



Building AI technology for rapid law firm adoption



Contents

Overview	3
1. Introduction	3
2. Executive Summary	4
1. Barriers to adoption	5
1. Time and cost	5
2. Trust in technology	7
3. Ease of use	7
2. Legatics' approach	3
1. Integrated microservices	8
2. Lawyer control	9
3. Tailored interfaces	11
3. Conclusion	12

Introduction

Low AI usage

In 2018 the UK government, through its innovation agency Innovate UK, recognised the gap between the potential and the practical use of artificial intelligence (AI) in services industries and launched a £5.14 million grant competition to find solutions.

This was motivated by three key pressure points:

1. The Office of National Statistics finding that the UK's productivity relative to other G7 nations is low;
2. Low adoption of AI-based technologies in the services sector, including the legal services sector; and
3. Recognition that AI has the potential to significantly advance productivity in the professional services sector.

Our research has corroborated these findings. Legal industry professionals estimated that AI-based technologies were used on less than 2% of legal transactions at larger law firms.

Reports

Legatics has produced two reports as part of its research project.



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Barriers to Legal Technology Adoption

Research project

Legatics was awarded £173k of the Innovate UK grant to help tackle the identified artificial intelligence gap.

These funds were applied to a broader £385k research project that aimed to increase legal technology ("LegalTech") adoption rates in the UK legal and high-value services sectors through the use of AI microservices and behavioural change science.

The research project looked to do this by way of a two-pronged approach:

1. **New approaches to building AI technology:** creating and deploying AI in ways that overcome identified number of barriers to AI technology adoption.
2. **Behavioural change:** working with law firm partners to analyse and address the behavioural and organisational issues that lead to low LegalTech adoption.

Approach

We conducted an analysis of the product-based barriers to adoption of AI based LegalTech. Three new approaches to the build of AI technologies were then implemented with the aim of building AI based LegalTech that overcomes these barriers. This resulted in the development of four new AI technology products.

Executive Summary

We identified three key product barriers to the adoption of AI tools in the legal services sector. **To overcome these barriers, we developed three new approaches to the building of AI based technologies.**



High Cost

The conventional model of AI development results in large additional associated costs



Lack of trust

Low trust in technology and, in particular, AI accuracy concerns



Challenging interfaces

Complex user interfaces which are difficult or require training to use

Integrated microservices

Create AI components as "microservices" that complete highly specific tasks and deployed on a pre-trained and pre-configured basis

Lawyer control

Leave ultimate decision making control on AI outcomes with the lawyer

Tailored interfaces

Implement familiarity based and user-tested interfaces

Legatics has validated its approach with the creation of four AI microservices

One, a tool for the conversion of legal text into checklists has already been deployed in the Legatics platform. Others, such as the automatic collation of signature pages, are in the process of being integrated into the Legatics platform as part of our software development roadmap.

1. Technical barriers to adoption

1.1. Time and cost

Our research found that AI technology deployment was commonly done by law firms on a 'per transaction' basis. Under this model each deployment of the technology was considered its own technology delivery project.

To further understand this, we created a project phase map that summarises the key phases of typical AI technology deployment on a legal transaction in practice today (the **Conventional Model**) and identified the categories of costs (**Associated Costs**) associated with each phase (see next page).

When each phase was successfully implemented, the Conventional Model was reported to work well. However, the cost to firms to put the model in place, together with the time requirements of lawyers and specialist teams, severely constrain the number of transactions on which AI technologies are used. This generally means that the business case to use AI following the Conventional Model is only feasible for:

1. the largest law firms who have sufficient transaction volume to spread the Associated Costs; and/or
2. the largest transactions that warrant the time required to use the AI technology (e.g. finding change of control clauses in 10,000 documents), where the Associated Costs can be borne.

This means that AI technologies rarely get used by smaller law firms and/or on smaller legal transactions (which make up the bulk of legal work) as the business case cannot be established.

In addition, there are many smaller legal tasks that could be automated. These tasks form part of most legal transactions and are prevalent when numbers are aggregated, but importantly do not occur a sufficient number

Research

To inform the development of more readily adoptable AI-based technology products we conducted a series of interviews with industry professionals with knowledge of AI technology products and associated adoption within law firms.

This was completed separately to the Barriers to Legal Technology Adoption Report (the **Barriers to LegalTech Adoption Report**) and with different participants. However, we reviewed the preliminary findings of the Barriers to LegalTech Adoption Report to ensure the report corroborated our interview findings.

of times on any single transaction. An example is the identification of signature blocks for e-signing. This task is routine and repeatable, making it appropriate for an AI solution. However, under the Conventional Model it is not cost effective to apply AI technology to the problem.

It is not just the financial cost and lack of business case that reduces adoption. The Barriers to LegalTech Adoption Report identified (in Section 1.3.3.2) that time and prioritisation costs detracted from a willingness to adopt technology solutions.

"As LegalTech can take "a significant amount of time to get up to speed" the lack of availability can impact usage. When asked what held them back from using new LegalTech, 50% of trainees and associates and 35% of partners chose "lack of time" as the primary reason. As one partner stated, "the idea can be great, but there is a very real fear of the time it will take you to learn and implement the tech"."

Conventional Model

for applying AI-based technologies

	Phase	Process	Costs
	Project Identification	Law firms must identify a suitable project, which requires specialist input from innovation or technology teams (or external consultancy).	<ul style="list-style-type: none"> • Specialist teams • Internal communication and training • External consultancy
	Project Planning	Assessment of data requirements, timeframes, technology frameworks and technology limitations.	<ul style="list-style-type: none"> • Lawyer time • Specialist time
	User Training	Lawyers are trained on infrequently used software and often need to learn complex data topics.	<ul style="list-style-type: none"> • Lawyer time • Specialist time • Training costs
	Software Configuration	AI-based solutions tend to be flexible (which enables wider use-cases). This means they must often be configured, which requires expertise, experimentation and validation.	<ul style="list-style-type: none"> • Lawyer time • Specialist time
	Training of model	More AI-based solutions are moving to offering "out of the box" solutions. In many cases there is still a need to do further training on the model.	<ul style="list-style-type: none"> • Lawyer time • Specialist time
	Management of output	Lawyers must interpret the output, which can require additional expertise and may require a change to their conventional workflows.	<ul style="list-style-type: none"> • Lawyer time • Specialist time

1.2 Trust in technology

Lawyers have indicated a lack of trust in novel technology solutions.

This is likely to be exacerbated by their business and reputation being dependent on the quality and accuracy of the services they provide. The potential consequences of errors or omissions in legal advice deficiencies are high. For example, the validity of documents can be affected if signed incorrectly.

This is corroborated by the Barriers to LegalTech Adoption Report, which states (section 1.3.3.2) that:

"numerous respondents commented on "inaccuracies" [...] when asked about the drawbacks of LegalTech."

When AI solutions are involved, the risk is higher because the system is conducting complex operations which are not easily understandable and the output is often what is usually considered part of a legal practitioner's professional judgement.

The higher the risk, the less likely it is that the lawyer will trust the system.

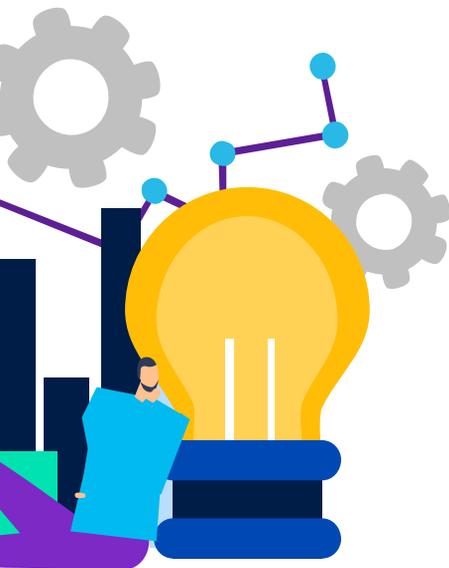
1.3 Ease of use

Processes within legal practice tend to be highly nuanced and the consequences of not capturing these nuances have substantial legal implications. Knowledge of these nuances has also been restricted to lawyers who historically have had limited overlap with software developers.

This has meant that software does not always meet all of lawyers' needs or do so in a way that is intuitive to them. This reduces software adoption.

Software development practices can also present concepts that are unfamiliar to lawyers and require them to substantially deviate from their known working methods. The complexity of many AI based technologies can further exacerbate this issue. This is reflected the Barriers to Legal Adoption Report, stating (section 1.3.3.3):

"Multiple participants commented on a concern regarding the "complexity" of certain LegalTech tools. When describing experiences with LegalTech, one partner explained "it's not user friendly" and another commented "it's not intuitive or easy to use".



2. Legatics' approach

2.1 Integrated microservices

Microservices have gained popularity in recent years. This is the process of developing applications in smaller 'microservice' parts, each of which conducts a well-defined and specialist function (rather than a single 'monolith' block of code that does everything).

In Legatics' case, we focused on building AI microservices that help lawyers perform actions that are part of the management of a legal transaction but which by themselves do not warrant a stand-alone LegalTech solution (e.g. identifying signature pages).

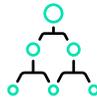
This approach has a number of benefits, which derive from the fact that each microservice has a well defined and limited function and that they are integrated into an existing platform commonly used by lawyers for the management of their legal transactions.



Benefits of the integrated microservices approach



Pre-existing problems: The microservice solves pre-existing common problems, eliminating the need for specialist teams to identify use cases.



Reduced project planning: As the microservice is integrated into existing workflow software that is used by lawyers daily, there is limited project planning required, if any.



No model training: The well-defined scope of tasks that the model is being applied to allows us to deliver pre-trained models that are trained a single time and deployed to multiple law firms.



No configuration: The legal task being performed is known with a high degree of specificity and in a known environment. No additional configuration is required.



Reduced user training: The software solves a smaller problem, meaning the interface can be simpler. A simpler interface requires less training. In addition, lawyers are in a platform they are familiar with, which reduces the training load.



Easier management of output: Model output has a predefined destination in an end-to-end transaction management platform, reducing the need to adapt working practices to manage the model output.



High accuracy rates: The nature of the legal task being performed is known, and so the form of the input data is more consistent.



Ability to use different AI model types: Most existing service providers under the Conventional Model use a 'linguistic model'. However, a range of AI model types exist, some of which are more suited to different task types. The microservices based architecture allows for the most suitable model to be used to achieve the task (e.g. using an image based model to identify signed documents).

Our project has demonstrated that the microservice approach can improve a significant number of tasks and (most importantly) in a way that limits Associated Costs and improves adoption.

The legal tasks solved by our microservices are different to those solved by the Conventional Model. The project demonstrates not that the same tasks may be solved in an improved manner, but a different range of tasks may be improved in a way that eliminates many of the Associated Costs and allows for greater adoption. This is particularly important when the tasks solved by AI microservices (such as facilitating document signing) are applicable to the majority of legal transactions across a law firm.

Because they are solving different tasks, the microservices approach should be seen as complementary to the Conventional Model, which we recommend still be applied where it is cost effective to do so.

2.2 Lawyer control

Our research found that for AI solutions to be used by lawyers, the lawyer must be in control of the output (which applied irrespective of model accuracy rates).

This is key to lawyers' ability to maintain trust in the technology, and, in turn, increases their likelihood of adopting the technology, which is our core project goal.

An example of our approach to giving lawyers control can be found in our "Import tool" (a screenshot of which is on the following page). This feature lets lawyers import legal text from documents into digital checklists faster than traditional processes. We present its output in a "compare" (or blackline view). This is how a junior lawyer might present their work and allows more senior lawyers to verify model output and gain confidence in its results.

By not forcing lawyers to accept AI output and giving them a familiar opportunity to check and correct it, lawyers could trust the AI model was performing correctly, or could easily amend the output in the few cases where it did not.

We developed a further microservice that automatically collates signed documents from multiple individual signature pages. The user interface allows lawyers to visualize the model output as proposed page replacements before making final changes. Again this gives lawyers an opportunity to verify the work of the model and retain decision-making control.



Import tool interface

Allows lawyers to verify output and retain decision making control

The screenshot shows the Legatics Project Apollo interface. At the top, there is a navigation bar with the Legatics logo and various menu items: Overview, CP Checklist I, Issue List, Underwriting Agree..., Document Tracker, Add module, Manage matter, Help, and Larry Smith. Below this is a dark header for 'Project Apollo' with a breadcrumb trail 'Home > Project > IPO' and icons for document, lock, and settings.

The main content area is a table with the following columns: Reference, Text, Inclusion, Structure, and Split out by definition. The table lists various document sections and their corresponding text, with controls for inclusion (checkboxes), structure (dropdowns), and splitting (dropdowns).

Reference	Text	Inclusion	Structure	Split out by definition
4	Constitutional documents	<input type="checkbox"/>	Heading	No split
1(a)	A certified copy of:	<input type="checkbox"/>	Repeat text	No split
1(a)(i)	A certified copy of the articles of association of each Obligor; and	<input checked="" type="checkbox"/>	Turn off	No split
1(a)(ii)	A certified copy of the certificate of incorporation of each Obligor.	<input checked="" type="checkbox"/>	Turn off	No split
1(b)	A resolution of the board of each Obligor approving an individual to enter into the Transaction.	<input checked="" type="checkbox"/>	Turn off	No split
1(c)	For each Obligor, a specimen signature of each person authorised in the resolution referred to in 1(b).	<input checked="" type="checkbox"/>	Turn off	No split
2	Finance documents	<input checked="" type="checkbox"/>	Heading	No split
	The Intercreditor Agent has received an executed copy of each Finance Document.	<input checked="" type="checkbox"/>	Turn off	No split
3	Project documents	<input checked="" type="checkbox"/>	Heading	No split
	The Intercreditor Agent has received an executed copy of each Project Document.	<input checked="" type="checkbox"/>	Turn off	No split
4	Legal opinions	<input type="checkbox"/>	Heading	No split
4(a)	A legal opinion of Lawfirm LLP in respect of the enforceability and validity of the Project Documents under English Law.	<input checked="" type="checkbox"/>	Turn off	No split
4(b)	A legal opinion of Lawfirm LLP in respect of the enforceability and validity of the Finance Documents under English Law.	<input checked="" type="checkbox"/>	Turn off	No split
4(c)	A legal opinion of Second Lawfirm LLP in respect of the enforceability and validity of the Project Documents under English Law.	<input type="checkbox"/>	Turn off	No split
4(d)	A legal opinion of Localfirm LLP in respect of the enforceability and validity of the Project Documents under Local Law.	<input checked="" type="checkbox"/>	Turn off	No split
5	A certified copy of:	<input type="checkbox"/>	Repeat text	No split
5(a)	A certified copy of evidence that the Onshore Account 1 has been opened.	<input checked="" type="checkbox"/>	Turn off	No split
5(b)	A certified copy of evidence that the Onshore Account 2 has been opened.	<input checked="" type="checkbox"/>	Turn off	No split
5(c)	A certified copy of evidence that the Offshore Account 1 has been opened.	<input checked="" type="checkbox"/>	Turn off	No split
5(d)	A certified copy of evidence that the Offshore Account 2 has been opened.	<input checked="" type="checkbox"/>	Turn off	No split
6	Security registration	<input checked="" type="checkbox"/>	Heading	No split
6(a)	A stamped certificate showing that each Project Document has been registered with the Local Office of Local Country.	<input checked="" type="checkbox"/>	Turn off	No split
6(b)	A stamped certificate showing that each Local Security Document has been registered with the Local Office of Local Country.	<input checked="" type="checkbox"/>	Turn off	No split
7	Director's certificate A certificate, signed by a director of Borrowerco, stating that: (a) no borrowing limit will be exceeded as a result of the Transaction; (b) the Borrowerco is not party to a Prohibited Contract; and (c) the Transaction will not put Borrowerco in breach of any contract.	<input checked="" type="checkbox"/>	Merge list	No split
5(a)	no borrowing limit will be exceeded as a result of the Transaction;	<input type="checkbox"/>	Turn off	No split
5(b)	the Borrowerco is not party to a Prohibited Contract; and	<input type="checkbox"/>	Turn off	No split
5(c)	the Transaction will not put Borrowerco in breach of any contract.	<input type="checkbox"/>	Turn off	No split

2.3 Tailored interfaces

Customer research and testing

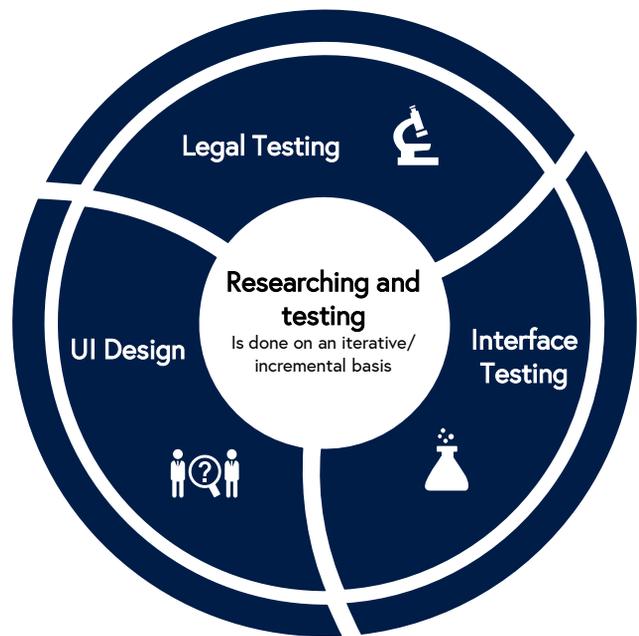
The specialist nature of legal work requires product designers and lawyers to work in close collaboration to produce a product that meets lawyers' needs.

Lawyer feedback was therefore essential in understanding whether:

1. each AI microservice fulfilled functional and legal requirements; and
2. lawyers were comfortable with the user interfaces provided for checking and verifying model output.

To enable us to meet these requirements without incurring significant software development costs we completed a large number of iterations of high fidelity user interface designs, collecting lawyer feedback after each one.

Feedback was encouraged to elicit both whether the design met legal task requirements and whether a lawyer would be likely to adopt the technology if presented with that interface.



Familiarity based user interface design

Section 1.2.1 of the Barriers to LegalTech Adoption Report highlighted the reluctance of lawyers to invest time adopting new software.

We aimed to remove this barrier by designing interfaces that are familiar to lawyers, and which mimic or present information in forms that were close to lawyers' well-established

working practices (which are often based within Microsoft Word).

An example of this is the adoption of a familiar 'blackline' form when presenting the results of automated drafting AI microservices, as set out in the previous page.

3. Conclusion

“ We expect that this approach will, once fully commercialised, result in technology that is easily adopted by legal professionals”

This project showed that AI based technologies could be built and deployed in a manner that reduces barriers to software adoption.

Our method:

1. introduced an approach of microservices integrated into a transaction management platform to reduce deployment costs;
2. ensured decision-making control and model output verification was in the control of the lawyer, helping increase lawyers confidence in the technology; and
3. Improved interface usability through an extensive lawyer-product designer feedback cycle and the retention of familiar forms of working.

We expect that this approach will, once fully commercialised, result in technology that is easily adopted by legal professionals and meet Innovate UK's stated aim of increasing productivity with the use of AI based technologies.



Legatics

Legatics is an intuitive, intelligent deal platform that simplifies and automates traditional legal processes. Designed by lawyers to improve legacy working methods and solve practical transactional issues, it increases collaboration, efficiency and transparency. Legatics transforms legal transactions, providing a better deal experience for all parties, and freeing lawyers from unnecessary administrative tasks.

Innovate UK

Innovate UK is the United Kingdom's innovation agency, a non-departmental public body, part of the United Kingdom Research and Innovation organisation. Innovate UK helps businesses develop new products, services, and processes they need to grow through innovation.

