# Armstrong

# Creditsafe automation options analysis

## Current state

Whilst it provides a lot of other information about companies, Armstrong mainly use Creditsafe to look up 5-year financials (P&L) of limited companies. Typically, Armstrong only do this for competitors or suppliers of the company over which the due diligence is being run, and the financials are limited to P&L information. This is used to complete the financial information of these companies in the Due Diligence report.

Currently the process is manual but relatively quick:

* One of the team members logs into Creditsafe on the browser
* In the blank field they type in the company name or company number (as per Companies House)
* If there are multiple options, the user selects the company
* Once the company info is displayed on-screen, if it is a large company, the user does a quick check of the Group Structure tab to make sure they are looking at the right legal entity.
* Once they are happy that they are looking at the right legal entity, they select the “Financials” tab
* The user selects the first rows (until the depreciation row) of the P&L table on screen and copies the information onto the computer’s clipboard
* They then open the relevant Excel template and paste the P&L rows onto it
* This Excel sheet automatically generates the EBITDA table that is then copied into the relevant PowerPoint slide

Depending on the company that Armstrong are doing the due diligence for, they will need to run this for a number of legal entities in the high single digits on average.

* Users will typically know the company’s ID. If they don’t, they should know the full company name.
* All employees have login details to Creditsafe as well as access to the Excel template, so many people across the team run this process for themselves. Creditsafe usage data show that 2003 Ltd Company reports have been run in the ten months Jan-Oct 2021 (200 per month on average). As Armstrong are expecting to grow significantly in the future, this number will continue to increase.

### Automation Possibilities

#### Scope for Automation

There are two sets of information that it would make sense to automate:

1. Extraction of Financials (P&L) – this would save a few minutes of time for each due diligence that is run (more depending on how many competitors and/or suppliers are going to be shown in the report). This is not the core part of the report, so automating it would be a welcome help
2. Extraction of Group Structure – this is used as a sanity check by the Analyst to ensure they are looking at the right financials without having to separately log into Creditsafe

#### Potential Automation Approach

Multiple different approaches for automation have been evaluated:

1. Excel Power Query: This approach was ruled out as Power Query was not able to handle the authentication required by the Creditsafe API (which requires the passing of credentials and subsequent passing of a time-limited token)
2. Screen Scraping using Power Automate: this approach was ruled out as the Creditsafe Terms and Conditions explicitly prohibit this
3. API connection via Excel / VBA: This approach was tested but is subject to certain limitations:
   1. Excel VBA connection to Rest API for authentication can be achieved but the handling of the JSON returned by the Rest API requires the calling of either a Javascript routine or a specially downloaded free third party plugin
   2. VBA calling of the Javascript routine works on Excel 32 bit installations but not on 64 bit installations. Since at least some of the Armstrong team use 64 bit installations, and to avoid placing any limitation on future technology of the firm, this approach has been discarded
   3. A specially downloaded free third party plugin would require all users to go through the process of downloading and installing said plugin in order to be able to run the relevant macros. This approach has been put on hold but may be considered again if no other approach is considered suitable
4. API connection via executable (Python) app: this approach would allow us to use more suitable technology to access the API (Python is much better suited to this than VBA) but would require the development of a custom-built Python app and its installation in users’ computers. We have developed a simple Proof of concept to show how this would work

Note: for all of these options, we are assuming that users will be able to type in the company registration number for which they wish to extract P&L. If users are unlikely to know this, we will need to develop functionality to search over a list of available companies which will require additional development (not considered at present)

### Other information

The Armstrong Creditsafe account has no limits on UK Limited & Non-Limited reports.

* Unlimited access to UK Limited & Non-Limited reports
* Unlimited access to UK Director Database
* Unlimited access to Southern Ireland
* Unlimited x Monitoring (24/7 monitoring on your customers)
* 150 x International reports
* 600 image accounts (Companies House Documents)

The Armstrong Creditsafe account permits one user with API access. This has to be an email username.

## Recommendations

We recommend following approach 4 in the list above. By building an app using Python that all users can access, we can:

* Use the most appropriate technology, which reduces the development time
* Limit the ability of users to do any damage to the automation routine
* Have the basis for future automations of other API connections

We would recommend the following use case & architecture:

1. Have an Excel spreadsheet where an Armstrong super-user (e.g. Ifan) can define the API credentials that the app will use. This way if credentials change in the future, there is no need to change the Python programming
2. Have an Excel spreadsheet in which the Armstrong user specifies a list of (up to 10) companies for which they wish to extract the P&L
3. Have a button in the Excel spreadsheet which the Armstrong user can press to run the extraction. This button would run the app
4. The app would automatically extract the P&L and group structure details and would create a spreadsheet for each of them (or one spreadsheet with a tab per company, to be agreed).

Out of scope:

* This automation would not include the copying and pasting of the P&L tables into Powerpoint as we understand that the powerpoint slides will vary in format and positioning and this would not necessarily save time for the users