

Whitepaper

Leveraging Intelligent Automation for Email Optimization



Abstract

Email has become an essential tool for communication in multiple enterprise organizations. There is a constant influx of emails from multiple external and internal stakeholders. These emails can be spam/non-spam, operations specific, and customer requests and can be non-structured and complex. It becomes quite tedious and time-consuming for a human to go through each of these emails in detail and take timely action. Email automation using intelligent techniques like natural language processing (NLP), natural language understanding (NLU), pattern matching, and optical character recognition (OCR) can streamline the handling of emails in organizations. This white paper examines the advantages, obstacles, and implementation factors of email automation using RPA and AI technologies. It discusses how automating email tasks can save time, reduce errors, and improve efficiency in processing various types of emails.

Key Takeaways

1. Abstract
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3. Key Trends in the Industry
4. Navigating the Challenges of Email Automation
5. Overcoming Hurdles: Solutions and Benefits
6. Exploring a Use Case of Email Automation
7. Conclusion





Introduction

This whitepaper is intended for business owners, small-scale enterprises, marketing teams, and product architects who are looking to enhance the effectiveness and productivity of their teams. It is tailor-made for people who are seeking innovative solutions to overcome the challenges associated with email optimization and leverage the power of intelligent automation.

Businesses face a significant amount of challenge in going through multiple incoming emails from various external stakeholders like customers, solicitors, and vendors and taking appropriate action on each of those emails promptly. Some of these emails could be spam and not related to daily operations leading to a cluttered Inbox. In addition, business users tend to spend a lot of time drafting an email based on a system update or a user action.

Traditional approaches like manual segmentation, creating static content, manual reporting and analysis, Outlook rules, and Outlook predefined templates often fall short in delivering personalized and engaging content, leading to lower open rates, click-through rates, and conversions. Manual processes, time constraints, and lack of actionable insights further compound the challenge affecting costs and overall efficiency.

The goal of this whitepaper is to demonstrate how intelligent automation can be used as a lever for digital transformation by revolutionizing email optimization. By adopting intelligent automation, businesses can improve their productivity, improve customer engagement, and drive higher conversion rates.





Key Trends in the Industry

Some of the key trends in using Email as a mode of communication are outlined below:

1. Email Promotions and Offers:

Organizations use data and automation as a lever to send hyper-personalized emails with tailor-made subject lines, content and marketing offers to customers based on user preferences, behaviors, and demographics. Below is an example of how companies are leveraging email automation:

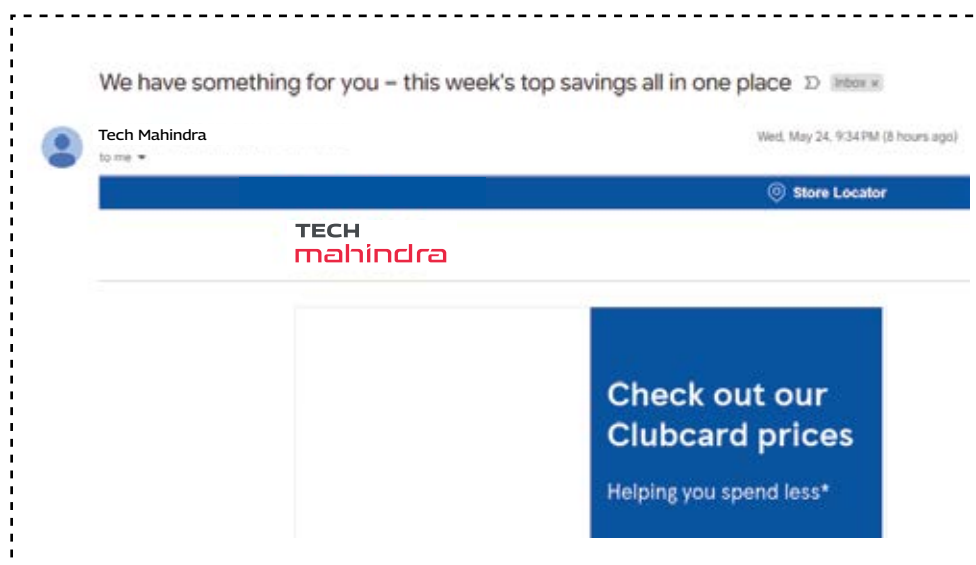


Figure1: Personalized emails with tailored subject lines

2. User-Friendly Mobile Apps:

With the growing prevalence of mobile devices, optimizing emails for mobile viewing has become essential. Responsive design, mobile-friendly layouts, and concise content that is easily readable on smaller screens are ways by which organizations are trying to pull in customers.





3. Intelligent Automation Tools:

Automation and machine learning algorithms are enhancing email processing and usage by streamlining processes and improving business metrics. Automation tools can automate tasks like email classification, segmentation, content creation, and scheduled delivery of emails to end users at predetermined times on a global scale.

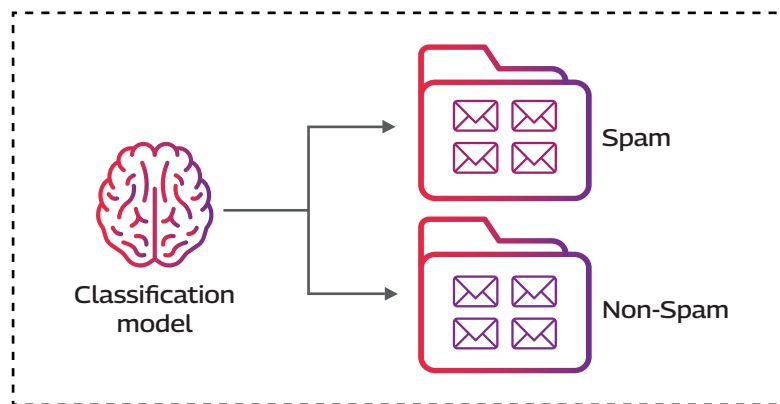


Figure 3: Email classification or segmentation

4. Personalized Emails:

Customer engagement is enhanced through quizzes, surveys, feedback emails, and preferences. Click-through rates rise as customers click embedded links, increasing overall engagement. Automated email responses are used for purchases, deliveries, and queries.

5. Quality Metrics:

Data metrics, dashboards revolutionize email optimization, provide insights, measure metrics, and enhance data-driven decisions.

6. Privacy and Compliance:

Data protection regulations like GDPR mandate best privacy practices. Trust and transparency in email communication are vital to prevent data leakage and build awareness.

Evolving digital communication demands personalized, engaging email experiences. Organizations that embrace these trends leverage tech and gain competitive edge.



Navigating the Challenges of Email Automation

Opportunities exist for email optimization, but challenges and guidelines must be addressed for success in leveraging automation. Efficiently categorizing and organizing incoming emails is crucial for effective management and timely response. Challenges in classifying incoming emails include:

1. The huge volume of emails makes manual review and classification difficult.
2. Emails vary in content, format, and language.
3. Email can be ambiguous.
4. Emails can be unstructured or vague.

5. Spam emails come in different forms, including generic marketing messages, phishing attempts, malware distribution, and fraudulent schemes.

To address these challenges, we need automated tools, intelligent algorithms, and product dashboards. Machine learning models, natural language processing, and rule-based systems can automate classification. Regular monitoring, evaluation, and updates to algorithms are crucial for accuracy and optimization.

Overcoming Hurdles: Solutions and Benefits

Classifying emails using intelligent automation involves leveraging algorithms and tools to automatically categorize incoming emails based on their content, context, and predefined rules. Here are some common algorithms, tools, and approaches used for email classification:

1. Naive Bayes Classifier:

A probabilistic classification algorithm that determines the category of an email based on specific words or features. It assumes independence between features and is trained on labelled data to classify new emails.

2. Support Vector Machines (SVM):

SVM is a binary classification algorithm for email categorization. It uses email features to train a model that can classify new emails.

3. Decision Trees:

Decision trees are tree-like models representing decisions based on email features. Each node splits based on attributes until a decision is reached. They classify incoming emails into predefined categories when trained on labelled data.

4. Natural Language Processing (NLP) Techniques:

NLP techniques extract info from email text using tokenization, stemming, POS tagging, and entity recognition. They process content to extract features for classification.

5. Rule-Based Systems:

Rule-based systems use defined conditions to categorize emails. Conditions can include keywords, patterns, email subjects, sender information, or contextual factors. They work well for clear classification criteria without needing complex machine learning.

6. Email Filtering Tools:

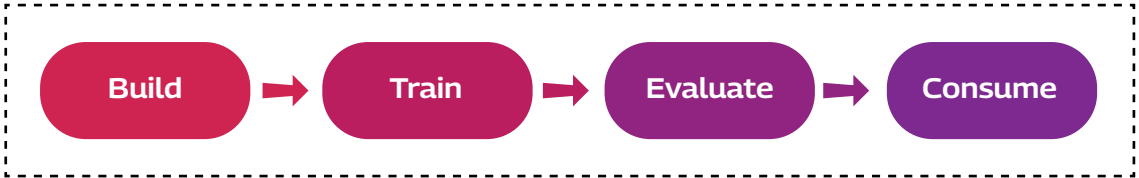
Multiple email-filtering tools use algorithms and techniques to classify emails automatically. They employ machine learning and rule-based systems to achieve accurate and efficient email classification. Examples of popular email filtering tools include SpamAssassin, Microsoft Exchange Online Protection, and Barracuda Spam Firewall.



Exploring a Use Case of Email Automation

Let's consider an example of a mobile industry which wants to classify incoming support emails into L1/L2/L3 categories:

Suppose an organization receives multiple customer support emails related to product usage, account details, technical setup, and billing inquiries. The email classification process could involve the following steps:



1. Preprocessing:

Emails are preprocessed to remove irrelevant information such as unwanted subject lines, separators, email signatures or disclaimers. Natural language processing/ machine learning (ML),

And .net techniques can be applied to tokenize the text, remove stop words, and perform stemming or lemmatization. Below ML.net namespace and functions can be used to create an enumerable tokenized text.

using Microsoft.ML.Transforms.Text;

2. Pattern Extraction:

Relevant features are extracted from the email content, such as proper nouns, keywords, named entities (e.g., account no, postcode), or specific phrases related to different categories.

3. Train Data:

A dataset of the email body is then created, and labels are assigned to each unique category (e.g., product query, address update, change mobile no). This dataset is used to train the classification model.

4. Evaluate:

A suitable algorithm such as Naive Bayes or SVM or a product like ML.Net is chosen for email classification. The labelled dataset is run through these algorithms' multiple times. In each iteration, the parameters of the algorithms are tweaked so that it understands better the entities and the relationships between the various features and email categories.

Naive Bayes is a probabilistic algorithm based on Bayes' theorem. It is simple and easy to handle large datasets.

Naive Bayes's algorithm can be used along with ML.net to train a dataset as shown below-

```
// Define the trainer
```

```
var trainerdataset =
mlContext.MulticlassClassification.Trainers
.NaiveBayes ();
```

```
// Define the training pipeline
```

```
var trPipeline =
pipeline.Append(trainerdataset )
.Append(mlContext.Transforms.Conversion.
MapKeyToValue("PredictedLabel"));
```

Support vector machine (SVM) is an algorithm used for binary classification of data. SVM can be used along with ML.net to train a dataset as shown below-

```
// Define the trainer
```

```
var trainerdataset =
mlContext.BinaryClassification.Trainers.LinearSvm();
```

```
// Define the training pipeline
```

```
var trPipeline =
pipeline.Append(trainerdataset )
.Append(mlContext.Transforms.Conversion.
MapKeyToValue("PredictedLabel"));
```

5. Consume:

Once the model is trained, it can be used to classify new incoming emails. The model reads each mail and tries to match it to the trained dataset based on various features. It then assigns the mail to the most appropriate category based on the trained patterns. If the algorithm cannot decide, it will flag the mail to take manual action.

Email automation using intelligent techniques like NLP, NLU, pattern matching, and OCR can streamline the handling of emails in organizations. This white paper examines the advantages, obstacles, and implementation factors of email automation using RPA and AI technologies. It discusses how automating email tasks can save time, reduce errors, and improve efficiency in processing various types of emails.

Embracing Intelligent Email Automation for a Future of Enhanced Efficiency

Intelligent email automation has emerged as a powerful catalyst for transforming traditional business operations by streamlining processes, and enhancing efficiency, and customer experiences. By harnessing the capabilities of robotic process automation and AI to automate tasks, reduce errors, and provide personalized responses, businesses can empower their workforce to focus on strategic activities. Throughout this whitepaper, we have explored the key benefits of intelligent email automation that include efficiency, accuracy, time savings, personalized service, cost reduction, scalability, and flexibility.

It is also crucial to acknowledge and address the challenges that businesses may face while embarking on their intelligent automation journey. The challenges include unstructured emails, spam, and exceptions. However, businesses can address these with dataset training and code fine-tuning. Email automation with robotic process automation (RPA) and artificial intelligence (AI) revolutionizes communication management, empowering businesses to streamline operations, boost productivity, and achieve goals. Embracing intelligent email automation is not only a strategic imperative but also an opportunity to shape the future of work in an increasingly digital world.

References for Further Study

1. **Naive Bayes classifier** - Wikipedia. (n.d.).
https://en.wikipedia.org/wiki/Naive_Bayes_classifier
2. **Support Vector Machine** - Wikipedia. Wikipedia . (n.d.).
https://en.wikipedia.org/wiki/Support_vector_machine
3. **ML.NET | Machine Learning made for .NET**. Microsoft . (n.d.).
<https://dotnet.microsoft.com/en-us/apps/machinelearning-ai/ml-dotnet>



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