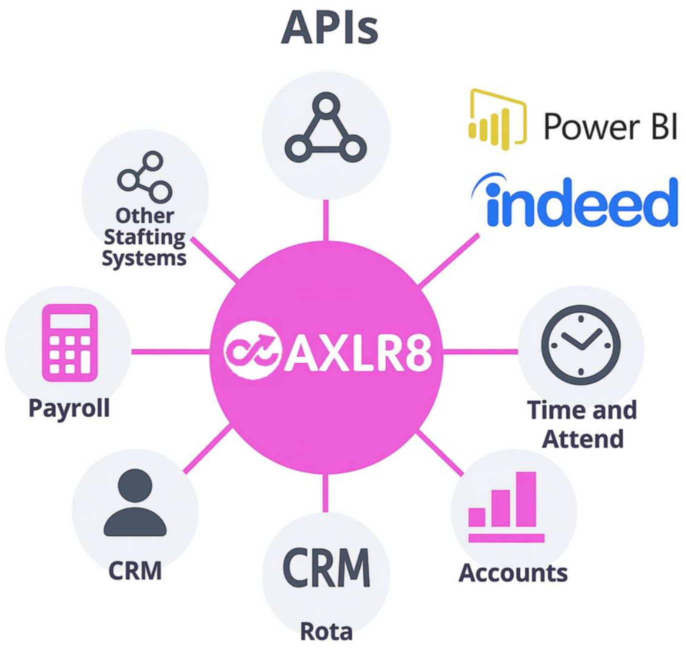
AXLR8 Staffing API Builder for Management Information & Analysis



1 Aims

Many AXLR8 Staffing customers acquire large data volumes every week as a byproduct of their operations. After a few years this becomes a valuable data asset. Many clients have more than a decade of data that can be mined an analysed to provide valuable business insights.

Whilst AXLR8 RB (Report Builder) provides data slices in a simple way, sometimes clients want to pull data in real time.

Version	Changes	Author	Date
1	Creation	ERM	16/09/2025
2	Typos and small readability adjustments	ERM	14/01/2026

2 Who should read this?

This document aims to cover the requirements of two distinct audiences.

1. Business Analysts who have extensive knowledge of data and information analysis but no coding.
2. Programmers who may be assisting an analyst with data extraction from AXLR8 Staffing Applications.

2.1 Pre-requisites

It is assumed that the reader has advanced familiarity with the detailed information in their system and is a Super User. Thus, they have the knowledge and authority to provide board level presentations and the access required to explore the data. It may be that they set up data spaces for colleagues or subcontractors with less access rights.

3 Definitions

Term	Meaning
RB	Report Builder and AXLR8 tool tat allows the systems admin with the credentials to explore dataspace and create reports for busy users
Report	The results of creating the query and choosing the fields (columns) that will come bac from live data in AXLR8.
Report ID	This is a unique number allocated when a report s created as the Report titles are not always unique
Filter	This is (in RB a set of conditions (think of it as a set of saved search parameters
BDU	Business Data Universe: There are many tables in AXLR8 and thus we have linked them up for non-coding managers to be able to choose fields and build Reports with out SQL knowledge or recourse to an expensive developer.
DataSpace	A subset of a BDU's data catalogue that you can create in RB to limit the external access of data by the API coder or user.
Python	Is programming language we have used for the examples in the coding explanations.

4 Report Builder

It is essential that you are familiar with

- AXLR8 RB
- General AXLR8 staffing vocabulary

Report builder is extensively documented elsewhere. You can read details and watch videos here:

Video courseware	https://staffing.axlr8.com/courses-2/ of which sessions 10, 12 and 15 are essential
Manual	https://www.axlr8.com/Files/AXLR8ReportsBuilderV9.6.pdf

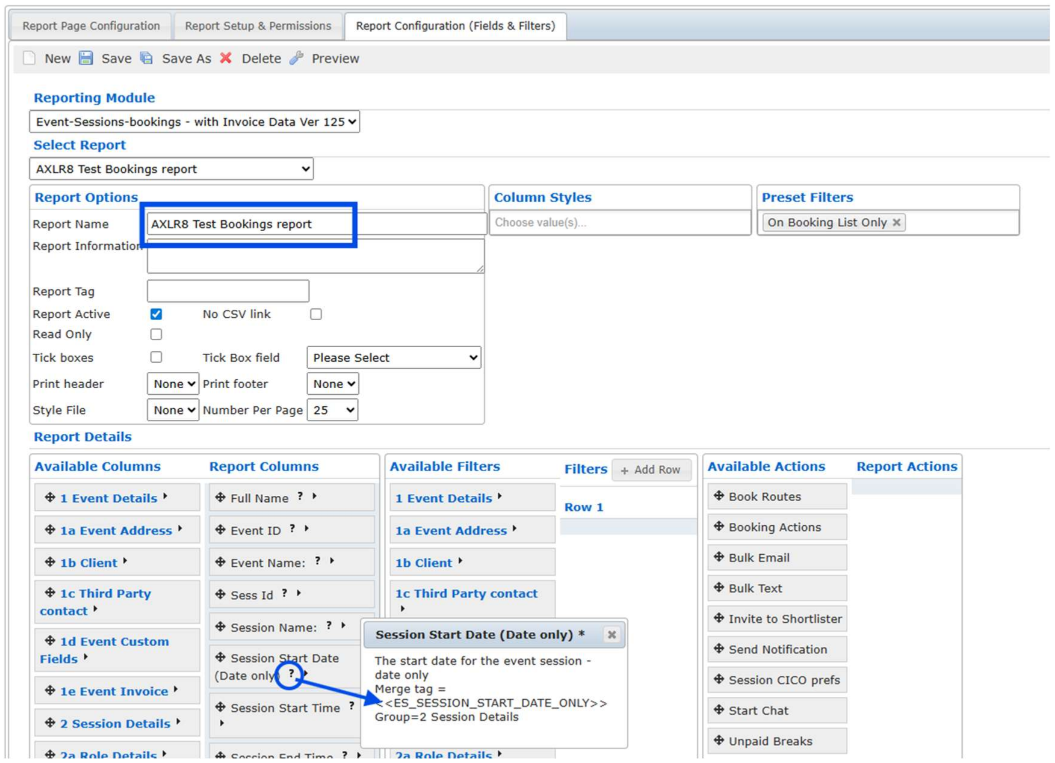
4.1 Business Data Universe and Data Space

You can o into RB Admin and create Reports from any of the BDUs.

The report will define the dataspace for your API calls.

In the screenshot below, you can see that the example Report 305 (AXLR8 Test Bookings Report) is created from the BDU called "Event Sessions Bookings – with Invoice Data Ver 125"

Each of the extensive number of fields available to choose from has a specific data dictionary name. In this case we have chosen the field "Session Start Date (date only)" to see the name used in the API filters. To do this we click on the question mark. Shown in the blue circle below.


Report Page Configuration
Report Setup & Permissions
Report Configuration (Fields & Filters)
New
Save
Save As
Delete
Preview

Reporting Module: Event-Sessions-bookings - with Invoice Data Ver 125

Select Report: AXLR8 Test Bookings report

Report Options

Report Name: AXLR8 Test Bookings report
Report Information:
Report Tag:
Report Active: ✓ No CSV link: ☐
Read Only: ☐
Tick boxes: ☐ Tick Box field: Please Select
Print header: None Print footer: None
Style File: None Number Per Page: 25

Column Styles: Choose value(s)...

Preset Filters: On Booking List Only ×

Report Details

Available Columns	Report Columns	Available Filters	Filters	Available Actions	Report Actions
1 Event Details	Full Name	1 Event Details	Row 1	Book Routes	
1a Event Address	Event ID	1a Event Address		Booking Actions	
1b Client	Event Name:	1b Client		Bulk Email	
1c Third Party contact	Sess Id	1c Third Party contact		Bulk Text	
1d Event Custom Fields	Session Name:			Invite to Shortlister	
1e Event Invoice	Session Start Date (Date only)			Send Notification	
2 Session Details	Session Start Time			Session CICO prefs	
2a Role Details	Session End Time	2a Role Details		Start Chat	
				Unpaid Breaks	

Session Start Date (Date only) *

The start date for the event session - date only
Merge tag = <<ES_SESSION_START_DATE_ONLY>>
Group=2 Session Details

4.2 Fields and Records

In RB you can chose fields from a BDU. Filters allow you to limit the number of rows of data to those which you want. Limiting data also helps performance on the system.

4.3 Filters

Filters in RB are saved searches and may be used as defaults in a report – for example a report of Welfare Checks in a night control room Portal would only include tonight’s shifts.

4.4 Grids and Graphs

You can create graphs and matrices of aggregate data. It is quite extensive. However, AXLR8 are not trying to duplicate the m0re extensive features of Excel pivot tables or Power BI, Tableau and other specialist tools.

5 API JSON Calls

The following examples use Python calls.

Please Contact AXLR8 to get your code starter examples, keys & credentials.

5.1 Setting up Python

Download the Python environment from Pythion.org. At time of writing, we have tested v3.12

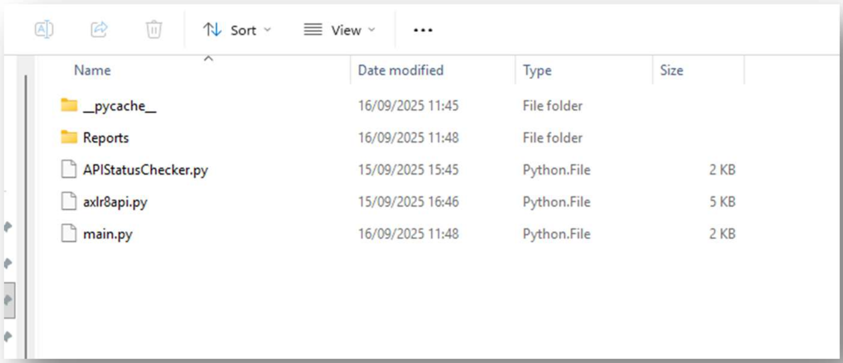
It will help if your path to the executable is short to type. In these examples Python.exe is in the c:\program files\Python directory.

5.2 Setting up the API client side code

5.2.1 Setup code folder

Please extract the code snippets provided by AXLR8 when provided.

It should look like this:



Name	Date modified	Type	Size
__pycache__	16/09/2025 11:45	File folder	
Reports	16/09/2025 11:48	File folder	
APIStatusChecker.py	15/09/2025 15:45	Python.File	2 KB
axlr8api.py	15/09/2025 16:46	Python.File	5 KB
main.py	16/09/2025 11:48	Python.File	2 KB

However, the Reports folder will not be there as it was created later to hold the data as shown in the next section.

The code configs are specified in *axlr8api.py*

and the python executable will actually run *main.py* as shown later in the next two sections

The error codes are defined in *APIStatusChecker.py*. Hopefully, you will only ever see "*200 Successful Request*"

5.2.2 Set up data folder and other parameters

You need to say where you want your data to be stored in a JSON file.

This is defined in the **applicationFolder** parameter

Likewise, you specify the Report that you use to define your data fields and the filters you will use as conditions on what data comes back. Below is a table of parameters you can set with the examples used in the running example below.

Parameter	Purpose and values
path	The URL we are calling to provide the data. No need to publish that here nor other parameters where your security keys are stored.
applicationFolder	This is the folder where you main.py and other scripts are found. "C:\\Users\\rickm\\Documents\\Product Marketing\\Staffing\\API 4Staffing\\csp-API" **NB the backslashes in the path name must be escaped with a second leading backslash**
rptId	Unique number of the RB Report you are calling in order to create your data. In this case, we used 305
rptfilters	This sets up your conditions for the report. You need to know how to find the RB field name as explained in the above section. In this case, the example is "ES_SESSION_START_DATE_ONLY". Then you need an operator. The only ones you can use are: = < > Between (requires a second parameter <= >=

5.2.3 Bringing back the data

The data can now be retrieved from your AXLR8 system as JSON over a secure encrypted connection.

The syntax in your command prompt (on a PC running W11 in this example) is:

```
<work in the path where themain.py is> <prompt delimiter> “<path were python executable is>”

main.py
```

Here is a command built from the examples above (note the space before the main.py script you are calling):

> **C:\Users\rickm\Documents\Product Marketing\Staffing\API 4Staffing\csp-API>"c:\Program Files\python312\python.exe" main.py**

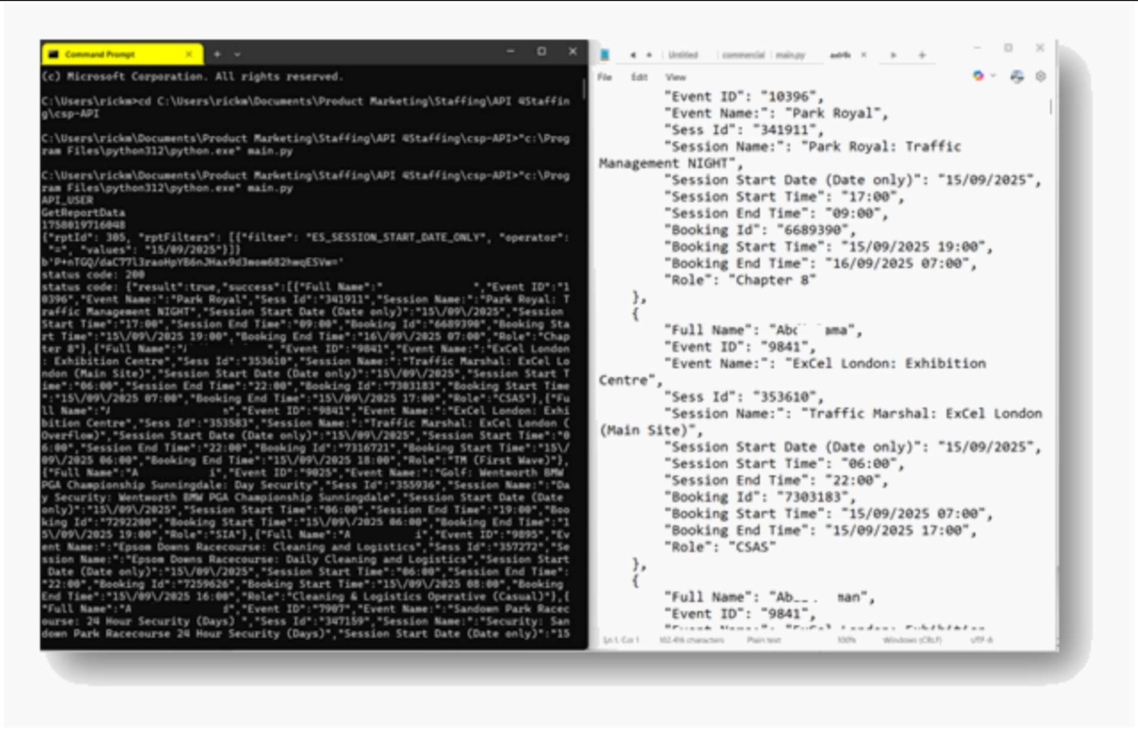
To test it.

1. Open up a cmd prompt.
2. Change directories to the folder that has the main.py in.
3. Type in the full path to your python install (including the python.exe) and space and the script name "main.py".

In this example python is installed in folder C:\Programe Files\Python312

Below are the results in a single screenshot. On the LHS is a display in the command prompt and (from the directory defined above) on the RHS, as a JSON file called axlr8data.json.

In the screenshot you can see the data in the CDM window display is the same as that shown in the JSON shown in notepad next to it.



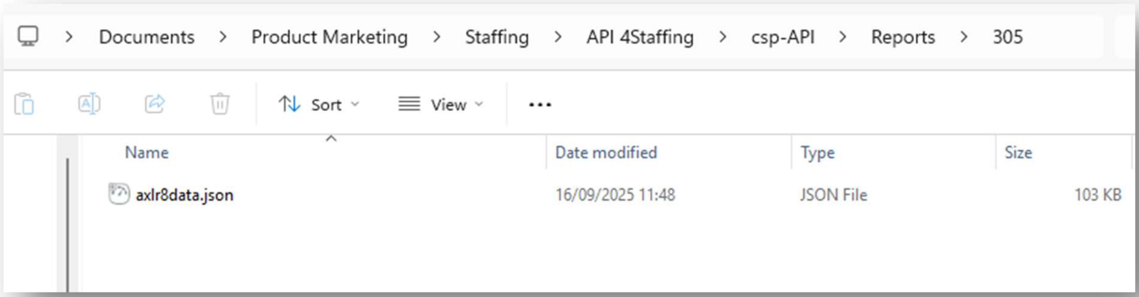
```
(c) Microsoft Corporation. All rights reserved.

C:\Users\rickm>cd C:\Users\rickm\Documents\Product Marketing\Staffing\API 4Staffin
g\csp-API

C:\Users\rickm\Documents\Product Marketing\Staffing\API 4Staffing\csp-API>"c:\Prog
ram Files\python312\python.exe" main.py

C:\Users\rickm\Documents\Product Marketing\Staffing\API 4Staffing\csp-API>"c:\Prog
ram Files\python312\python.exe" main.py
API_USER
GetReportData
1758019716048
{"rptId": 305, "rptFilters": [{"filter": "ES_SESSION_START_DATE_ONLY", "operator":
 "=", "values": "15/09/2025"}]}
b'P+nTGQ/daC77l3raoHpYB6nJHax9d3mom682hmqESVw='
status code: 200
status code: {"result":true,"success":[{"Full Name":"[redacted]","Event ID":"1
0396","Event Name:":"Park Royal","Sess Id":"341911","Session Name:":"Park Royal: T
raffic Management NIGHT","Session Start Date (Date only)":"15\/09\/2025","Session
Start Time":"17:00","Session End Time":"09:00","Booking Id":"6689390","Booking Sta
rt Time":"15\/09\/2025 19:00","Booking End Time":"16\/09\/2025 07:00","Role":"Chap
ter 8"},{"Full Name":"[redacted]","Event ID":"9841","Event Name:":"ExCel London
: Exhibition Centre","Sess Id":"353610","Session Name:":"Traffic Marshal: ExCel Lo
ndon (Main Site)","Session Start Date (Date only)":"15\/09\/2025","Session Start T
ime":"06:00","Session End Time":"22:00","Booking Id":"7303183","Booking Start Time
":"15\/09\/2025 07:00","Booking End Time":"15\/09\/2025 17:00","Role":"CSAS"},{"Fu
ll Name":"[redacted]n","Event ID":"9841","Event Name:":"ExCel London: Exhi
bition Centre","Sess Id":"353583","Session Name:":"Traffic Marshal: ExCel London (
Overflow)","Session Start Date (Date only)":"15\/09\/2025","Session Start Time":"0
6:00","Session End Time":"22:00","Booking Id":"7316721","Booking Start Time":"15\/
09\/2025 06:00","Booking End Time":"15\/09\/2025 18:00","Role":"TM (First Wave)"},
{"Full Name":"A[redacted]i","Event ID":"9025","Event Name:":"Golf: Wentworth BMW
PGA Championship Sunningdale: Day Security","Sess Id":"355936","Session Name:":"Da
y Security: Wentworth BMW PGA Championship Sunningdale","Session Start Date (Date
only)":"15\/09\/2025","Session Start Time":"06:00","Session End Time":"19:00","Boo
king Id":"7292200","Booking Start Time":"15\/09\/2025 06:00","Booking End Time":"1
5\/09\/2025 19:00","Role":"SIA"},{"Full Name":"A[redacted]i","Event ID":"9895","Ev
ent Name:":"Epsom Downs Racecourse: Cleaning and Logistics","Sess Id":"357272","Se
ssion Name:":"Epsom Downs Racecourse: Daily Cleaning and Logistics","Session Start
 Date (Date only)":"15\/09\/2025","Session Start Time":"06:00","Session End Time":
"22:00","Booking Id":"7259626","Booking Start Time":"15\/09\/2025 08:00","Booking
End Time":"15\/09\/2025 16:00","Role":"Cleaning & Logistics Operative (Casual)"},{
"Full Name":"A[redacted]f","Event ID":"7907","Event Name:":"Sandown Park Racec
ourse: 24 Hour Security (Days) ","Sess Id":"347159","Session Name:":"Security: San
down Park Racecourse 24 Hour Security (Days)","Session Start Date (Date only)":"15
```

```
        "Event ID": "10396",
        "Event Name:": "Park Royal",
        "Sess Id": "341911",
        "Session Name:": "Park Royal: Traffic
Management NIGHT",
        "Session Start Date (Date only)": "15/09/2025",
        "Session Start Time": "17:00",
        "Session End Time": "09:00",
        "Booking Id": "6689390",
        "Booking Start Time": "15/09/2025 19:00",
        "Booking End Time": "16/09/2025 07:00",
        "Role": "Chapter 8"
    },
    {
        "Full Name": "Abc[redacted]ama",
        "Event ID": "9841",
        "Event Name:": "ExCel London: Exhibition
Centre",
        "Sess Id": "353610",
        "Session Name:": "Traffic Marshal: ExCel London
(Main Site)",
        "Session Start Date (Date only)": "15/09/2025",
        "Session Start Time": "06:00",
        "Session End Time": "22:00",
        "Booking Id": "7303183",
        "Booking Start Time": "15/09/2025 07:00",
        "Booking End Time": "15/09/2025 17:00",
        "Role": "CSAS"
    },
    {
        "Full Name": "Ab[redacted]man",
        "Event ID": "9841",
```

Changed directory to work in the path with the script we want to run and then ran it using the full path of the Python executable after the prompt.

This will create (if it does not already exist) a folder called "Reports", and a folder in there that is the number of the report that you ran (in this case we ran rptId = 305. Ths the path *"…\reports\305\…"* has been created for our JSON file which is called axlr8data.json.

In there, if it successfully ran, you will find the axlr8data.json file.



Documents > Product Marketing > Staffing > API 4Staffing > csp-API > Reports > 305

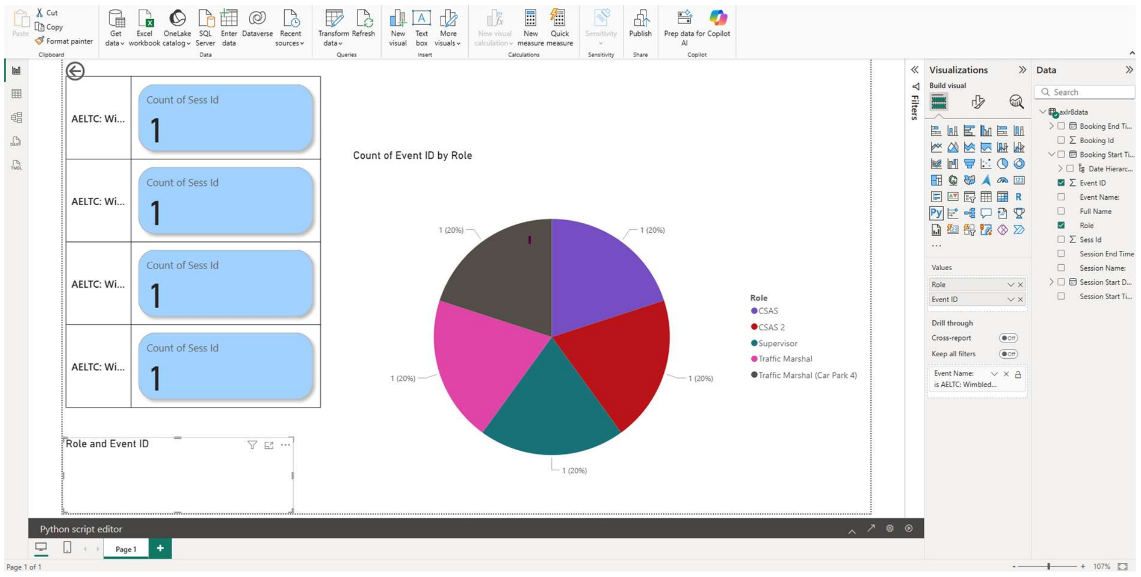
Name	Date modified	Type	Size
axlr8data.json	16/09/2025 11:48	JSON File	103 KB

You are now ready to bring whatever data you want into your control and process it.. Below are some examples.

1. Management Information with an example of Power BI
2. Importing staff from AXLR8 ATS into your system
3. AI tools for exploratory processes

6 Setting up your API data for Power BI

One of the most popular tools for management information, and reporting, presentations and analysis is Power BI. Other systems are available including Business Objects, Tableau, Cognos.



7 Re-import into another operational tool.

Occasionally, AXLR8 implement an ATS and vetting system in a company that are tied into another operational system.

As a transition strategy, they import new staff into the operational system once they have reached a specified JAS (Job Application Status) in AXLR8. For example, it may be that they are exported to a legacy booking system after they reach the “Vetted” stage.

This has normally been achieved in two stages:

1. a bulk transfer of basic identifying data from the legacy system so that AXLR8 holds existing staff and their unique identifier number from the other (legacy system. AXLR8 then prevents duplicate entry using one or more fields of the

legacy data it no holds. For example, it may prevent people from continuing their new application if their email or NI number is already in the system

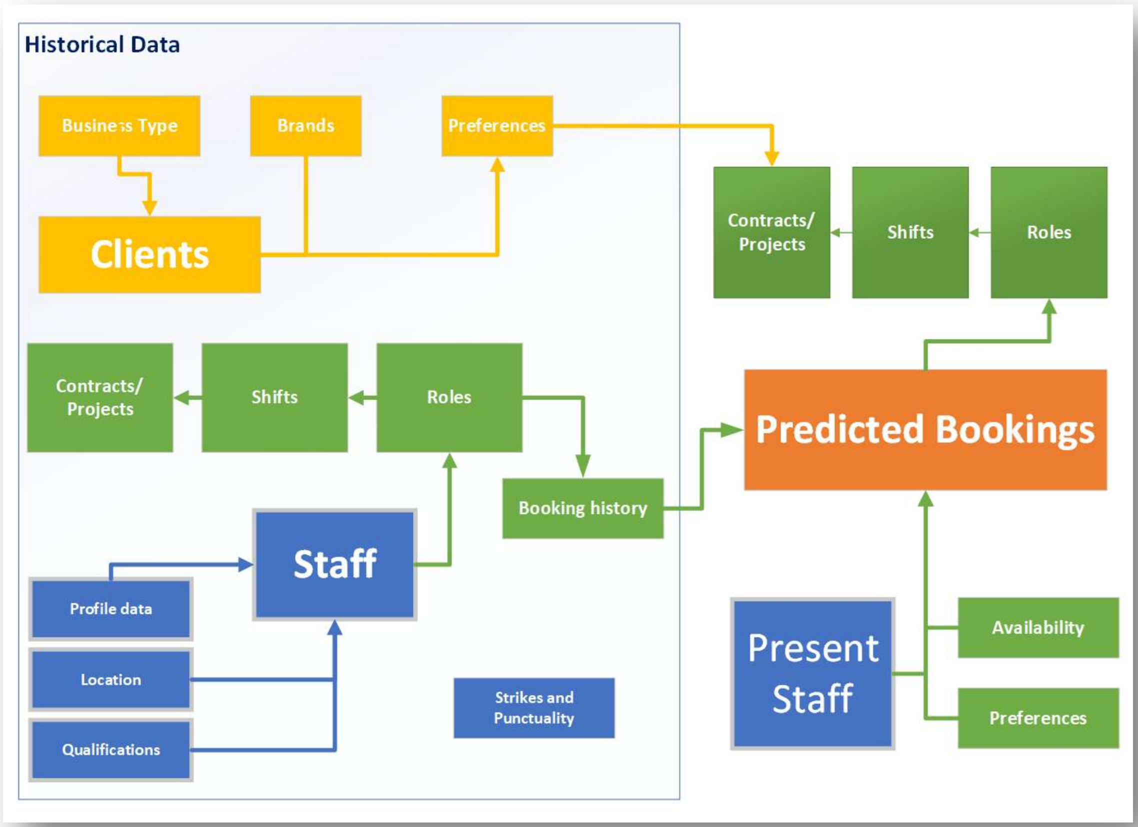
2. New staff coming through AXLR8 application and vetting processes are bulk imported periodically into the Legacy operational system. In one case the company was large and had AXLR8 and several other existing operational systems in different divisions and an API allowed transfer of staff who had reached the right JAS and who had been categorised to be transferred to the right division's system (cleaning, retail, rail, etc.).

Where automation through an API adds value to this process is to allow real time transfers. That way a staff member may be booked for work as soon as they are taken on rather than awaiting a weekly batch import.

A skilled programmer analyst can agree business rules with the client and set this up so that duplicates and other issues are prevented. They can also deal with situations where other data errors creep in. For example, if there is an *Indeed* feed anywhere and the email is being used as a unique identifier. (As an example, *Indeed* often fabricates a new email address for a candidate that is unique to every job application so the same person may acquire 4 or more duplicate records).

8 AI tools

This is provided as an example. The actual applications vary but AI tools have been linked to AXLR8 data for many purposes. Vetting, Proof of ID, Applicant selection, operations insights and predictive bookings.



In many cases an algorithm is a better day-to-day design bet. However, the insights to build that algorithm for your company's specific needs will be much easier with creative use of AI tools.