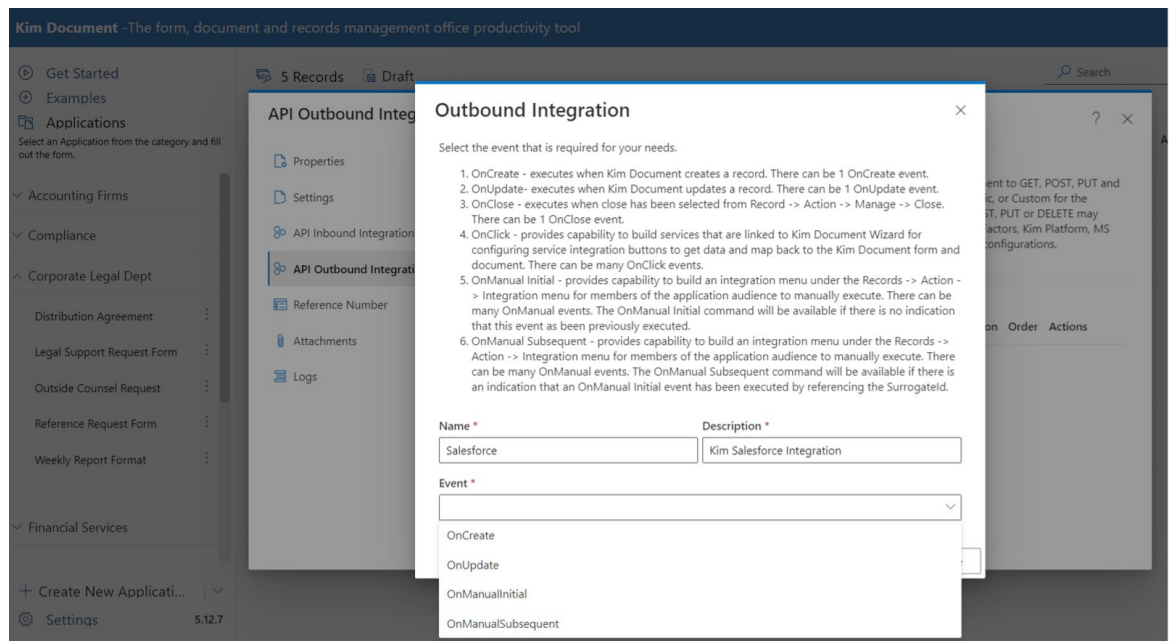


Diagram 6c: Add service

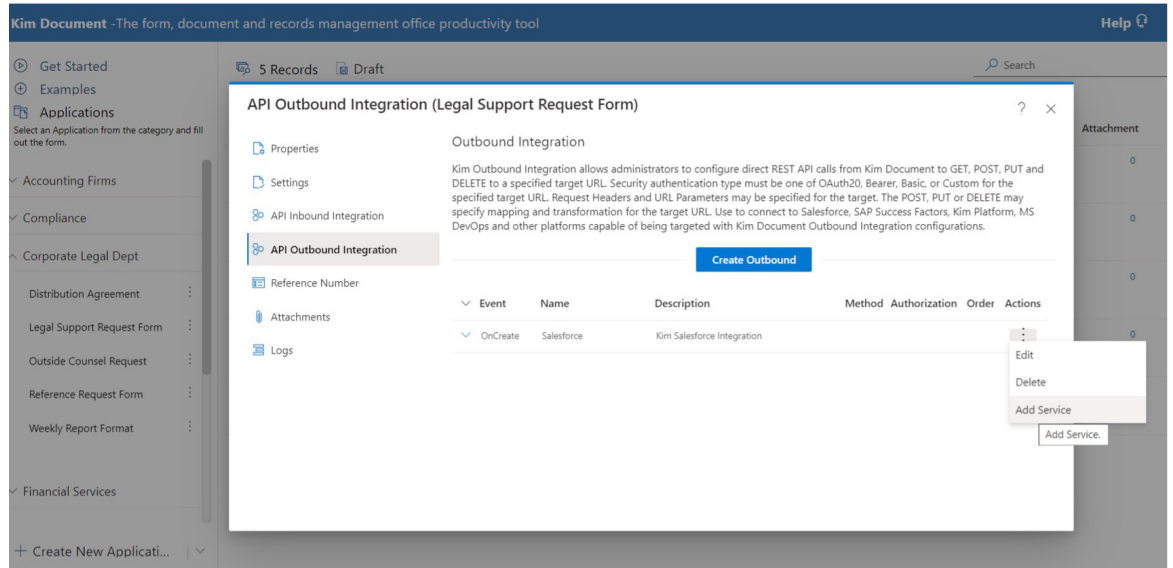
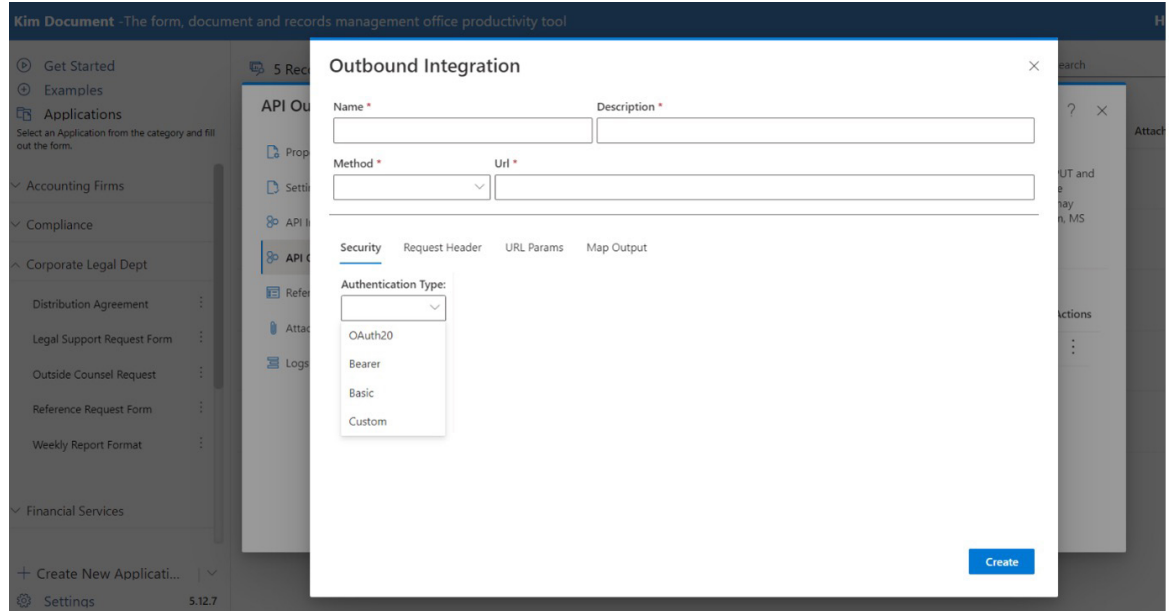


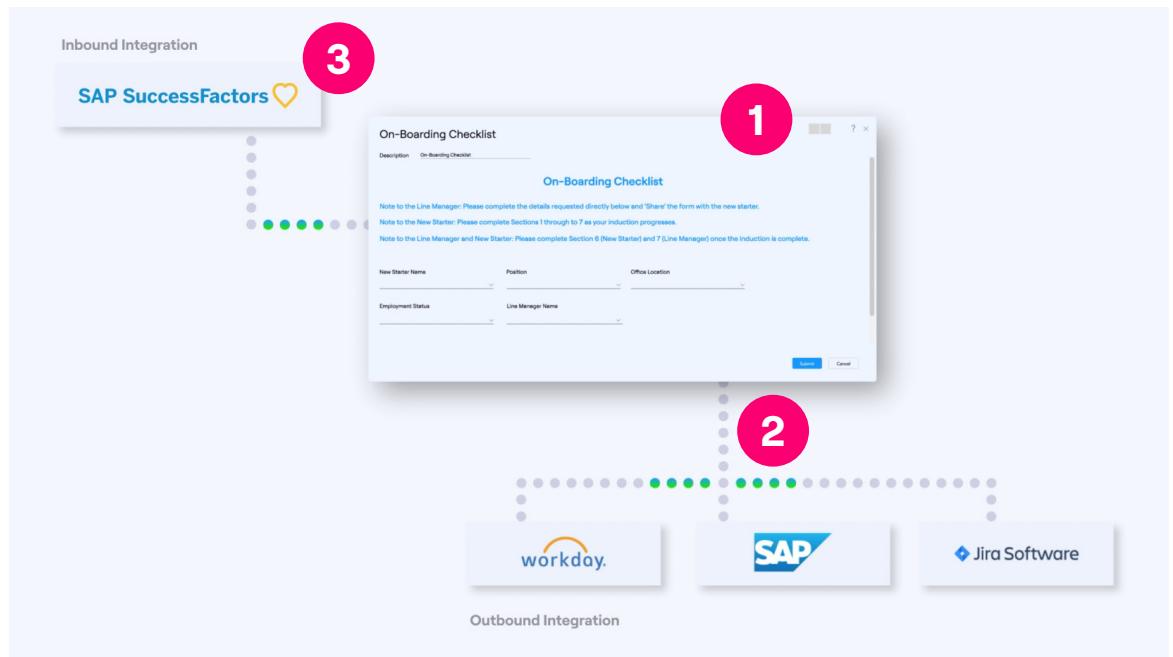
Diagram 6d: Method, URL and authentication



The diagram below shows an example of straight through processing using Kim:

1. Upload your document to Kim (i.e. letter, form record, checklist, compliance document, contract, etc.) and create your web application. In this example an 'on-boarding checklist'.
2. When a user completes the 'on-boarding checklist' the document is created and stored and data in the checklist is automatically sent to other systems to create or update records (NOTE this could also include the generation of the welcome letter to the employee, the company handbook, etc).
3. You can even automate the creation of the 'on-boarding checklist' by taking data from another system.

Diagram 7: Straight through processing





See this video for an overview of Kim Intelligent Automation

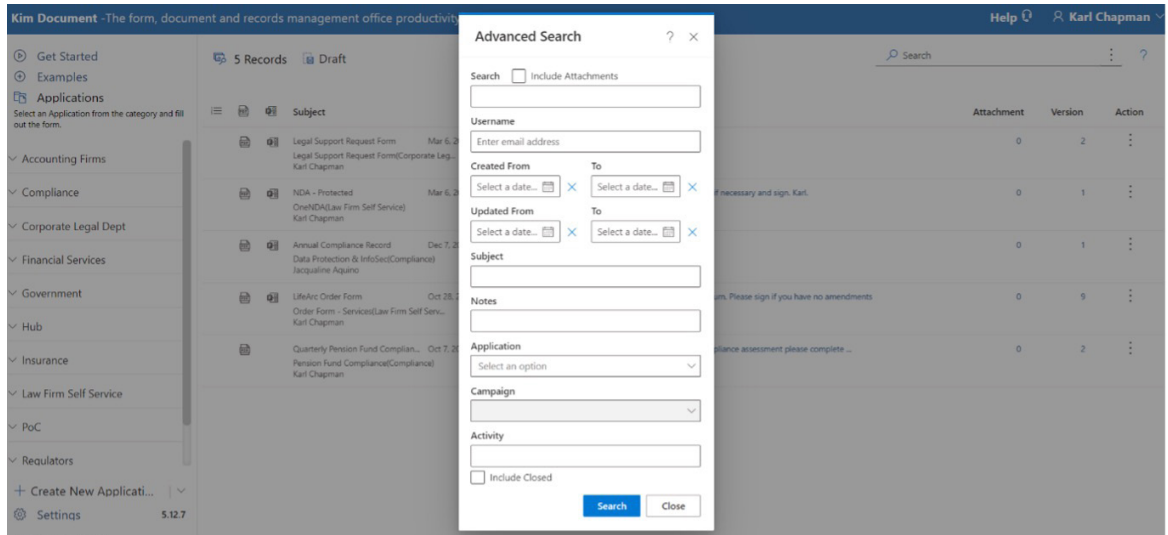
The target systems for integration that Kim is working on include the below. These are in testing and being worked through methodically. Kim has a target completion for all by 30 September 2023 (NOTE this is subject to events!):

AdobeSign	Google Cloud	NetDocx	Sharepoint
Airtable	Google Docs	Nextcloud	Slack
Amazon Drive	Hubspot	OneDrive	Smartsheet
Atlassian	IBM FileNet	Pandadoc	SugarCRM
AWS	IBM Order Mgmt	Paychex Flex	Trello
Box	iManage	Paycor	Workday
Bryter	Integrify	Paylocity	Zapier
Clickup	Jira	Pipedrive	Zoho CRM
Clio	Jotform	Rocket	Zoho Document Mgmt
Confluence	Kim Platform	Salesforce	Zoho Projects
DocuSign	Mega	Salesloft	
Dropbox	Monday.com	SAP Success Factors	
Formstack	MS DevOps	ServiceNow	

6. Enterprise Search

Exploiting the data model

All data models and generated documents are searched via FTI. Additionally, the operational characteristics that surrounds the records – user, date/time created/updated, application, subject, notes, activities – can all be specified to obtain sets of records which are automatically applying RBAC restriction. For the FTI, this will also search across languages where Kim’s documents and configurations are supported in multiple languages and therefore input into these documents are supported in multiple languages.



7. Kim Architecture

Microsoft stack

Kim is PaaS with logical multi-tenant shared SaaS and private cloud SaaS models. All code is developed by Kim and patent protected (see section 10). Kim is standardized on the MS stack:

- i. Microsoft data center hosting in Eastern US is backed up to Mid US, hosting in EU is Germany, with backup in Norway, hosting in UK is southern UK with backup in northern UK. Other locations are provided for specific customers;
- ii. standardized software development using Microsoft's .NET framework;
- iii. standardized technical infrastructure architecture with application hosting on MS Azure App Services, Database hosting on Azure SQL;
- iv. standardized relational database architecture with normalized cm model and all access through stored procedures using standardized T-SQL
- v. development – Visual Studio C#, React, Entity Framework, Layered Architecture Controllers, Business Layer, Data Layer;
- vi. Database – Azure SQL with all data operations via stored procedures having;
- vii. Technical Architecture is MS Azure App Services; Azure Functions, instrumentation is site 24/7;
- viii. Security – all operations are encrypted in motion, encrypted at rest, sql server transparent data encryption, RBAC audience access, REST auth via OAuth, user login via Auth0 or custom SSO;
- ix. QA – Dev, Integration (SIT), QA, Prod with automated regression testing, load testing both automatic and user invoked;
- x. deployment – CI but not fully CD with automated deployment pipelines to Terraform a new Azure environment or to deploy the applications.

A decorative graphic in the top right corner featuring a light orange background with white icons of a gear, a brain, and a document, connected by yellow circuit-like lines.

8. Kim pricing model

Licensed by Citizen Developer not consumers

Only citizen developers / knowledge workers (which can include IT resource to support integrations) are charged a license fee and these users can create unlimited business applications and integrations. Consumers of the applications are not charged a license fee).

Pricing is publicly available:



9. Kim Patents

No-code and Recognize

Kim has two patents:

Priority Date 21 May 2013: No-code

When a DOCX template is uploaded into the Kim software it gains additional knowledge by learning the structural composition of each template and it is able to interface with any authenticated and authorized client over HTTPS with an intelligent understanding of the correctness of the data being supplied. This enables the automatic extraction of tags from the multiple sample documents, the storing of the tags in a data schema separate from the documents, automatically generating structural schemes from the tags, automatically creating document templates from the sample documents and processing the document templates to create unique identifiers.

Kim patent: <https://patents.justia.com/patent/10817662>

Priority Date 19 September 2016: Recognize

Kim also has a patent for its Recognize tool. Recognize enables the automatic profiling and evaluation of large and complex volumes of content (e.g. contracts, forms, letters ...) to provide automatic content calibration and recognition. Knowledge workers define templates with content controls that identify textual variance from an organization's normative forms. When a new electronic document is received, its content can be evaluated amongst all templates for automatic recognition. Upon match, the electronic document can be assigned to the matching template ID. If a match is not found, the electronic document can be submitted to an area for manual evaluation. The recognition process provides a mechanism that stores electronic documents in a single location, identifies the electronic documents correctly, and identifies matching templates for correct evaluation.

Kim actively adapted knowledge base, content calibration, and content recognition patent: <https://patents.justia.com/patent/10733366>

[November 2020 Press Release](#)

For further information please contact hello@ask.kim