DATA PROTECTION IMPACT ASSESSMENT

A Data Protection Impact Assessment (DPIA) is a process that helps an organisation identify and minimise the data protection risks of a project **UPDATE JANUARY 2024 This project never moved beyond a pilot phase and has been discontinued with all datasets purged by Pivigo and confirmation received that all data has been deleted by them.**

Project Name	Use an Artificial Intelligence Predictive Model to help the Landlord Services identify tenants at risk of falling into arrears. DP21_243	
Project Lead and Information Asset Owner/s	Project Lead	[redacted]
	IAO name and asset	Angela Spooner - Property/Tenant/Rent Payment details
	IAO name and asset	Kate Robertson/Alan Porter - Housing Benefit/Universal Credit flag
Summary of the project	**UPDATE JANUARY 2024 This project never moved beyond a pilot phase and has been discontinued with all datasets purged by Pivigo and confirmation received that all data has been deleted by them.** The Landlord Service is keen to develop a more pro-active approach in dealing with the problem of rental arrears. Rental Arrears have grown in light of the economic fallout of the pandemic and addressing this is a key service priority. The aim of the project is to engage with the Data Science specialist company Pivigo to use their Rent Arrears Prediction AI (Artificial Intelligence) capabilities. We would like to use their AI as a service offering for predicting rent arrears which is already being used in the	

	Local Authority/ Housing Association space (https://www.pivigo.com/insights/predict-and-prevent-rent-arrears-with-ai) Camden would supply pseudonymised extracts of tenancy data via a secure data transfer mechanism on a regular basis. Pivigo would then run this dataset through their Rent Arrears prediction model and then make the outputs available back to Camden (via a secure API - Application Programming Interface). These outputs would indicate a percentage likelihood that the tenant was likely to fall into arrears, when this is likely to happen and whether the arrears are likely to be short or long term. These outputs, once made available via the interface to Camden, would then be integrated into our existing Landlords Service Qlik Sense dashboard and the Landlords Work Portal used by case officers. The Landlords Service case officer would then have this indicator of the likelihood of the tenant falling into arrears alongside the other existing case information and use the information in the round before using their professional judgement to decide what targeted case interventions were appropriate. It is important to stress that there is no automatic decision making and that it is the human interventions of landlord service officers which is key – the AI generated indicators are just a tool to help them in understanding the tenants likely scenario. The Camden Data and Analytics team will work closely with the Landlords Service to ensure that outputs are presented in a way that helps case officers have fruitful conversations with tenants and develop narratives which can be used to lead these conversations – for

	example sign-posting to the council's welfare rights service or employment advice services. The use of Artificial Intelligence is necessary to help identify complex patterns in the data such as an unusual payment pattern which could be an indicator of a likely upcoming arrears issue – such patterns in transactional rent payment data which encompasses many thousands of records would not be easily identifiable by the human eye.
Implementation Date:	September 2021**UPDATE JANUARY 2024 This project never moved beyond a pilot phase and has been discontinued with all datasets purged by Pivigo and confirmation received that all data has been deleted by them.**

Pre-screen: If you have not already done a pre-screen please do the questions below. If you have a pre-screen, attach it to the DPIA. Screening questions are to do an initial risk assessment and highlight problems that need to be addressed. Answering "Yes" to any of the screening questions above represents a potential privacy/data protection/security risk factor and the rest of the DPIA should be completed. **Pre-screen completed and shared with Information Rights Team**

Q 1	Screening question	Yes/No
1.1	Does the project introduce new or additional information technologies that have privacy implications? (like facial recognition, AI?)	

1.2	Will there be large scale systematic monitoring in a publicly accessible place – like a new CCTV system	
1.3	Will you use profiling, automated decision-making or special category data to help make decisions on someone's access to a service, opportunity or benefit?	
1.4	Does the project involve new identifiers, re-use or existing identifiers e.g. NHS or NI number, Mosaic ref, Northgate ref, and/or will use intrusive identification or identity management processes and/or electronic linkage of personal data?	
1.5	Might the project have the effect of denying anonymity and pseudonymity, or converting transactions that could previously be conducted anonymously or pseudonymously into identified transactions?	
1.6	Does the project involve multiple organisations, whether they are public sector agencies i.e. joined up government initiatives or private sector organisations e.g. outsourced service providers or business partners?	
1.7	Does the project involve new processing or significantly change the way in which personal data/special categories of personal data is handled?	
1.8	Does the project involve new or significantly change handling of personal data/special categories of personal data about a large number of individuals?	
1.9	Will data be combined, compared or matched from multiple sources?	

1.10	Will you process biometric (finger print /facial recognition) or genetic data?	
1.11	Will the personal data be processed out of the U.K?	
1.12	Will children's personal data be processed for profiling or automated decision-making or for marketing purposes, or offering online services directly to them?	
1.13	Does the project relate to data processing which is in any way exempt from legislative privacy protections?	
1.14	Will personal data be processed in a way which involves tracking individuals' online or offline location or behaviour?	
1.15	Will personal data be processed which could result in a risk of physical harm in the event of a security breach?	
1.16	Does the project involve systematic disclosure of personal data to, or access by, third parties that are not subject to comparable privacy regulation?	

Step 2: What personal data is being used?										
2.1	**Is this use of personal data/special categories of personal data a new use? Or is it already happening and this is a change?**						New/Changed			
							New			
2.2	**What data will be processed/shared/viewed?**									
	Personal Data									
	Name	N	Date of Birth	N	Gender	Y	National Insurance Number	N	Financial Information about the person	Y
	Address	N	Email address	N	Telephone number	N	NHS No	N	Other eg a reference number such as Mosaic ref	Y
	Other data *(Please state):*			• "Date of Birth" is not being processed but age will be						

		• "Financial Information about the person" This relates to Payment/billing history of the tenancy, Payment plan agreements or actions taken in response to problematic payment patterns • " Other eg a reference number such as Mosaic ref" this refers to the Northgate Tenancy Key which will be encrypted for use by Pivigo (and then unencrypted by the council on return so the outputs can be linked back in to our systems). Note that although data such as name, date of birth, address is not being processed by Pivigo, this will be visible to council staff along with the Pivigo generated outputs on the existing in house Camden systems such as the Landlords Work Portal. • "Address" – we won't share address but will share the Lower Super Output Area (LSOA) the property is in

Special Categories of Personal Data

Racial or ethnic origin	Y	Fingerprints/ Biometrics	N	Religious or philosophical beliefs Political opinion			N
Trade Union membership	N	Physical or mental health or condition					Y
Sexual life or sexual orientation	N	Housing records Social services records	Y	Tax, benefit or pension records	Y		
Other data *(Please state):*	• "Physical or mental health or condition" – this relates to a flag to indicate that there is a disability (if known on the housing system) but not details of the disability itself						

		• "Ethnicity" (if known on the housing system) – we will mask the actual ethnicity for processing – e.g. a hashed value so Pivigo will not see the actual descriptors • " Tax, benefit or pension records" – just a Y flag if they are a known Housing Benefit, Universal Credit recipient. Data minimisation – the data items listed in this DPIA are those which are thought will be useful in the predictive model before the development work has commenced - in the process of "training" the model, if some data items have not added any value then they will be removed from the processing which will also prevent them from having an opportunity to skew the model.. New ones would only be added subject to a revised version of this document being approved.	
2.3	Proceedings for any offence committed or alleged, or criminal offence record?	No	

Step 3: Describe the sharing/processing		
3.1	**Describe in as much detail what is being done with the data**	The pseudonymised data around Camden's housing tenants will be made available to Pivigo on a regular basis via a secure data transfer mechanism This data will be fed through Pivigo's Rent Arrears Prediction AI (Artificial Intelligence) system. This will make predictions about the likelihood of the rent arrears arising three months and six months in the future and differentiate about whether these are likely to be long term or short term arrears cases. This will help the landlord service identify how urgent a case is likely to be and also whether it will be a just a blip or a longer term problem. These predictions will be made available back to Camden via a secure API (Application Programming Interface) alongside the encrypted tenancy key. Once in the Camden environment, the tenancy key will be unencrypted and the rent arrears predictive outputs will be integrated into existing tenancy information on the Landlords Service Qlik Sense dashboard and the Landlords Work Portal. It will be made clear to the Landlord Service that the indicators of likelihood of falling into areas are just predictions – i.e. "*statistically informed guesses rather than facts*"

		The Camden Data and Analytics team will have control over how the outputs from the Pivigo Rent Arrears model are presented to the Landlords Service and will work closely with them to develop narratives around how this data will be presented in the Landlords Work Portal Before the project goes live, the shared datasets (as outlined in this DPIA) will be subject to an exploratory data analysis where their quality and suitability for incorporation into the model will be analysed. The model will be trained based on an initial "training dataset" and once live will be monitored on at least a monthly basis to ensure there isn't "model drift" (where the factors have changed meaning the model is no longer accurate). This will be performed by Pivigo in collaboration with Camden by re-checking that a fresh training set of data produces results to the same standard as the previous iteration of this process. For example, the previous month's payment information could be excluded from the training model and then the predicted performance compared against the actual values which were excluded.

		If new datasets are to be incorporated into the model at a later date then this DPIA will be amended and re-submitted for approval. The Camden Data and Analytics team will monitor the outputs of the model to check for bias (e.g. via age, ethnicity or gender) and will liaise with the Landlord Service and with Pivigo to check if any skewed results are down to a problem with the model or a genuine pattern in the data. The Camden Data and Analytics team will also work closely with the Landlords Service to monitor how insightful these outputs have been to their service. Cases where there have been interventions can be tracked and the outcomes monitored and also we can look analytically at the impact of the tool on rent recovery rates. The data we share with Pivigo not be subject to pre-filtering so all current tenancy records will be processed by production model and so there will not be any selective bias in the characteristics of the tenant data which is being processed. During the development stage we will ensure that any training dataset Is based on a randomised sample to avoid bias. Pivigo will

		assist us in the production of this training dataset using techniques such as stratified sampling to make sure the model is trained against a representative dataset. By using a data driven approach all tenancy records will be processed in a consistent manner.
3.2	**Explain in as much detail as possible why this is being done**	This is being done to augment the information made available to Landlord Service officers about their tenants and enable them to take preventative action to try and avoid tenants falling into arrears. The indicators generated from the AI model just show that a tenant *might* fall into arrears. The officers would use this in conjunction with existing knowledge about the circumstances of the tenancy to decide what if any interventions are appropriate. There won't be any automatic decision making or automatic entitlement to any additional services as a result of these outputs. The problem of arrears has been compounded by the economic fallout from the pandemic and there are over 7000 Camden Council tenants in arrears (June 2021). As well as the financial stress and uncertainty for the tenants this also

			has a significant adverse impact on Camden's finances. Preventing these arrears problem from arising in the first place is better for all parties. The reason the use of this technology is necessary is because data science techniques help spot patterns in data such as the rent transactional history which would not be apparent to an officer looking at the case in isolation. The Landlords Service management team have noticed fluctuations in rental payments across the board and find it really hard to understand what the patterns in this are. It is hoped that this solution will help provide greater insight into what is happening/likely to happen.
3.3	**Are you sharing the data with an external organisation or partner or are they involved in processing the data?**		Yes
	External organisation or partner Name	**Controller or Processor?**	**Is there an existing contract or Data Sharing Agreement between the council and the parties which covers information security and data protection ? Yes/No/In progress**

	Pivigo	Processor	Yes
3.4.	**Has a data flow mapping exercise been undertaken?**		**If yes, please provide a copy, if no, please undertake** Yes- (added to bottom of this document)
3.5	**How will the information be processed/shared**		Pseudonymised Camden data will be made available to Pivigo via a dedicated account using our existing AWS storage solution. Camden will then retrieve the outputs from this via Pivigo's secure API and then integrate this into exiting Landlord Service systems.

Step 4: Assess lawful basis, necessity, and proportionality			
4.1	**Identify Lawful Basis for processing personal data/special category /criminal data. Ask IRT for advice if needed (DPA@camden.gov.uk if you have no named Information Rights Officer advising)** **If not processing the category say N/A**		
	Personal data Article 6(1) UK GDPR condition	**Special Category data UK GDPR Art 9 condition and DPA18 schedule condition** (**g) Reasons of substantial public interest** (with a basis in	**Criminal data UK GDPR Art 10 condition and corresponding art 6 condition** N/A

	(e) Public task: the processing is necessary for you to perform a task in the public interest or for your official functions, and the task or function has a clear basis in law. **Local Government and Housing Act 1989 Section 76** Duty of councils to maintain a positive balance on their housing revenue account:- http://www.legislation.gov.uk/ukpga/1989/42/section/76 "To prevent debit balance on Housing Revenue Account." **Housing Act 1996 – Section 7** Non payment of rent can eventually lead to evictions and the council has a statutory duty to provide advice to avoid potential homeless situations	law) with the Data Protection Act 2018 schedule condition being para 6. Statutory and government purposes And the underlying law being: Local Government and Housing Act 1989 Section 76 Duty of councils to maintain a positive balance on their housing revenue account:- http://www.legislation.gov.uk/ukpga/1989/42/section/76 "To prevent debit balance on Housing Revenue Account." Housing Act 1996 – Section 7 Non payment of rent can eventually lead to evictions and the council has a statutory duty to provide advice to avoid potential homeless situations http://www.legislation.gov.uk/ukpga/1996/52/part/VII	

	http://www.legislation.gov.uk/ukpga/1996/52/part/VII		
4.2	**If consent is a legal basis how is it obtained? Note that in most cases consent is not the basis relied on by the council. Only use consent when Information Tights Team have advised this is appropriate**		
	N/A		
4.3	**How will you ensure data quality and data minimisation?** If this is covered in a pre-screen refer to the pre-screen, otherwise detail below		
	Please see pre screen		
4.4	**Have individuals been informed about the proposed use of their data?** For example, do all the organisations/partners who will process the data inc the council cover this use in their Processing Notice online		No But full information will be on the privacy notice before the processing commences
	"We engage with a third party supplier, Pivigo, to apply Artificial Intelligence techniques to enable our Landlord Service to identify those tenants mostly likely to fall into rental arrears so that the Landlord Service can work proactively with the tenant to help avoid an arrears situation arising. We will only be sharing pseudonymised data about the tenancy with Pivigo (this is where your name or identifying details are replaced with a key). The data will be processed by an algorithm which will look for patterns in the data which indicate a likelihood of arrears appearing in the next 3 or 6 months and whether these arrears		

	are likely to be short or long term. There will no automatic decision making as result of the adoption of this approach and the outputs from this algorithm will just be an aid for Landlords Service officers to have a more informed conversation with their tenants.”
4.5	**Will you comply with the council’s policies on to Subject Access Requests and other data subject rights? Do contracts with any processors for the council contain the council’s clauses on data subject rights?**
	Yes. We will have access to all the predictive outputs of the AI model so no subject access requests would need to go to Pivigo.
4.6	**Will the processing of data include automated individual decision-making, including profiling?** If yes, please outline the profiling processes and the rights of the data subject
	There is no automatic decision making. Whilst we are building up a picture of the likelihood of a tenant falling into arrears Article 22 shouldn’t apply as there is no automatic decision making and no legal or significant effect from these AI outputs.
4.7	**Data Retention Period h***ow long will the data be kept?*
	Pivigo have confirmed that they are not bound by any commercial, legal or regulatory data retention requirements to retain copies of Camden's data after written request or contract exit. The contract states that they will purge our data upon our request at any time and at no cost and will also do so at contract end.

Step 5: Information Security Process		
5.1	**On what systems will the data will be stored** *Examples of Storage include bespoke system (e.g. EPR, Emis & other clinical systems, SharePoint, data repository, Network Drives, Filing cabinet (office and location), storage area/filing room (and location) etc.*	
	Pseudonymised data make available to Pivigo via a dedicated AWS storage account. Pivigo will make outputs available via a secure API (Application Programming Interface) Outputs will then be integrated back into existing Camden systems – Qlik Sense Landlord Service Dashboard and Landlords Work Portal. Our Information Security team have approved the Supply Chain Assessment completed by Pivigo	
5.2	**Where is the data stored geographically?**	
	UK	
5.3	**What roles will have access to the information?** (list individuals or staff groups)	
	Pivigo staff will have access to the pseudonymised data The returned outputs will be integrated into the Qlik Sense Landlord Service Dashboard and Landlords Work Portal and will follow existing access condition rules for these systems	
5.4	Is there role based access control on all applicable systems? **How will access to information be controlled?**	

	Landlord service case officers will see the outputs of the predictive model under the existing security models employed by Qlik Sense and the Landlord Work Portal.
5.5	**Is there an ability to audit access to the information?**
	Access to the un-pseudonymised outputs will only be available to authorised Landlords Service Qlik Sense users and Landlords Work Portal Users. It would not be possible to tell who has actually viewed individual outputs within this restricted group.
5.6	**What security and audit measures have been implemented to secure access to and limit use of personal data/special categories data and/or criminal data?**
	No additional special category data is being created here. Users of Qlik Sense and the Landlord Work Portal will see this based on their existing security entitlements.
5.57	**Has the Information Security Manager advised on the security measures? What were his/her comments?**
	Our Information Security team have approved the Supply Chain Assessment completed by Pivigo

Step 6: Identify and Assess Risks			
Describe source of risk and nature of potential impact on individuals. Include associated compliance and corporate risks as necessary. **These are the risk *before* any controls (mitigations are applied)** Add in additional rows as necessary. The completed row is an example	**Likelihood of harm- see table 1**	**Severity of harm- see table 2**	**Overall risk – see table 3**
1. **Inherent privacy intrusion from using AI**. Using AI even in a pseudonymised way is privacy intrusive. This is likely to cause intrusion into tenants' private lives and well-being, cause embarrassment and distress. The resultant actions following the AI may cause embarrassment at feeling they have been 'labelled' as at risk of falling into arrears.	Almost certain	Major	High risk
2. **Officers use the information provided by Pivigo as an accurate firm fact rather than a prediction**, and act on it as an infallible output rather than as a predictive indicator, resulting in actions being taken with tenants that are unwarranted or conversely tenants not getting the supportive input they may need, where human consideration of all known wider factors by officers would have resulted in different actions suggested by the AI	Almost certain	Major	High Risk
3. AI Rental Arrears Predictive Model incorrectly identifies tenants as being likely to fall into arrears This could give a Landlord Service Officer a misleading	Likely	Major	High risk

picture of a tenant's circumstances and prompt an unnecessary case intervention			
4. **Pivigo retain data after the end of the retention period.** This would be breach of requirements to keep data for only as long as required, and if there as an intrusion or exfiltration the volumes of the data (noting that it is pseudonymised) would be larger than otherwise	Possible	Major	Medium/high risk
5. **Data breach from Pivigo** – they allow unauthorised access to their systems/council data, it is released to an unauthorised person, their system loses or corrupts the data whether by system failure or external attack, they keep data longer than permitted	Possible	Major	Moderate/high risk
6. **Pivigo reverse the pseudonymisation to access the personal data**, this being a data breach, highly privacy intrusive to the individuals and would allow Pivigo to misuse the data	Rare	Major	Moderate
7. AI Rental Arrears Predictive Model incorrectly excludes tenants as likely to fall into areas The Landlord Service Officer wouldn't have the extra insight that the tenant was likely to fall into arrears (low impact as they don't currently have this insight)	Likely	Negligible	Moderate

Step 7: Identify Measures to reduce risk				
Identify measures to reduce or eliminate risks identified in step 6. Remember that risks need to be reduced to an acceptable level, not all risk can be eliminated. Then calculate the risk that remains after the mitigations/controls are in place- the residual risk. Decide if this is accepted in the measure approved? column				
Risk identified in step 6	**Options to reduce or eliminate risk**	**Effect on risk**	**Residual risk**	**Measure approved?**
1. **Inherent privacy intrusion from using AI**	Data shared with Pivigo will be pseudonymised. Privacy Notice will detail the processing and provide reassurance. Due diligence will be cleared by the time the project goes live assuring that data will be handled safely and securely. Minimal data will be used to achieve the aims. The aims are intended to be of benefit to tenants as well as the council. There will always be a human decision making for the interventions, they will never be based solely on the AI, although this possibility is addressed as a risk. However the inherent risks in AI cannot be eliminated.	Likelihood reduced to possible, impact to moderate	Medium/high risk.	Noted that the score is 9, out of a scale of 8-12 so at the lower end of this rating.

2. **Officers use the information provided by Pivigo as an accurate firm fact rather than a prediction**	Officers will be given clear explicit and firm training on how to utilise the AI and on its limitations. Management oversight of officers' usage and outcomes will allow monitoring to spot incidences of this. Lived experience will allow this risk to be revisited and reviewed	Likelihood reduced to possible, impact to moderate.	Medium/high risk.	Noted that the score is 9, out of a scale of 8-12 so at the lower end of this rating. This will be reviewed as the AI is used and lived experience allows the risk to be reviewed.
3. AI Rental Arrears Predictive Model incorrectly identifies tenants as being likely to fall into arrears	There will be no automatic decision making as a result of this implementation. Model suggestions will just be a tool to aid Landlords Service officers provide a targeted service. Any interventions will be based on a human decision-making process. Also, the model will be tested for accuracy and checked for "model drift" on at least a monthly basis. This will be done by Camden and Pivigo by re-training the model with a fresh training data set to ensure that it performs to the same standard as the original set.	Reduces but still possible/minor	Moderate	

4. **Pivigo retain data after the end of the retention period.**	The contract will have clear clauses in about retention periods and data deletion. Breach would be a contractual and DP breach.	Likelihood reduced to rare, impact to minor	Low	
5. Data breach from Pivigo	The only personally identifiable piece of data shared will be the tenancy reference. This will be encrypted meaning that in the unlikely event of a data breach, those accessing this data would need to also access Camden's decryption key to derive the tenancy reference.	Reduces impact to Minor	Low	

6. **Pivigo reverse the pseudonymisation to access the personal data**	Technically this is exceptionally difficult to do and would be a major contractual and legal breach by Pivigo. Pivigo have been subjected to due diligence and the council has technical measures in place to guard against this being technically possible.	Reduced to rare and major	Medium	
7. AI Rental Arrears Predictive Model incorrectly excludes tenants as likely to fall into areas	The model will be tested for accuracy and checked for "model drift" on at least a monthly basis – comments as above	Reduces but still possible/negligible	Low	
Residual (remaining) risk level when all mitigations have been applied:				
Medium/high				

Step 8: Record Data Protection Officer advice and outcome	
DPO involved in preparing DPIA? If not, name of IRO	**No.** **Sarah Laws, IR Team Leader**
DPO advice	Reviewed March 2022: I'm happy with this subject to the proviso that the relevant housing officer must consider the cases on the merits and record in writing that that decision making. If they don't and they for example do fall into just following the output of the predictor than it is automated decision making. It's important we have a record of that independent thought process. Andrew Maughan DPO 1st March 2022 Original DPO comments: I am content with this. Seems clear and definitive human judgement required before any decisions are made Andrew Maughan DPO 6th August 2021

Information Asset Owner acceptance of residual risks accepted by	Names of IAOs **Information Asset Owner** / **Agreed** Housing (Angela Spooner) / [redacted] Benefits (Alan Porter/Kate Robertson) / [redacted]
This DPIA will kept under review by:	[redacted]

Version Control

Version	Reason	Date	Author(s)
1.0	**Initial Version**	**05/07/2021**	[redacted] **and Sarah Laws**

Table 1 Likelihood of Risk Occurring

Rare	One-off failure
Unlikely	Possible that it may reoccur but not likely
Possible	Might happen or reoccur on a semi-regular basis (no more than once a quarter)
Likely	Will reoccur on a regular basis, pointing to some failure in controls
Almost Certain	Willful act, systemic failure in controls

Table 2 Impact of Risk if it occurs

Negligible	No personal data involved, or risk won't have any impact.
Minor	• Short-term, minimal embarrassment to an individual • Would involve small amounts of sensitive personal data about an individual • Minimal disruption or inconvenience in service delivery to an individual (e.g. an individual has to re-submit an address or re-register for a service)
Moderate	*More than a minimal amount of sensitive personal data is involved at this level* • Short-term distress or significant embarrassment to an individual or group of individuals (e.g. a family) • The potential of a financial loss for individuals concerned • Minimal disruption to a group of individuals or significant disruption in service delivery or distress to an individual (e.g. availability to a set of personal information is lost, requiring resubmission of identity evidence before services

Major	Significant amount of HR, or resident personal, and / or sensitive data released outside the organisation leading to significant actual or potential detriment (including emotional distress as well as both physical and financial damage) and / or safeguarding concerns
Catastrophic	Catastrophic amount of HR or service user personal and or sensitive data released outside the organisation leading to proven detriment and / or high-risk safeguarding concerns. Data subjects encounter significant or irreversible consequences which they may not overcome (e.g. an illegitimate access to data leading to a threat on the life of the data subjects, layoff, a financial jeopardy)

Level of risk	
1-3 Low Risk	Acceptable risk No further action or additional controls required Risk at this level should be monitored and reassessed at appropriate intervals
4-6 Moderate Risk	A risk at this level may be acceptable, if so no further action or additional controls required If not acceptable, existing controls should be monitored or adjusted

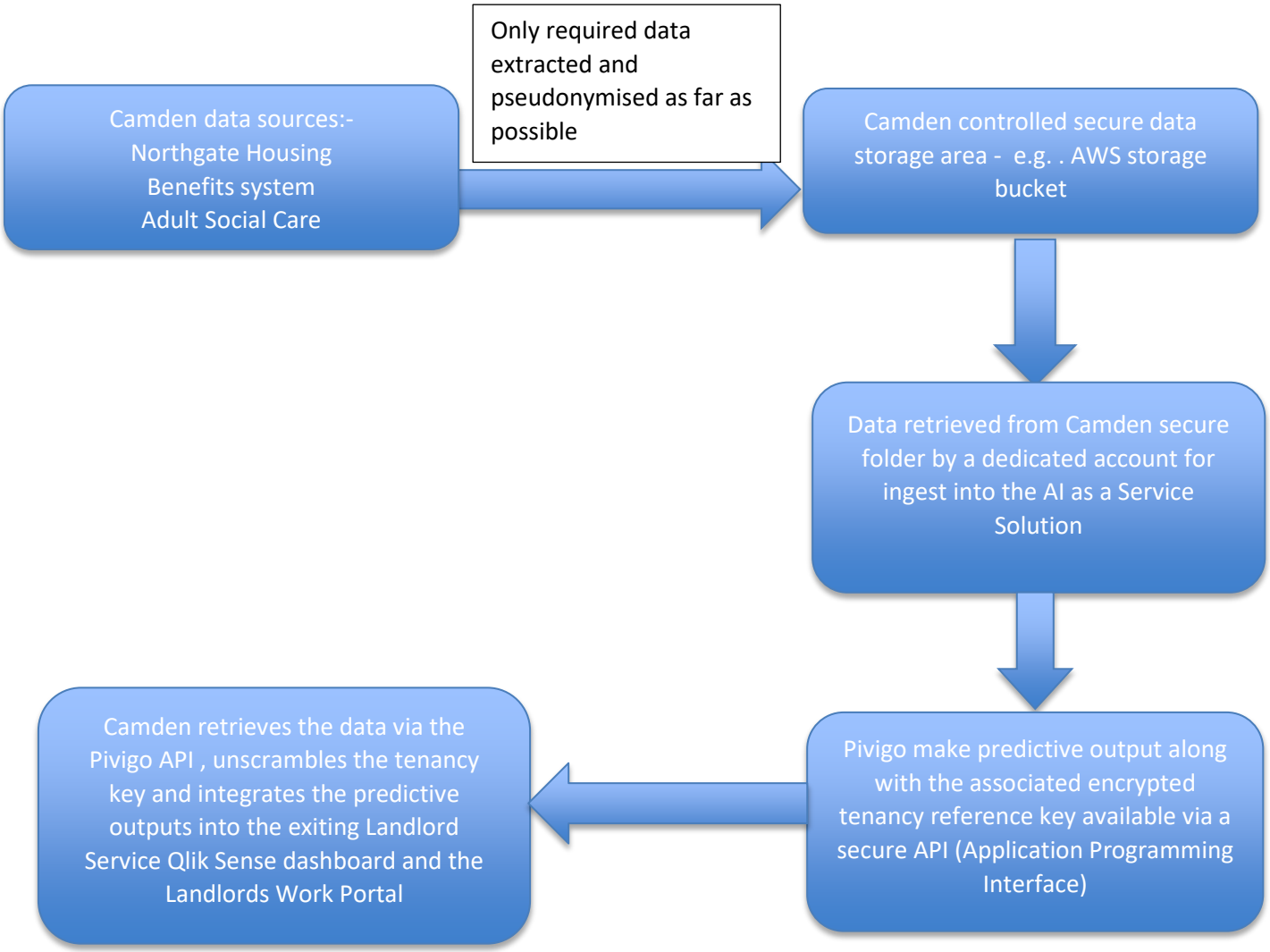
8-12 Medium / High Risk	Not normally acceptable Efforts should be made to reduce the risk, provided this is not disproportionate Determine the need for improved control measures
15-25 High Risk	Unacceptable Immediate action must be taken to manage the risk A number of control measures may be required

Risk Assessment: Table 3 - risk level

IMPACT	Score:	PROBABILITY				
		Rare	Unlikely	Possible	Likely	Almost Certain
	Catastrophic	5	10	15	20	25
	Major	4	8	12	16	20
	Moderate	3	6	9	12	15
	Minor	2	4	6	8	10

	Negligible	1	2	3	4	5

Appendix 1) Data Flow



Appendix 2) AI system

The data attributes described in this document (e.g. tenancy payment history) will be fed into the Pivigo Rent Arrears Prediction model. This will be "trained" to understand which factors and combination of factors are statistically significant predictors of a tenant being likely to fall into arrears.

"Training a model" works by feeding the attributes into the model and seeing how well it works by comparing these results against those we know to be in arrears and then tuning this model as necessary in light of these results to make it more accurate. An example of an attribute which may act as a "predictor" is a particular payment pattern or method or the duration of the tenancy

As a result of the training exercise, a particular attribute might be given more weight as it is a strong predictor of falling into arrears. Conversely another attribute may be de-prioritised or removed altogether if it is less likely to be an indicator that a tenant will fall into arrears. This is known as machine learning whereby the model is configured based on the learnings of current examples passed through it allowing it to understand the pattern which should be looked out for in determining future cases.

One aim is to process the minimum amount of data required for this purpose so if an attribute adds no value to the prediction then Pivigo will inform us and this will then be excluded from the data we share with them.