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Read how Insife's automated Case Intake solution uses AI and cutting-edge technology to transform the speed and efficiency of the PV data intake process

# Insife's automated Case Intake solution uses AI and cutting-edge technology to transform the speed and efficiency of the PV data intake process

Historically, Case Intake has been a very time consuming, manual process. This process has, of course, become more automated as technology has developed, but there were still many hurdles to overcome in creating a solution that could truly convert unstructured data into structured cases and cope with the much-increased volume in reporting, particularly during and post Covid. Insife has created a solution that is groundbreaking in its use of AI along with its own proprietary technology, HALOPV. Its Case Intake module offers an end-to-end solution that integrates different APIs, to gather, read and process the data and automatically enter it into the structured ICSR fields. It is also cloud native, so has been developed to be scalable and adaptable to all future needs, offering a fast and efficient system for pharma companies and regulators alike.

## Insife's development of its solution

Insife has always been at the forefront of the consulting world. By working closely with many varied organisations, they know exactly what solutions are needed for different PV issues. The team, which includes many industry veterans, has seen the challenges people face first hand and that has always motivated them to develop new and effective solutions. Case Intake was a very good example of this.

In 2019, the company was awarded funds to run a project investigating how AI could help Case Intake and particularly how to create structured information from unstructured case reports. The company spent a year working on the project and although not completely successful, there were very important learnings gained. The main one being that AI could not be fully relied upon.

Case Intake needs to aggregate and process a vast and varied set of data, ingest all of the sources seamlessly, make sense of the data and extract all of the valuable information automatically, with the least human intervention possible. However, using pretrained AI models from AWS meant that data were not always recognised and therefore the user needed to be informed and asked to re-enter what was missing. This had to happen not only on a case-by-case level but on individual data elements. More development was needed.

**Leveraging the tools**

By 2020, Insife had started working with the MHRA and the use of AI on data intake was part of their remit. From that work, Insife created a traffic light system based on the confidence of the AI to predict its recognition of each data element. Users were given the capability to set a high threshold for each data element that we are looking for in the source data, if is above then it automatically inserts the data with no human intervention. If data are below the threshold, it pauses for human intervention. There is also the capability to have a low threshold, that can also be set per data element, where the prediction is rejected automatically, without showing it to the user. These thresholds helped train the AI to interpret correctly next time.

However, this was not good enough for the Insife team. They knew that if there was a large amount of data coming in and questions going back and forth to the reporter, this would be very time consuming. So, the next generation of development changed the system so that if the AI was less than 50% confident of recognition, it would not make suggestions on the text, it would purely ask the user to fill in the data themselves. A simpler and less time-consuming procedure.

An additional traffic light was added for quality of data, so that the user would also be contacted if some sections were not filled in and would ask for the data to be provided. These traffic light systems meant that the Case Intake solution now automatically received data in, assessed it, asks for what was missing, reviewed again and followed up if needed.

## Case Intake is not all about the AI

As well as using the best trained AI, Insife has developed its own processes to make sure intake is as seamless as possible. For example, duplication of data is looked after by a workflow which can assess potential duplications based on defined data points. If above 90% it will assume duplicate, but if below it will ask the user if it could be a duplication of a specific case. It can also flag a potential follow up as opposed to pure duplication. Follow up ingestion has also improved and there are now comparison screens where the user can easily digest and merge data as needed.

## How to read unstructured data

One of the key issues has been that users report data using a myriad of different methods. From form filling, to email and even handwritten notes. It was key to Insife that all data would be recognised as quickly and precisely as possible, so they now have a system that scans the imagery inputted and scrapes the data from it, even if handwritten. The team have integrated the best tools, from AWS, Microsoft, Google and of course John Snow Labs to read and/or translate data. These tools are leveraged so that all sources can be fed into the system and processed, with the automatic two-way dialogue available for clarification if needed. Interaction between human and automator is automatic.

## Automation is key

Martin Holm-Petersen, Insife's CEO, is keen to point out that it's this automation of the processes and integration of APIs and tools with its own technology, that is the most important aspect of their solution.

*"We have enabled a complete end to end process. Gathering, reading and processing data from any source and automatically entering it into the ICSR. It's that automation that's key, it has brought such improvement in speed that any safety issues are flagged far quicker than before."*

The Case Intake solution is also automatically integrated with the ICSR module within Insife's groundbreaking drug safety platform HALOPV. Within this platform you can now see a full audit trail of all the data and case details, which means it's much easier for human extraction of important specific data as needed. The user does not now have to switch between intake and processing, as it's all there together in one place.

**Truly cloud native**

Another advantage is that this system it is truly cloud native. As a reasonably new solution, the team have not had to amend something already created pre-cloud. The benefits of course, are that there are no constraints, they have not had to change something purely to make it work on the cloud. The system not only integrates seamlessly with other cloud-based solutions but is totally scalable and therefore clients can use what's needed for them and let the system expand with them as they grow.

**Conclusion**

Martin concludes:

*"I truly believe we have a mature and world-class solution for Case Intake. This is because we've been looking at all the different elements for a long time, finding answers, inventing solutions and making sure all of it is integratable, so that humans and automators can work together seamlessly within the system, providing maximum effectiveness and speed. HALOPV leverages cutting edge technology to provide effective functionality and this is absolutely key within our Case Intake solution."*

To discuss your Case Intake requirements and get a demo of HALOPV please contact us at hello@insife.com




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