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eBook

Mastering Language Quality: **The AI-Enhanced Editorial Handbook**

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Introduction

Journals are the universally accepted means of scholarly communication. Consequently, journal publishers subject academic writing to extreme scrutiny. The articles must comply with strict guidelines and conventions for language, structure, and presentation. The aim of such guidelines is to enhance the readability of the research and increase its potential to be cited by other researchers.

Review of the journal editor
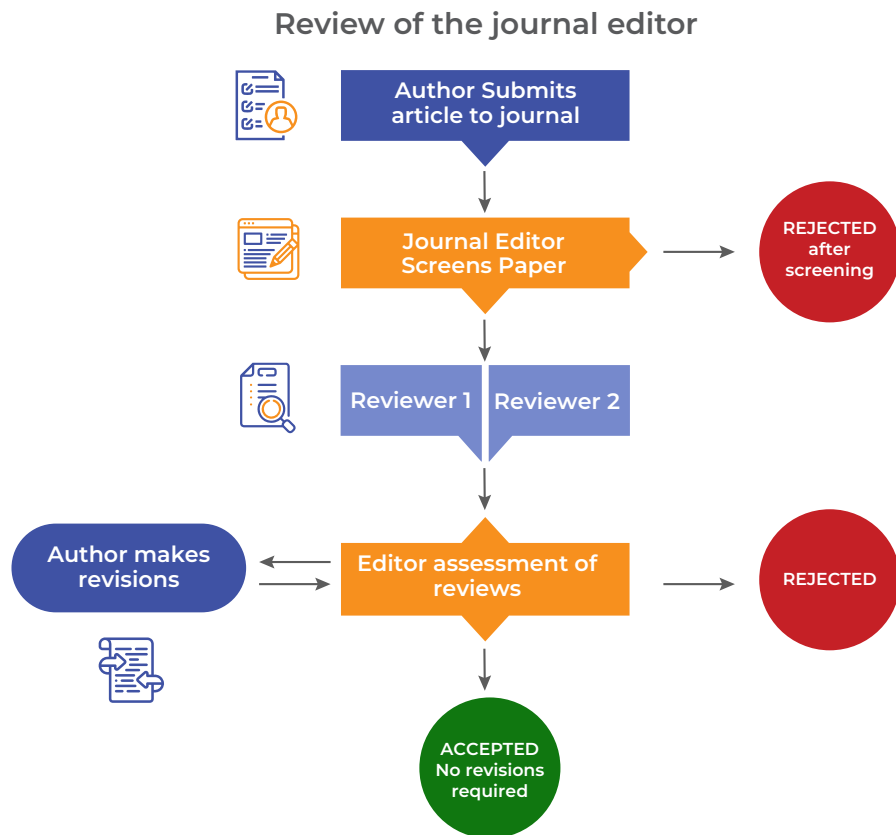
With technology assisting research, manuscript submission volumes escalated much beyond the existing editing workforce. The lack of editing-centric technology led to various bottlenecks, such as:

- Poor streamlining of the editing, reviewing, and rectification processes.

- Risk of plagiarism of text or ideas.

- Inadequacies in ascertaining the accuracy and relevance of information.

- Difficulty in the translation and localization of content to maximize consumption.

- Loss of a writer's originality or writing style and tone can occur due to a lack of emotional intelligence.

- No "editormetrics" to gather insights on journal editorship.

AI Editing Assistance is Transforming Academic Publishing

Editing is an indispensable part of the publishing process. It ensures that the text is free of inaccuracies, inconsistencies, or ambiguities that may undermine the credibility or effort that went into the research. The process simultaneously polishes the manuscript to improve impact on and comprehension by the global reader base. Therefore, making the editing process efficient and effective is critical to improving quality and expediting the movement of a manuscript from submission to publishing.

Importance of Efficient Editing in Academic Writing

Image Source: Image Source: https://www.enago.com/academy/wp-content /uploads/2023/05/SmartImage_V4-2.png

According to a 2019 study by Gould Finch and Frankfurter Buchmesse, 63% of organizations believed that editorial segments could greatly benefit from leveraging AI technologies. The report also found that even minimal investments could translate into significant ROI improvements for publishers.

Advantages of Leveraging AI for Scholarly Publishing

While structuring and then copy-editing of a book (of about 90,000 words) might take between 4 and 7 weeks, there is a long waiting time in the manuscript queues after submission to reach this stage. The delay increases the overall turnaround time for the first review to months.

> As of June 2023, 47% f US authors were already using AI as a grammer editing tool.

To expedite the editing process and improve publishing capacity, publishers are increasingly adopting AI editing tools. There are significant benefits of leveraging artificial intelligence for editing academic content.

Reduced Cost and Time: By automating a significant part of the editing process, AI tools reduce the need for manual effort. This expedites the process and increases overall productivity while reducing editing costs.

Quick First-Response: AI systems can help editors automate the initial language assessment, completeness verification of studies in submitted articles, and validation of inferences from hypotheses and research experiments. Automating the first assessment can help remove content that does not align with the prerequisites for publishing approval, preventing the wastage of human effort.

Such automation may include verifying:

- ✓ Alignment of the topic with the journal's domain.
- ✓ Alignment of content with the topic.
- ✓ Research completeness and accuracy.
- ✓ Adherence to journal guidelines.
- ✓ Compliance with industry regulations.

Identifying Data Fabrication: Plagiarism and data fabrication cause more reputation damage to the publisher than to the author. AI-based analyzers can crawl the web to identify such instances by studying incongruities and inconsistencies in the datasets.

Finding the Best-Fit: AI-powered systems can help editors find the most appropriate reviewers based on their publications, experiences, areas of expertise, previous reviewing records, and availability.

> "*The first draft is black and white. Editing gives the story color.*"
>
> - *Emma Hill*

Impact Assessment: Deep analytics enable the assessment of articles on their merit for impact and relevance using targeted metrics for the specific field of study and region of publication.

Formatting and Structuring: Content presentation is as important as editing for journal publishing. Automated document formatting and compliance checks expedite the dispatching of manuscripts for the post-editing review process. Furthermore, AI can assist in search engine optimization, in line with evolving search algorithms.
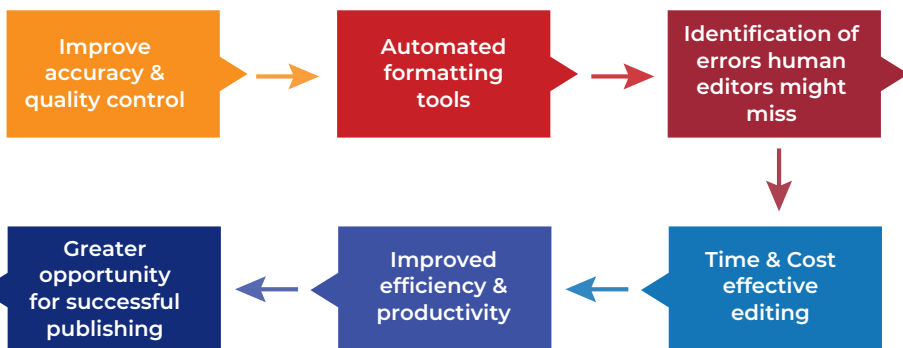
Adapting to Trends: AI systems can adapt to current market demands and reader interests, facilitating the publication to align with the latest trends. In fact, predictive analytics can help anticipate these trends to give the publication a competitive edge. It can quickly report parts of sentences that need rewording or parts of the document that need restructuring.

Language Assessment: One of the most critical applications of natural language processing (NLP) is assessing the quality of language in submitted manuscripts. It can perform the first linguistic analysis and rate the written content. This rating helps plan for the appropriate next publishing stage.

AI tools can assess syntax, spelling errors, and structural errors that the human eye might miss. The technology excels at identifying errors related to grammar, typos, and sentence structure that could be difficult for human editors. The superior analytical capabilities of AI enhance the overall quality and accuracy of the manuscript, increasing publishing opportunities.

AI also enhances readability by assisting in tailoring language to the understanding level and preferences of specific reader demographics. This allows even complex papers to undergo targeted customizations to meet the needs of specific reader groups rapidly and at scale.

Benefits of AI for scholarly Editing

Improve accuracy & quality control → Automated formatting tools → Identification of errors human editors might miss → Time & Cost effective editing → Improved efficiency & productivity → Greater opportunity for successful publishing

Yet, AI tools cannot replace human editors because they still lack "understanding." So, human intervention will still be needed to give the final go-ahead and maintain the creativity and originality of the content while leveraging intelligent automation.

Challenges of Implementing AI in Publishing

Adopting innovative technology comes with its own set of challenges. To be able to overcome them, you first need to know more about these hurdles.

Lack of Expertise

Journal publishers often lack in-house technical expertise to integrate advanced technologies with legacy infrastructure. It gets even more complicated if the existing system is not expandable by design. This could require a complete technology overhaul. Migration of all data and processes, while ensuring business continuity and preventing data loss, can be complex to manage at scale.

Resistance from Stakeholders

Resistance to change, especially when it involves new technology, is only human. When decision-makers don't fully understand the impact and benefits of the transformation, it can be challenging to get approvals and financial support to augment the publishing cycle with AI technologies. Also, users, such as authors and editors, might be apprehensive of the learning curve and changes to their working style. Organizations might also lack staff training to make the most of the technology to deliver the expected ROI. Employees might see AI as a competitor rather than a facilitator.

> Experienced editors believe that AI-powered editing assistance has immense potential to take over time consuming tasks off their plate and simplify complex ones for them.

Fear of Bias and Inaccuracy

AI is still evolving, and most machine learning models are only as good as the datasets on which they are trained. This leads to the risk of biases and inaccuracies inherent in the datasets getting embedded in the AI subsystem, which could then influence the model's decisions.

Intelligent Editing: Ways AI is Transforming Publishing

Artificial intelligence has enabled the collaboration of large language models (LLMs), machine learning (ML), natural language processing (NLP), and predictive and generative analytics. It is the technical manifestation of philosophy and psychology, enabled by the application of computer science-driven human ambition.
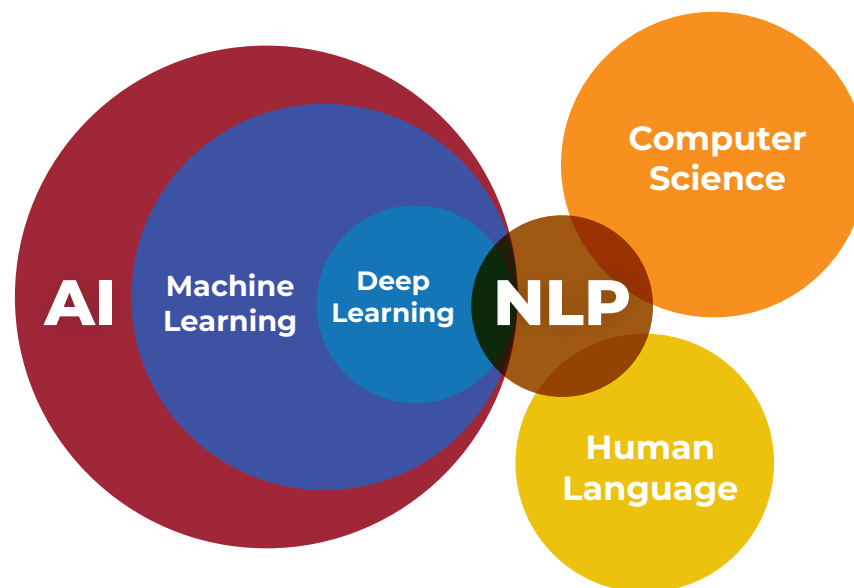
Image Source: https://saxon.ai/wp-content/uploads/2022/07/image-2.png

Revolutionizing Language Assessment

Large language models have revolutionized article summarization, robo-conversation, and creative writing. However, supporting the complex, cognitively demanding, and factual academic writing process requires sophisticated tools. Language assessment is one such application where AI has been extensively applied, especially in the education and publishing domains.

Advantages of Using AI for Language Assessment

There are numerous advantages of using automated scoring systems to evaluate the language quality of submitted manuscripts.

Speed: The primary advantage that computers have always had over humans is their speed of job completion. The same applies to language assessment. This translates into the foremost advantage of leveraging AI for the first-level language analysis of a submitted manuscript.
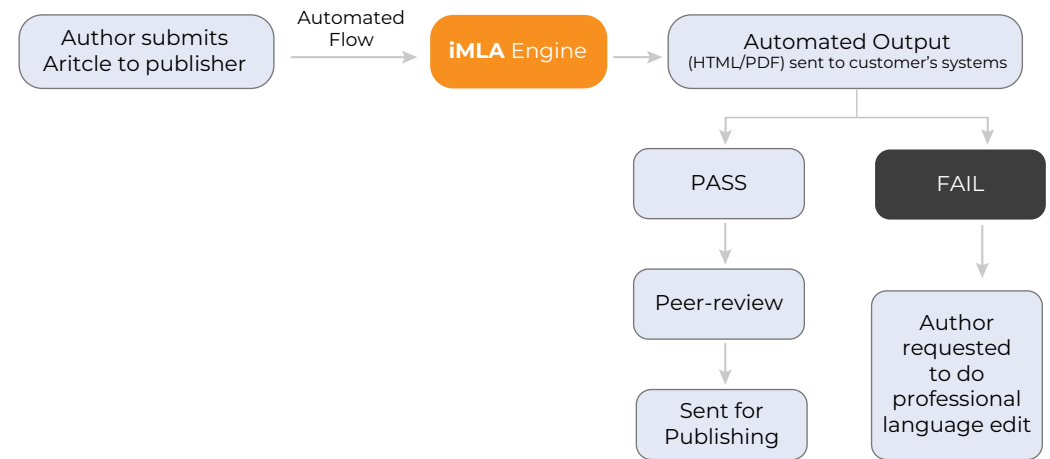

Image : Language Quality Assessment Process (The diagram is from the Content Suite presentation and can be customized to match the eBook).

It eliminates manual dependency at the initial level. The decision of whether the manuscript goes further down the publishing pipeline or not is instant and automated. Additionally, automated scoring evaluates the extent of editing required moving ahead and streamlines the process further.

Lack of Bias: Automation eliminates human bias from language assessment. AI does not have a personality or a preference; therefore, AI scoring is neutral, irrespective of the author's background, experience, or language proficiency.

This is especially useful when aligning content culturally and translating into multiple languages. Along with expediting the process, AI engines remain judgment-free while translating, which helps maintain author intent. Moreover, AI-powered language quality checks help maintain evaluation consistency across the publication.

Efficiency: AI models can be trained much faster and in many more languages than individuals can. AI language assessment engines can quickly switch between languages. This allows the assessment of multilingual submissions without manual intervention. It also facilitates content translation and localization at scale.

AI engines can operate 24/7, accelerating first response to minutes from the usual 60-90 days. Without the need for manual intervention for acceptance or rejection of research, editorial costs are further reduced.

Gauge Market Relevance: The distinct advantage of cross-referencing analyses from market to product development has been made possible only due to AI. With reader and demographic data, modern tools can determine the adequacy and comprehensibility of the language, as well as the relevance of research for the intended market.

NLP and ML for Language Assessment

AI relies on data to train assessment models, and the publishing industry has vast quantities of diverse datasets to train AI models and tap into the potential of this technology.

Natural Language Processing for Text Analysis

- Text Embeddings
- Intent Detection
- Market Research
- Semantic Similarity
- Open Source Tech
- Sentiment Analysis
- N-grams
- Syntax Trees

- Language Rules
- Bag of Words
- Topic Detection
- POS tagging
- TF-IDF
- Customer Reviews
- Entity Recognition

ML and NLP capabilities allow digital language assessment platforms to analyze manuscripts on different levels, such as:

Genre Categorization

Based on the subject and its treatment in the manuscript, NLP models categorize the research to streamline the next stages: editing, reviewing, and proofreading. The process also helps identify the most suitable editors and reviewers.

NLP DOWNSTEAM TASKS

Parts of speech Tagging · Parts of speech tagging · Word Segmentation · Named Entity Recognition · Sentiment Analysis · Text Summarization · Text Classification · Text Abstraction · Machine Translation · Topic Modeling

Image Source : https://www.analyticsvidhya.com/blog/2023/02/extracting-medical-information-from-clinical-text-with-nlp/

Readability: The most common application of AI language assessment is syntactic and semantic analysis. This involves assessing sentence structures and the accuracy of the meaning being conveyed. Syntax analysis leverages tree-like decision structures to validate the author's language. Semantic analysis involves lexical and compositional analysis to ensure that the content and its explanation are sufficient and relevant for readers to grasp the intended meaning.

Stylometry: Writing style is a key influencer of reader engagement. The process can be extremely difficult if done by manual editors. AI tools can compare multiple authors from distinct genres effortlessly. Voice and style analysis also facilitates targeted meta-tagging and marketing of the published material. Additionally, stylometric analysis helps distinguish artificially generated from manually written content.

> AI-powered models can compare writer styles to evaluate and report acceptance and engagement rates for a content piece before it reaches the market.

Sentiment Analysis: While research must neutrally communicate the findings, fiction writing needs to elicit emotions in the reader. AI-powered tools analyze the text to ensure that emotions are adequately represented and even simulate reader responses based on reader data to enable authors to tweak their content where required. They can also be used to assess online reviews and reader feedback to improve content quality and align the content better with the audience and industry needs.
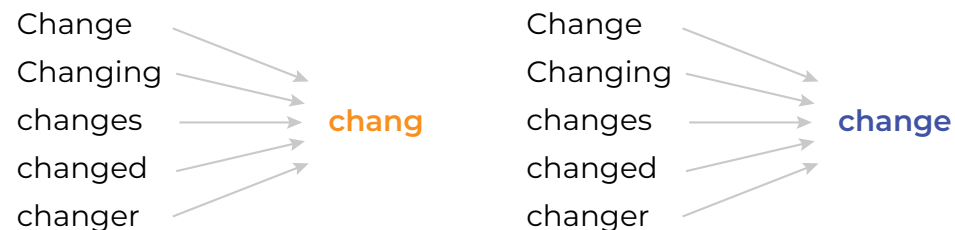
Text Summarization and Keyword Extraction:

Summarization and keyword extraction are among the preliminary implementations of AI in writing assessment, yet they remain relevant to its wider adoption. This data helps in optimizing the content for search engines to enhance discoverability. It includes image optimization and competitor analysis to enhance the searchability of content. The same analysis can be used to gain insights into existing market gaps and serve the underserved reader base.

NLP Assessment Process: Together, the two technologies have transformed machines into grammar checkers, writing advisors, translators, and writing assistants. This is accomplished with the help of the following techniques:

- ☑ **Tokenization:** Breaking a sentence into words.
- ☑ **Stop-Word Removal:** Removal of words that do not contain valuable information, such as the, etc., and an.
- ☑ **Stemming:** Reduction of similar words to their stem.
- ☑ **Lemmatization:** Mapping words to meaningful base words.

Stemming vs Lemmatization

Change
Changing
changes → chang
changed
changer

Change
Changing
changes → **change**
changed
changer

Word-Sense Disambiguation: Determining the meaning of a word as implied by the sentence structure, especially if there are homonyms involved.
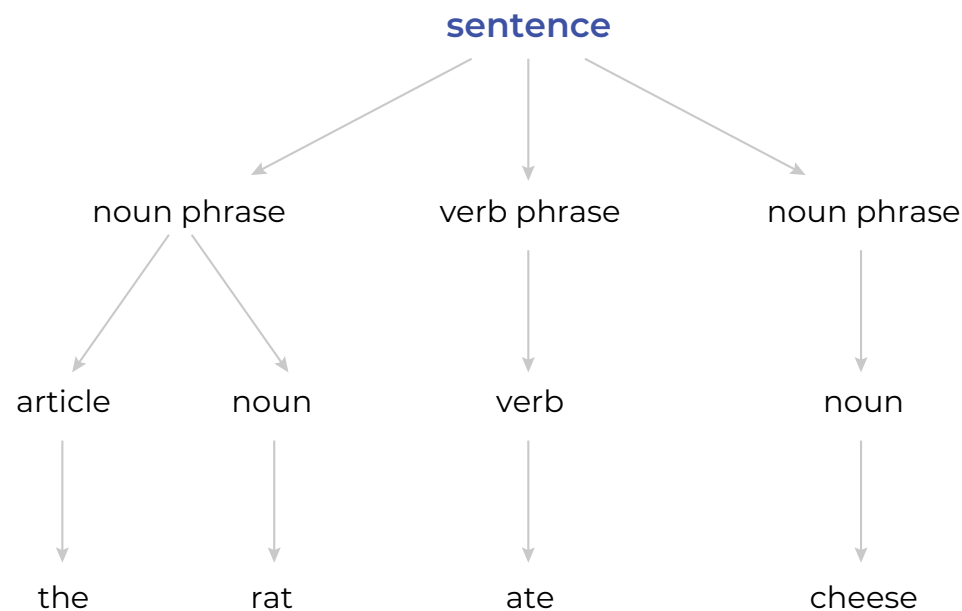
sentence
→ noun phrase, verb phrase, noun phrase

noun phrase → article, noun
verb phrase → verb
noun phrase → noun

article → the
noun → rat
verb → ate
noun → cheese

Image Source: https://content.altexsoft.com/media/2021/08/one-of-the-stages-in-text-annotation-parsing-so.png.webp

Part-of-Speech Tagging: Tagging words as verbs, adjectives, nouns, etc., to derive meaning and sentence structure.
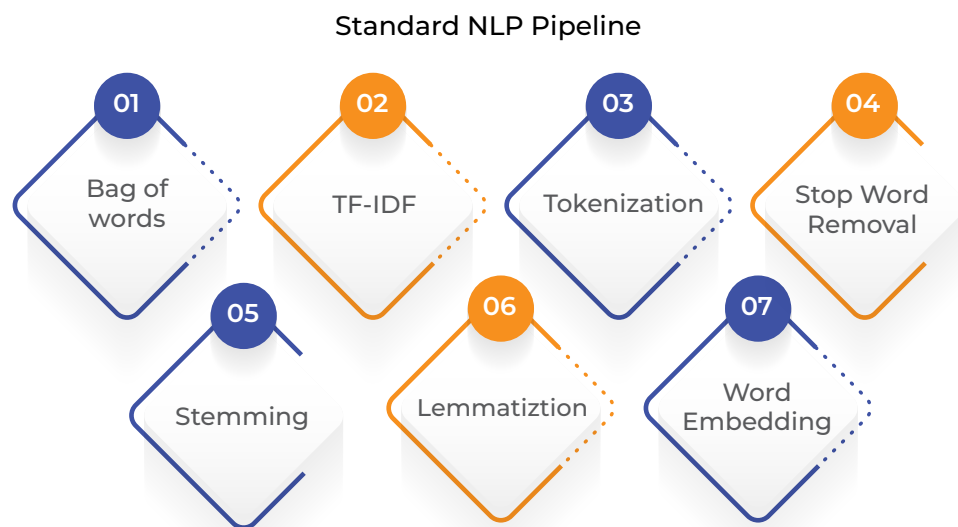
Standard NLP Pipeline

01 Bag of words

02 TF-IDF

03 Tokenization

04 Stop Word Removal

05 Stemming

06 Lemmatiztion

07 Word Embedding

Image Source: https://www.analyticsvidhya.com/blog/2023/02/extracting-medical-information -from-clinical-text-with-nlp/

Enhancing Content Adaptation

The penetration of the internet to even the remotest corners of the world has facilitated the dissemination of scholarly knowledge to a more diversified audience. However, publishers often find it difficult to establish a foothold in distant markets due to a lack of experience in the target region. The fundamental requirement for addressing specific reader groups is to adapt the content to their preferences and needs.

Personally visiting each geography or hiring local experts with the desired specialization for every activity is difficult and resource-intensive. AI can take on the job. Once a write-up is ready for publication, its content, intent, and inferences are solidified. At this stage, content customization for the target group is required. Neural machine translation eliminates manual errors.

Some of the straightforward adaptation applications of AI include word count reduction, plagiarism detection and reduction, specific author contribution disclosures, and keyword suggestions. It will always perform its job with the same proficiency.

> An AI tool will never get bored, tired, or demotivated due to repeated editing and translation of the same manuscript.

Artificially trained models can simplify many more aspects of content adaptation, including:

Linguistic Adaptation: Often, direct language translation does not serve the purpose of accurately communicating the author's intent. AI-based linguistic assessment models come into play at this stage to ensure that the translated content meets the tone and style suited to the audience. AI-powered paraphrasing can prevent plagiarism and meet reader-specific linguistic needs.

AI is Empowering Independent Authors and Publishers

Regulatory Adaptation: Different regions may have diverse linguistic and inclusivity guidelines. The research publication process may also be monitored by designated bodies to streamline and ensure the quality of research. AI models ensure compliance by embedding it at every stage of creation and translation. They notify authors or editors to declare all beneficiaries of the published manuscript and specify commercial associations and financial support for completing the research.

Accessibility Adaptation: In the digital age, web access and platform-independent content delivery have become a business imperative. Easy-to-integrate AI-powered plugins can take care of this.

Inclusivity Adaptation: Globally, providing equitable knowledge assimilation opportunities is taking center stage, making it increasingly important to offer content that meets DEI requirements. AI-powered assistive adaptations of the content can seamlessly enhance accessibility and inclusivity of all kinds of published materials.

Cultural Adaptation: Ensuring the cultural appropriateness of the content is essential to maximize impact and prevent backlash. AI-powered tools can flag culturally hurtful or misinterpretation-prone elements and suggest appropriate corrections while retaining the intent

Authors and publishers might not always be able to edit their manuscripts objectively. Biases tend to creep in, and small details such as logical fallacies can be easily missed. AI-powered comprehensive editing and publishing tools have significantly enhanced the publishing cycle. These tools can accomplish a lot within minutes.

- Perform grammar, tone, style, and spell checks.

- Detect plagiarism to maintain content integrity.

- Create abstracts, briefs, and summaries.

- Become your dedicated beta reader to suggest ways to make the content more impactful and provide feedback based on reader demographics.

- Flag or eliminate irrelevant or repetitive information.

- Identify structural inconsistencies and run-on sentences.

- Validate the use of technical terminology.

- Discover logical fallacies and gaps in arguments.

- Check for correct formatting and capitalization of headings.

- Ensure consistency and accuracy in reference citations.

- Ensure uniform formatting of the manuscript.

- Ensure that all the graphs, tables, and figures are accurately labeled, tagged, and formatted.

- Provide audio assistance by reading out the manuscript to help you identify errors.

- Suggest SEO optimizations, hashtags, and CTAs if required to help you reach a broader audience.

Modern technology providers support independent publishers by providing customizable editing tools and support for in-house teams to expedite AI adoption and maximize ROI. These tools are developed with intuitive interfaces in easily integrable forms and support diverse document formats.

AI-Powered Authoring

Artificial intelligence not only empowers editors to be more efficient, but it can also be leveraged to increase the chances of manuscripts passing through the editing and proofreading stages smoothly. AI tools help authors with low proficiency in the publication's language to write effortlessly.

They help save time in editing and reviewing, with better language quality, and reduce the risk of language-based rejection.

Here are the top advantages of leveraging AI right from the writing stage:

- AI tools promptly flag grammatical, spelling, and punctuation errors.

- These tools can automatically correct mistakes, saving self-review and self-proofing time for authors.

- Synonyms and alternative word choices help expand the writer's vocabulary and enable them to align the content with prevalent domain-specific research terminology.

- Writing tools that conduct flow analysis provide suggestions to improve sentence structure and content organization, making the manuscript more readable and engaging.

- AI analysis can help maintain a consistent tone and voice, matching the reader demographic requirements, while also preserving the intended message.

- These tools have intuitive interfaces, and the more advanced ones come with speech recognition to transform the "writing" process.

- The tools evolve due to ML/NLP algorithms and user feedback, keeping the language and writing current with ongoing trends and improving content quality.

Choosing the Best Writing Tool

The best choice for scholarly publishers is a well-rounded publishing platform that can streamline workflows from the writing stage to finalizing the manuscript for publication.

What to look for in an AI-based Writing Tool

- User-friendly interface
- Real-time evaluation and feedback
- Error identification and explanation
- Sentence structure Improvements
- Correction and accessibility suggestions
- Style and tone awareness
- Conextual understanding

Human-Tech Collaboration Shaping the Future of Editing

Independent AI-driven solutions for scholarly writing and editing have been hotly debated, especially since ChatGPT rose to fame. However, AI does have its limitations:

- Without a foundation of extensive data, AI fails to understand cultural nuances, idiomatic expressions, the level of formality required, and the author's writing style.

- Machine learning models are only as good as the data on which they are trained. These models lack imagination and creativity. Additionally, AI tools cannot grasp the intricacies of artistic expression and the use of poetic devices.

Since humans can think metaphorically and abstractly, they have a creative advantage over technology when it comes to language. Authors can leverage emotions, experience, and memory to write more deeply relatable content. Furthermore, they can provide more persuasive and emotionally stimulating arguments where plain logic may not suffice. Therefore, humans remain indispensable for the process of creation, although AI can be a useful partner in polishing the finished piece.

4 Roles of AI Tools in the Publishing Industry

Idea Generator — 01
Editing Assistant — 03
Writing Critique — 02
Translator — 04

AI is a technology with immense capabilities and potential. Making the most of this magnificent technology requires strategic collaboration and direction from humans. This transformative technology can assist scholars in multiple ways. Here's a look.

AI as Idea Generator

Predictive analytics tools can conduct future trend identification analysis much better than any non-AI business analysis software. These tools can assist in brainstorming ideas with the help of accurate text descriptions to facilitate the creative process as well. They can spark inspiration and help writers overcome their creative block if required. Additionally, AI-powered hard task checkers can assess the proof of concept before actual research writing to assure scholars of progressing in the right direction.

The disruptive technology can suggest research and publication topics by combining the literary trends data with demographic preferences, social media chatter, and readers' behavior. This fosters preparedness in the organization, enhancing consumption and engagement.

AI as Editing Assistant

AI is a powerful editing assistant. Since the tools are equipped with culture sensitivity and bias-free analytics, the editing is of much higher quality than when done by humans alone. Greater linguistic accuracy and domain specificity enhance reader experiences and the publication's foothold in its target markets. While humans are more concerned about "what they understand," AI-powered editing tools assess "what the content conveys."

> An experimental study by OpenAI found that AI-assisted human critiques are able to find 50% more flaws than non-assisted ones in content written by humans and inteligent writing models.

AI as a Critique

AI-powered critics can evaluate the structure, grammar, style, and overall quality of a manuscript. Identifying flaws in summaries, abstracts, and conclusions also becomes easier. These tools use the latest database and market trends to compare the text and provide feedback to improve content quality, specificity, and detailing. The tools use neural networks-based techniques to evaluate the likeability of the written piece with simple queries like describing the content with adjectives, rating the quality of research, and providing suggestions for improvement. All this offers great insights for authors and researchers to improve their writing. Eventually, AI-powered critiquing models can take the form of a writing coach to build an individual's writing abilities.

AI as a Translator: A Step Ahead of Editing

As serving a diverse audience takes center stage in the global and interconnected scholarly publishing space, AI can perform gigantic transformations at super speed. While a human being can be proficient in a limited set of languages, AI tools can learn to expertly assess and edit as many languages as required. These tools can be trained with indigenous data to accommodate regional linguistic nuances, cultural references, and comprehension capabilities to align the writing tone, style, and difficulty with that of the reader base. Plus, they cost much less than an entire team of human writers, specializing in different languages.

Integrating AI into Your Publishing Process

The best part about technological evolution is that an intelligence layer can be effortlessly integrated into the existing framework across your technology stack. The massive advancements in ML, NLP, predictive and generative analytics, computer vision, and deep learning, and the availability of all these tools on cloud platforms, allows businesses to customize solutions according to their specific needs and integrate them effortlessly with the help of flexible APIs.

Tip for Choosing an Editing Tool

The editing tool should have comprehensive language assessment capabilities and not just spell-check. The language processor should be able to understand the context and suggest voice and language improvemtns to meet scholarly publishing standards.

Custom vs. Off-the-Shelf Editing Tools

There are diverse AI tools available for augmenting the publishing process. A critical decision is to choose between readily available preset tools or those customized to the publishing house's needs. The following breakdown of the advantages and disadvantages of each can help make the ultimate decision of off-the-shelf tool vs a custom one easier.
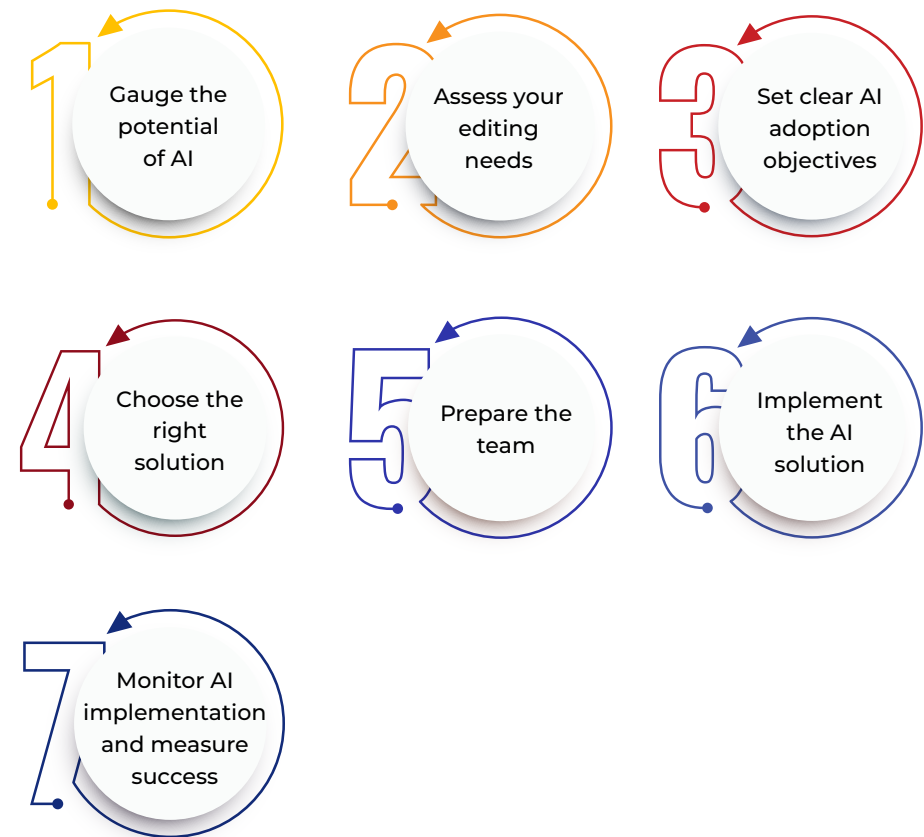
	Custom Tools	Off-The-Shelf Tools
Time to Go Live	Customized tools are aligned with business operations. The design, interface, and often algorithms need to be optimized for high performance. Therefore, these tools may take a few weeks to go live.	You can start using off-the-shelf tools immediately after a plugin-driven integration with your existing framework. However, you'll need to settle for the bundle of functionalities pre-built into the tool. No customization is possible.
Efficiency	Since the tools are optimized for your specific business needs and workflows, they are more efficient, and can help reduce costs and time to market.	These tools may be less efficient because they lack case-oriented search, suggestion, and analytics capabilities.
Relevance	Customized tools can be trained to use specific languages, tone, and jargon. Knowledge of the target audience and customization to scholarly publishing standards improve quality.	Readymade tools are more generic and not specialized for an industry or audience. The content may miss out on appropriate relatability.

Integration	Customizations pave the way for specializing the integration framework for your existing technology stack. This helps in expediting the integration process and allow smooth transition of legacy technology and content.	Off-the-shelf tools have prerequisite technology needs that have to be integrated to deliver high performance with the legacy architecture.
Control	Customized tools offer better control over access, processing, and storage of data and user information.	With prefabricated tools, the publisher has to work with a blackbox approach.
Costs	Customized tools are priced according to the features chosen and complexity of customization.	Off-the-shelf tools are available at multiple price points and associated different levels of service.
Scalability	Custom tools can be scaled up or down as per your business needs.	Off-the-shelf tools have limited scalability options.
Evolution	Customization teams provide continued support to keep the intelligence layer updated in-line with technology advancements and business expansion.	Your in-house teams have to rely on upgrades released by the technology provider. These may be included in the initial purchase or require additional payment for each upgrade.

Notably, prefabricated tools perform specific tasks, such as grammar checks or document formatting. Publishers will need to integrate each tool individually with their existing technology stack, while simultaneously training users separately on each tool. This introduces multiple interfacing complexities and operational bottlenecks. On the other hand, customized tools perform end-to-end operations with uniform interfacing. Embedding a single 360 tool across the manuscript lifecycle can enhance system performance and simplify the lives of the users.

Steps to Integrate an AI-Powered Language Tool in Your Publishing Process

Like any other technology adoption, AI-powered language tools are best adopted after a requirement analysis and strategic integration planning.

1 Gauge the potential of AI

2 Assess your editing needs

3 Set clear AI adoption objectives

4 Choose the right solution

5 Prepare the team

6 Implement the AI solution

7 Monitor AI implementation and measure success

Step 1: Gauge the potential of AI

The first step to adopting AI-powered editing tools is to understand what AI can offer. This is the baseline for evaluating the model under consideration when searching for the best-fit tool for your needs. An important consideration is forming quantitative measures to evaluate the speed and accuracy at which a model learns. Simultaneously, assess the ease of use and the manner in which the tool responds and communicates with the user.

Step 2: Assess your editing needs

Although a comprehensive writing, editing, reviewing, and designing solution might be the most appropriate, starting with just the editing tool is a good way to get hands-on experience of how AI can help an important stage of the publishing process. Analyze the current process to determine areas of improvement and stages that cause the most bottlenecks. Use the analysis to develop a list of must-have and good-to-have features and create a matrix for their significance and urgency.

Step 3: Set clear AI adoption objectives

Before beginning the search for the perfect solution, set clear goals for AI adoption. Start by defining the best-case scenario and the desired business outcomes and their timelines. Define the metrics and KPIs to measure the success of the integration. Ensure that the metrics are aligned with your business growth strategy. Finally, establish guidelines for the ethical use of AI technology in the best interest of scholarly communication. You can use the UNESCO guide to the ethical use of AI to make informed and compliant decisions.

Step 4: Choose the right solution

With clear objectives for AI integration, you can choose between an off-the-shelf or a customized solution. Partner with an experienced technology provider to manage all your requirements and get the right support for the best-fit solution. This partner can assist in employee training, integration, post-integration success management, and maintenance of the AI solution. Evaluate the available options. Set criteria to rate various options based on their capabilities, usability, previous results, pace of evolution, and life expectancy.

Step 5: Prepare the team

The adoption of new technology can be a daunting task for any business. Employees may have apprehensions about coping with the change and a fear of being replaced, especially when it is AI. Therefore, communicating the reasons for and benefits of the adoption, along with giving hands-on demonstrations with MVPs or free-test models, can instill a positive attitude and mitigate resistance. The team may require some training on the best ways to use the tool to get the most out of it. For instance, giving specific prompts for certain tasks to the AI model. Simultaneously, plan for change management in workflows, processes, job roles, and governance.

> AI does not replace jobs; it simplifies, expedites, and reforms them.

Step 6: Implement the AI-powered solution

It can also be challenging for a publishing business to ensure in-house expertise to get the most adequate solution for their editing needs. This is where a trusted technology partner becomes crucial. Onboarding the technology partner right from Step 1 is a good idea, but if you haven't done that so far, this stage would be a good time.

Their technical expertise will save on resources you would otherwise spend on trial and error and provide access to years of experience in overcoming the challenges that tend to come up during the integration and transition phases.
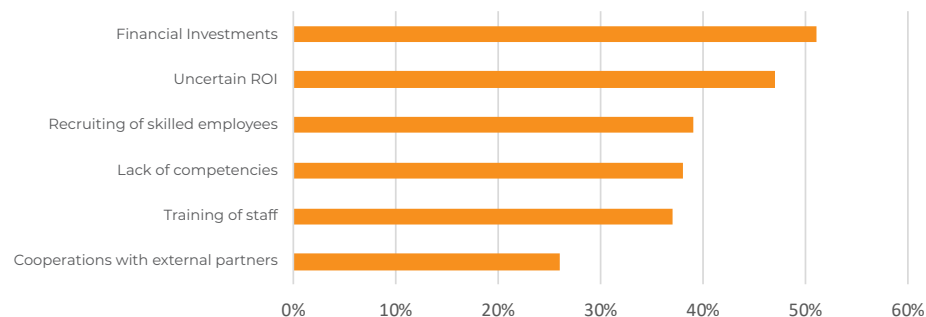
It is a good idea to move step by step and start integrating tools and features from the highest to lowest priority, beta testing at each stage.

Step 7: Monitor the implementation and measure success

Integrating technology is not a "set and forget" solution, and when it is as remarkable as a technology that can be trained, continuous evolution is the key to sustained growth. Now is the time to start evaluating the KPIs and other metrics. Set goals for each month or quarter to assess the efficiency and process improvements delivered by the tool, as well as to identify its shortcomings. Enlist the help of your technology partner to overcome these limitations. This will facilitate continuous growth of the AI model and also provide insights into areas where it remains underutilized.

Real Life Examples of AI-Assisted Manuscript Editing

Publishers are increasingly adopting artificial intelligence-powered technologies to expedite and refine the publishing process. Editing is one of the core processes, and journal publishers are increasingly reaping the benefits of AI for this stage of the publishing cycle. Here are a few use cases to shed light on the transformation delivered by AI integration in the publishing cycle.

Case 1: Reduction in Production Transit Time

A leading academic publisher, with a reputation for and commitment to delivering high-quality scholarly research, wanted to accelerate production turnaround time.

The client approached Integra with the following requirements:

- ✓ Expedite first-response time for submitted manuscripts.

- ✓ Reduce the overall TAT from manuscript submission to final publication.

Integra offered a comprehensive technology intervention to automate and accelerate the complete process. Two of the most impactful customized integrations were:

01 - iMLA

Intelligent manuscript screening and editing module

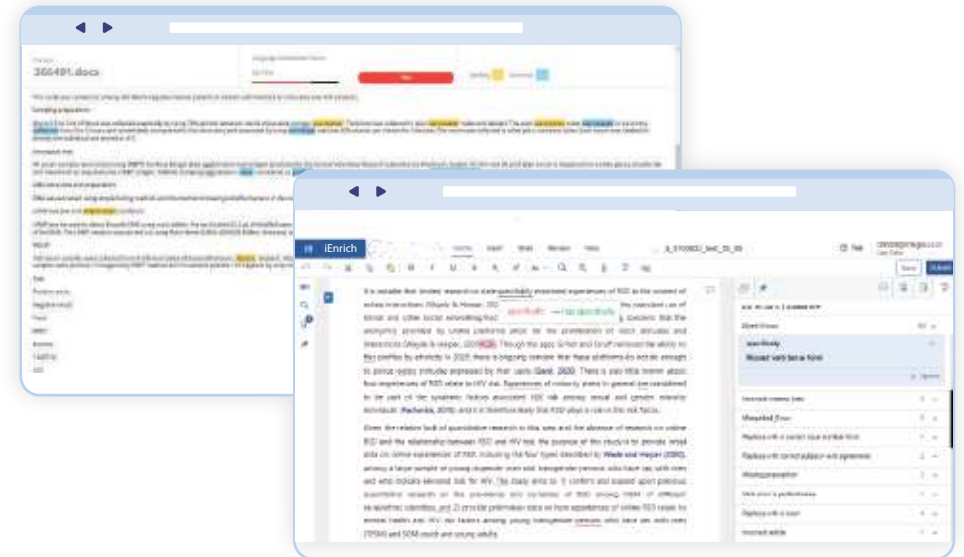The tool offers significant benefits:

Capacity to screen over **200 submissions** a day.

Improve publisher acceptance rate by **40%**.

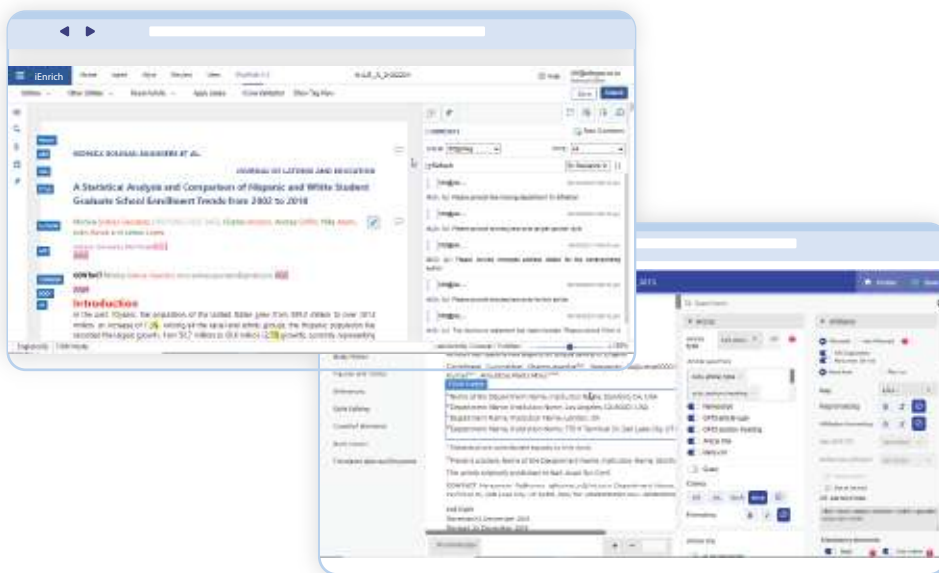Save downstream copyediting costs by **up to 30%**.

02 - iPubEdit

Integra's dedicated cloud-based editing automation tool

The highly scalable tool reduces manual efforts through:

- Auto query generation.
- Linking external references and float elements to citations.
- Identifying and validating mathematical expressions.
- Adding XML tagging at an early stage.

The leading scholarly publisher gained measurable benefits within weeks of integration, such as automated manuscript progression, elimination of redundant tasks, automation of repetitive and routine activities, and streamlining of the complete publishing workflow.

Key Achievements

50%▼ in TAT from 24 days to less than 13 days

40%▲ in author proofing cycle

50% +▼ in first-proof delivery from 5-6 days to 2 days

The best part is that Integra outperformed the expectations, both in terms of integration timelines and implementation success metrics.

Case 2: Enhanced Quality, Efficiency & Speed

A UK-based global publisher with an extensive collection of scholarly journals and publications sought an NLP-powered copyediting and cloud-based proofreading tool to enhance editorial quality across research verticals.

The publishers had two key requirements:

- ✓ Improve the Right First Time (RFT) score to limit the proofreading runs to just 2.
- ✓ Reduce the copyediting error rate to below an ambitious 0.2% per page.

Integra accepted the challenge and customized its cloud-based authoring tool and comprehensive manuscript assessment module with language quality assessment and XML-tagging capabilities to reduce reruns.

01 - iNLP

AI-powered language analysis and guided editing module

The intelligent natural language processor accelerates time-to-market and offers on-demand scalability by:

Increasing editorial productivity by **100%**.

Improving TAT by **30%**.

Reducing copyediting costs by **40%**.

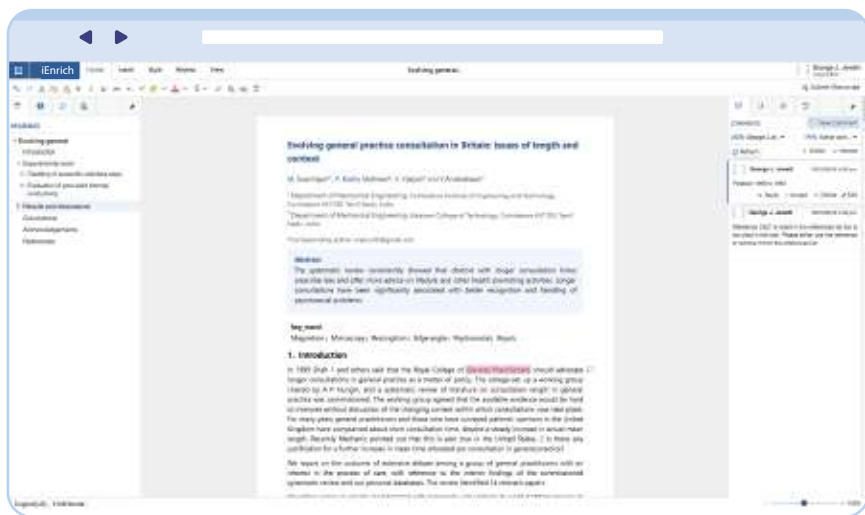Screening manuscripts within minutes.

02 - iAutopage

Automated composition and type-setting module

The black box pagination tool ensures high-quality XML creation, enhancing the quality of typeset pages. It:

- ✓ Creates and validates the XML report.
- ✓ Generates a comprehensive error report.
- ✓ Improves typesetting and pagination efficiency.

The publisher achieved exceptional quality and efficiency, reinforcing its position as a leader in innovative publishing. The client achieved significant improvements in RFT and copyediting.

Key Achievements

Streamlined proofing to 2 runs - first proof and final proof.

90% RFT with automated language assessment.

Average error rate of 0.002 over two years with advanced machine learning algorithms.

Integra's commitment to delivering excellence in academic publishing, while maintaining the highest standards of accuracy and efficiency, has helped the team exceed client expectations every single time.

Exploiting the Transformative Power of AI

Academia is embracing AI, gradually integrating it across all phases of scholarly publishing. Researchers, scholars, authors, editors, and publishers seek AI assistance to mitigate the challenges associated with their work.
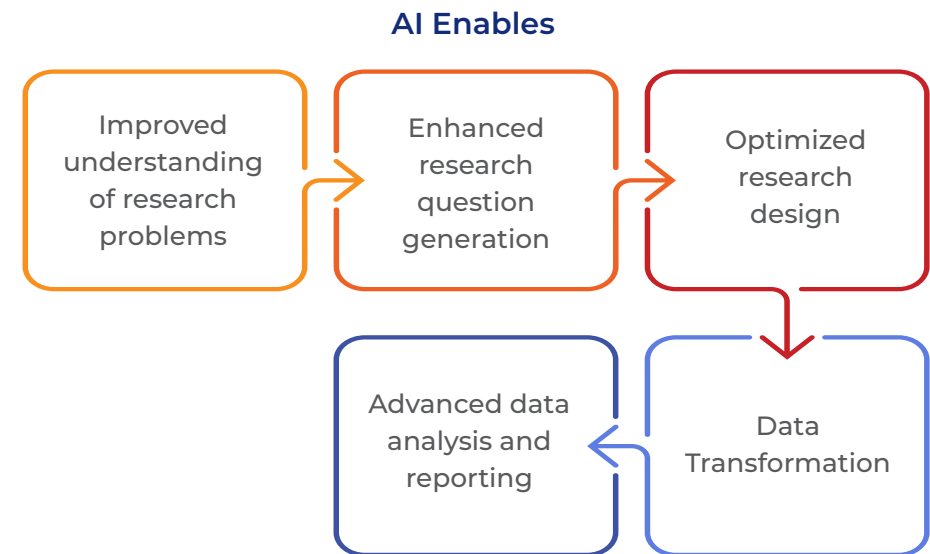
- Improve efficiency
- Anticipate future scenarios
- Save costs
- Reduce human error
- Avoid problems
- Automate processes

Image Source: https://www.neuraldesigner.com/images/benefits_ai.webp

Despite the rapid adoption of AI for both research and publishing purposes, the technology is still in its early stages and has a long way to go before its full potential can be optimally utilized. The good part is that AI relies on data, and the publishing industry has vast volumes of high-quality data. This means the industry is well-equipped to tap into the enormous prospects of the technology.

Research

This remarkable technology is also enhancing and facilitating the automation of research techniques and helping simulate experiments to analyze and deliver high-quality insights. AI algorithms empower researchers with the ability to analyze complex patterns and discover relationships and associations within minutes, something that would take humans hours. Most importantly, AI is helping interdisciplinary researchers by facilitating the consumption of distinct types of knowledge and deriving conclusions.

AI Enables

Improved understanding of research problems → Enhanced research question generation → Optimized research design → Data Transformation → Advanced data analysis and reporting

Authoring

AI can bridge the gap between researchers and authors, especially those who are not proficient in the language of the publication. Intelligent language assessment and suggestions can facilitate the development of writing skills to ensure accurate content interpretation.
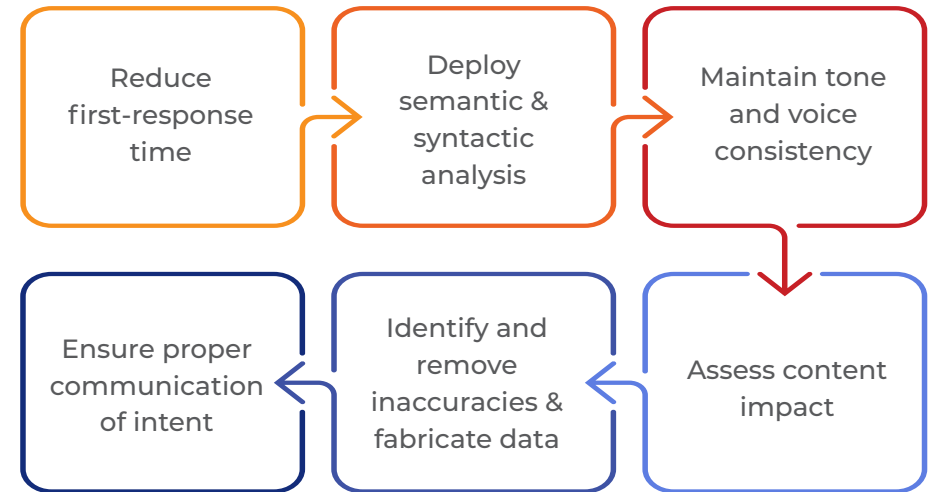
AI-powered authoring tools:

Offer inspiration and ideas → Eliminate grammar and spelling errors → Identify plagiarism and suggest improvements → Create summaries → Assess and help in removing research gaps
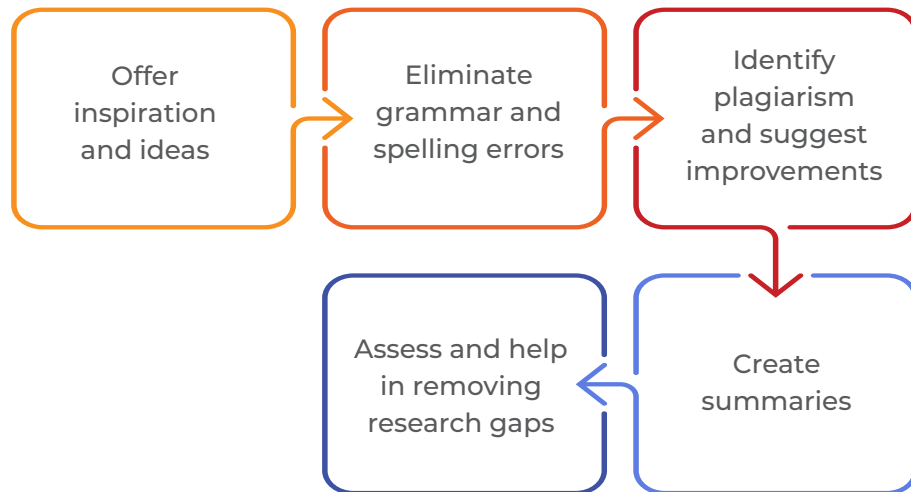
Editing

AI expedites and improves the overall quality of editing. It also reduces the required number of proofreading reruns. Furthermore, NLP can provide semantic enrichment to the editing engines. Analytics can suggest improvements in existing research. With AI tools taking over a large part of editing, editorial costs and time can be significantly reduced.

AI-powered tools:

Reduce first-response time → Deploy semantic & syntactic analysis → Maintain tone and voice consistency → Assess content impact → Identify and remove inaccuracies & fabricate data → Ensure proper communication of intent

Marketing

The first and most direct application of AI is in marketing. It assists in targeted promotion and recommendations. Furthermore, AI is transforming market research to predict the future needs, demands, and expectations of the target audience.
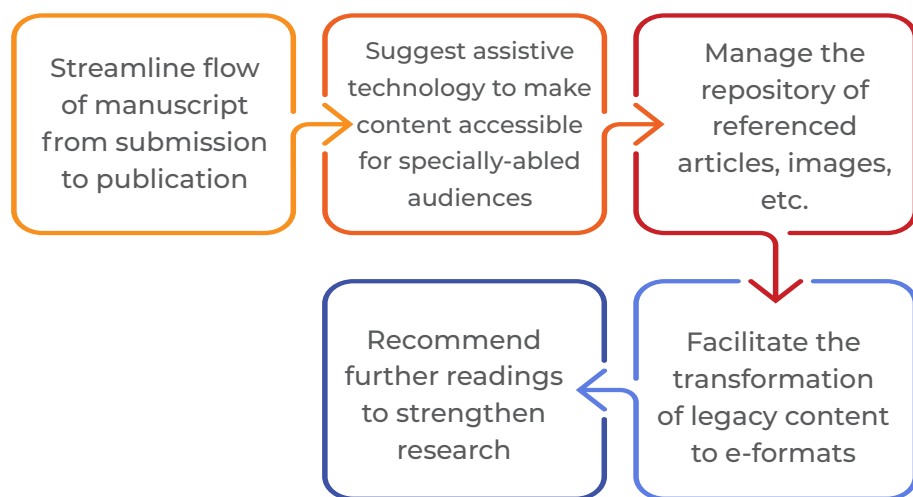
AI-powered tools can:

Conduct market research → Identify trends and reader behaviors → Enhance discoverability → Assess article performance → Aid translation to widen reach
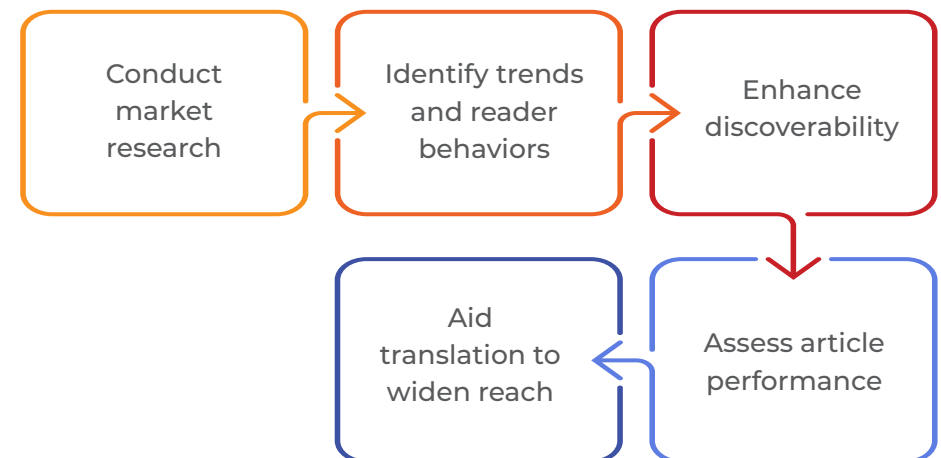
Content Management

AI can facilitate content curation to organize data and research findings to form groupings according to diverse niches. Grouping content and assessing readers' previous information-seeking behaviors enables swift and targeted delivery of requested content and recommendations to readers.

AI-powered tools:

Streamline flow of manuscript from submission to publication → Suggest assistive technology to make content accessible for specially-abled audiences → Manage the repository of referenced articles, images, etc. → Facilitate the transformation of legacy content to e-formats → Recommend further readings to strengthen research

How is Digital Editing Evolving?

Editors are among the most powerful people in the scientific community due to their pivotal role in determining which manuscripts are published and, therefore, accessible to the public.

AI-powered editing can foster a culture of evaluating editorship patterns, styles, and expertise. This can be a game-changer not only for publishing enterprises but also for individuals who self-publish.

> AI has potential to assist humans in the supervision of AI systems for hard tasks.

Self-publishers, and at times journal publishers, might undermine the need for high-quality, impartial editing and peer-review processes. Traditionally, editor and editing data remains scattered across the publication's databases. The absence of a uniform structure and complete information makes the task of organizing the data laborious and time-consuming. AI can drive "editor-metric" investigations to make the editing process FAIR (findable, accessible, interoperable, and re-useable). This can be done while the AI model trains and operates without any extra time, cost, or effort.
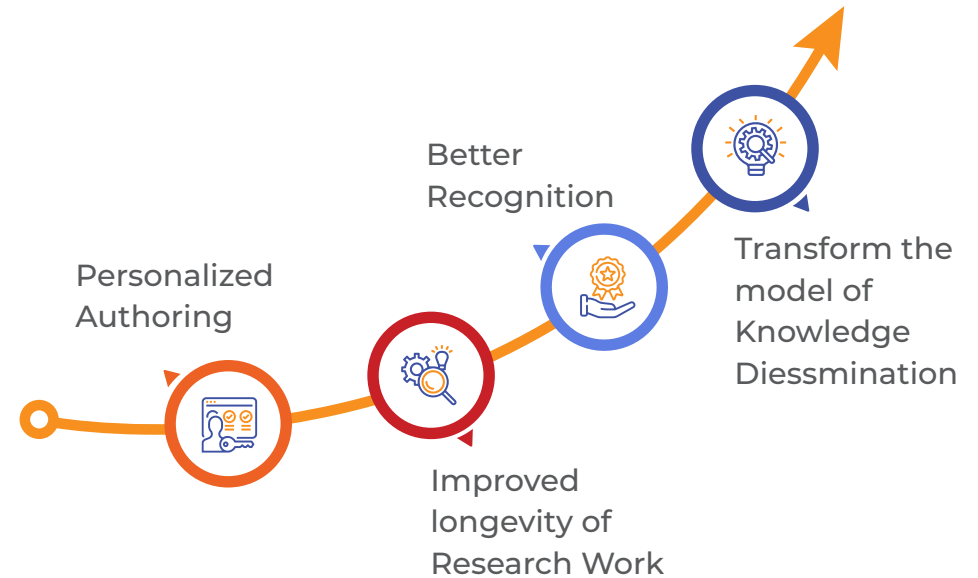
AI offers full-cycle publishing solutions ready to disrupt academia and scientific communication. ML and NLP can generate statistical and methodological reviews for scientific manuscripts, while optimizing the content for better and more targeted search ranking.

Role of AI in the Future of Publishing

AI is expected to propel the development of research integrity and facilitate the improvement of publishing models. It is already facilitating the creation of tools to transform research and exploration and revolutionize publishing.

> The future of publishing lies in improved structure, preservation, and born-digital workflows.

AI can expedite the adaptation of content for different audiences, ensuring a wide-ranging yet targeted reach. AI-powered tools are evolving to help publishers reach more diverse audiences by translating, personalizing, and localizing the content for different languages, cultures, and preferences. When publishers embrace the extensive potential of this technology, they will be empowered to harness it to generate and remix content in diverse formats and languages. All this while assuring superior quality publishing and preserving the intended interpretation of research. This can yield multiple benefits to the industry. Here's a look.

Personalized Authoring

Improved longevity of Research Work

Better Recognition

Transform the model of Knowledge Diessmination

Personalized Authoring

One of the most crucial aspects of scholarly writing is retaining the author's voice in translation and interpretation. Advanced AI models will be able to capture writing styles and retain them throughout the editing and translation processes. This will be helpful, especially in case a researcher is unable to author their research on their own. Growth in independent research capacity, with openly available and accessible scientific knowledge, will accelerate innovation. This, accompanied by advanced research writing tools, will expand the elite community and open new pathways of scientific communication.

> The AI-powered evolution will bring research closer to non-academia.

Improved Longevity of Research Work

Digital media boosts engagement, with the easy integration of multimedia. Research consumption could increase as a result. In addition, the ability to incorporate complex arguments and navigate through complex analytics would contribute to the quality of research and extend the lifespan of publications.

This transformation requires adapting traditional forms and formats to maintain the integrity of research and the domain, allowing ideas and conversations to flow freely.

Better Recognition

AI will empower publishers and editors to assess the authenticity of research and evaluate the quality of inferences drawn, giving them a way to credit and reward authors and researchers adequately. Assessing merit and impact helps value the work even beyond the domain to which the research pertains. This will also foster recognition for practitioners, public partners, and others who often remain unnoticed in current structures.

Transform the Model of Knowledge Dissemination

With the adoption of newer forms of knowledge consumption and dissemination, scholarly publishing will evolve. New subscription and subscription-free models of access to knowledge will replace the current closed models. The open access model has already made inroads into many domains. Publishers will need to focus on how they shape their business model for these new modes.

Powering Publishing with Technology

Digital technology can enable the production of multimedia content to transport knowledge and scholarship into fully digital realms. Inference and conclusions can be proven and demonstrated through these mediums. Audio and video formats will become prominent and pervasive. With generative AI's capacity to create audio/visual formats, research can be expedited, and confirming or rejecting hypotheses can be done via simulations. Since these mediums provide multi-sensory input, this will support programming, education, and skill building in academia and other communities.

Further, the localization of content is another transformative reform that AI can facilitate, making research more accessible. Sophisticated translations will handle complex sentence structures, idiomatic expressions, and context-specific meanings. Neural machine translations with deep networks trained with native content, writing styles, and linguistic intricacies will help publishers target and engage specific audiences.

The publishing landscape will also become more sensitive to all the work done throughout the research cycle and armed to expose fraud early. AI is set to be the biggest contributor to the evolution of a more radically inclusive and productive form of scholarly practice and publication. For now, there is a long way to go to establish a global norm of open, equitable, and public pathways for digital publication. Adopting powerful tools to enhance the quality of language and the entire manuscript is only the first step into the future of publishing.

Integra is a trusted partner in Business Process and Technology Services for many leading organizations worldwide. With a focus on providing end-to-end solutions for digital content, learning services, and content workflows, we help our customers realize transformational business value.

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