# ESKER SYNERGY FOR ACCOUNTS PAYABLE

## ACHIEVING BEST-IN-CLASS DATA CAPTURE WITH AI-POWERED INVOICE RECOGNITION

**ESKER**®

# ROADMAP

## WHAT IS ESKER SYNERGY?

Esker Synergy is an AI-based invoice recognition technology designed to improve first-time recognition on supplier invoices and help Esker's Accounts Payable solution users reach the highest invoice recognition rate possible, as fast as possible.

Suppliers can send invoices in a wide variety of templates, creating one of the biggest issues in automating the invoicing process: one template doesn't fit all, which makes invoicing difficult to completely automate. That's where Synergy comes in. With Esker Synergy, invoice data can be extracted in record time with even more accuracy.

# POWERING AP SYNERGY: ESKER'S AI ENGINE

Driven by Artificial Intelligence (AI), it's important to note that Esker Synergy is an invoice recognition technology rather than a predictive or interpretive technology. In a nutshell, **its role is to identify and extract data, not to interpret and analyse it.** Synergy is powered by Esker's AI Engine that uses three core technologies for extracting data from invoices: first-time recognition, machine learning (auto-learning) and teaching.

## FIRST-TIME RECOGNITION

The application embeds deep-learning technology on top of Optical Character Recognition (OCR) so users don't have to start from scratch.
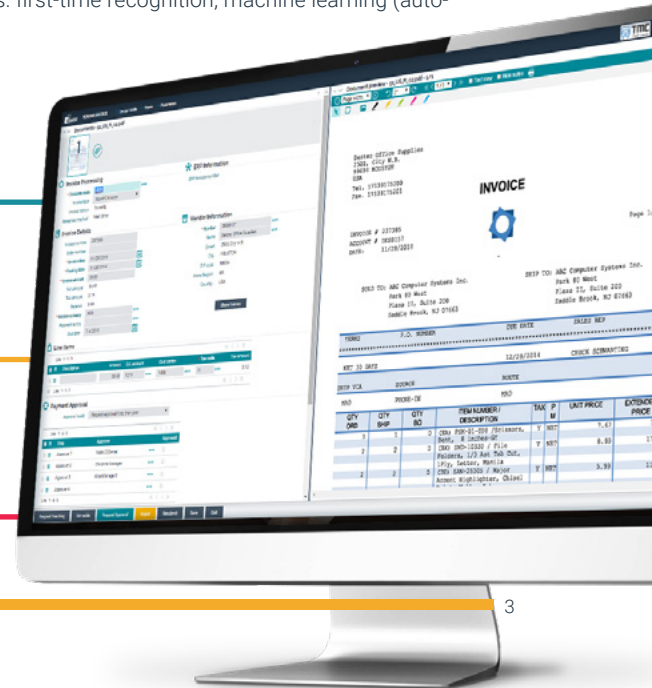
## MACHINE LEARNING

Machine learning enables Esker's AI engine to learn continuously from users' corrections. As the knowledge base fills in, the recognition rate increases and, consequently, so does automation.

## TEACHING

The ability to "teach" the application allows users to keep control by defining explicit recognition criteria for specific invoice layouts.

# FIRST-TIME RECOGNITION

The AI-based technology used in Esker Synergy can be further broken down into two subcategories: Synergy Shared Network and Synergy Neural Network.

## SYNERGY SHARED NETWORK

Synergy Shared Network is based on the recognition of invoice layout and structure and is powered by technology built on shared machine-learning rules and facial recognition. In this network, auto-learning rules are shared between users from different companies and deep learning is used to find matching templates.

If a matching template is found, Synergy Shared Network is able to extract:

- Supplier number
- Due date
- Order number
- Invoice number
- Invoice date
- Invoice amount
- Net amount
- Invoice currency
- Invoice description
- Header text

To best explain how the Synergy Shared Network works, here's an example:

Let's say that Company A has already processed invoices from the same supplier multiple times. Learning from users' corrections, Esker's AI engine has learnt machine-learning rules that enable perfect data extraction once a new invoice from the same supplier (or a supplier with the same layout) arrives. Synergy Shared Network takes it one step further by sharing these auto-learning rules outside Company A to allow other Esker users to benefit from recognition improvements. Using facial recognition principles, Synergy analyses invoice layouts and reapplies the corrections learnt from Company A if there is a match.

## THE END RESULT:

**USERS BENEFIT FROM A HIGH RECOGNITION RATE RIGHT AWAY, EVEN ON INVOICE TEMPLATES THEY'VE NEVER PROCESSED BEFORE.**

## THE END RESULT:

**USERS BENEFIT FROM BETTER RECOGNITION OF HEADER AND FOOTER DATA, LESS MEMORY CONSUMPTION AND FASTER RECOGNITION RATES.**

# FIRST-TIME RECOGNITION (CONT.)

### SYNERGY NEURAL NETWORK

Contrary to the Shared Network, Synergy Neural Network is based on the recognition of words and is completely founded in deep learning, applying natural language processing techniques to supplier invoices. Synergy Neural Network uses algorithms that recognise relationships in data from a large set of invoices through a process similar to the way the human brain operates. No templates are needed, as the associated data is extracted and validated by users to train the Neural Network to identify the correct information on invoices.

Synergy Shared Network is able to extract:

- Invoice number
- Invoice date
- Invoice amount
- Net amount
- Invoice currency

# MACHINE LEARNING & TEACHING

## MACHINE LEARNING (AUTO-LEARNING)

More commonly known as machine learning, the Esker-specific term auto-learning refers to the automatic feature silently working in the background to improve data extraction from invoices during the form-validation processes. Based on document structure, auto-learning fills in data fields based off of fields previously set by validating users. There are two key steps in auto-learning:

## STEP 1. GATHERING AUTO-LEARNING DATA.

When a user validates the invoice form, the modified values and structure of the document are memorised.

## STEP 2. APPLYING AUTO-LEARNING DATA.

The next time a user validates a document with the same structure, the fields are automatically filled in with the same modified values.
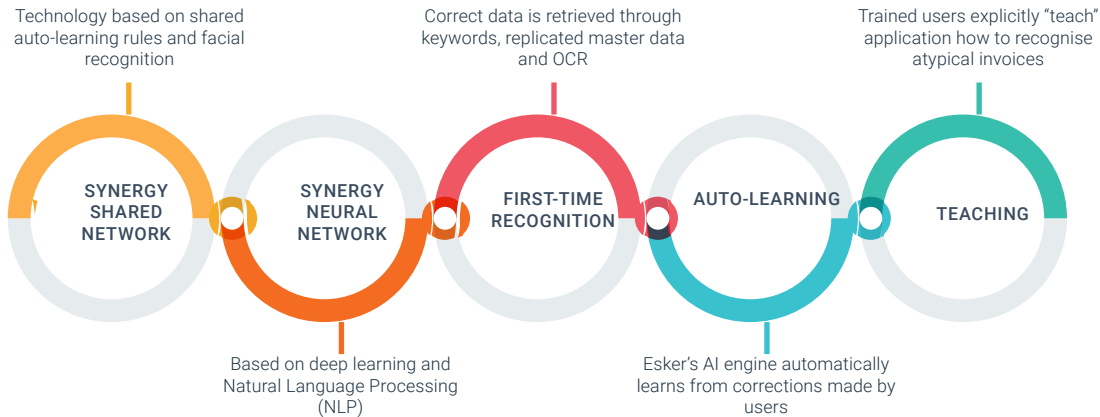
## TEACHING

Teaching requires explicit action from users and allows them to define extraction criteria for specific recurring invoice templates based on layout, not supplier. The user first makes a teaching request while verifying a supplier invoice. The power user can then open the teaching request form and define the new teaching rule. Lastly, supplementary rules defined in the teaching interface can be applied to new, lookalike invoices.

# CONCLUSION

With three innovative technologies working together hand-in-hand, Esker Synergy for AP automation is the key to achieving best-in-class data capture and improving invoice recognition results, right from the start.

**BY ACCELERATING INVOICE PROCESSING TIMES AND INCREASING ACCURACY, ESKER SYNERGY HELPS TO UNLOCK NEW EFFICIENCIES ROOTED IN AP, BUT FELT COMPANY WIDE.**

Technology based on shared auto-learning rules and facial recognition

Correct data is retrieved through keywords, replicated master data and OCR

Trained users explicitly "teach" application how to recognise atypical invoices

**SYNERGY SHARED NETWORK**

**SYNERGY NEURAL NETWORK**

**FIRST-TIME RECOGNITION**

**AUTO-LEARNING**

**TEACHING**

Based on deep learning and Natural Language Processing (NLP)

Esker's AI engine automatically learns from corrections made by users

# ABOUT ESKER

We're Esker, and we're a leading global provider of AI-driven process automation software with 35+ years in the business and over 6,000 customers. But above all else, we understand the holistic nature of P2P business processes and what it takes to make every touch point as efficient, valuable and impactful as possible.

You can learn all about us at esker.co.uk. If you're into blogs, we got one of those, too: blog.esker.co.uk.

## WORLDWIDE PRESENCE

Founded in 1985, Esker operates in North America, Latin America, Europe and Asia Pacific with global headquarters in Lyon, France, and U.S. headquarters in Madison, Wisconsin. In 2019, Esker generated 104 million euros in total sales revenue.

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