



Technology Advancements Driving  
The Next Generation of Note-Taking  
and Collaboration



## Note-taking is Getting Smarter: How the note-taking industry can benefit from universal digital ink technologies:

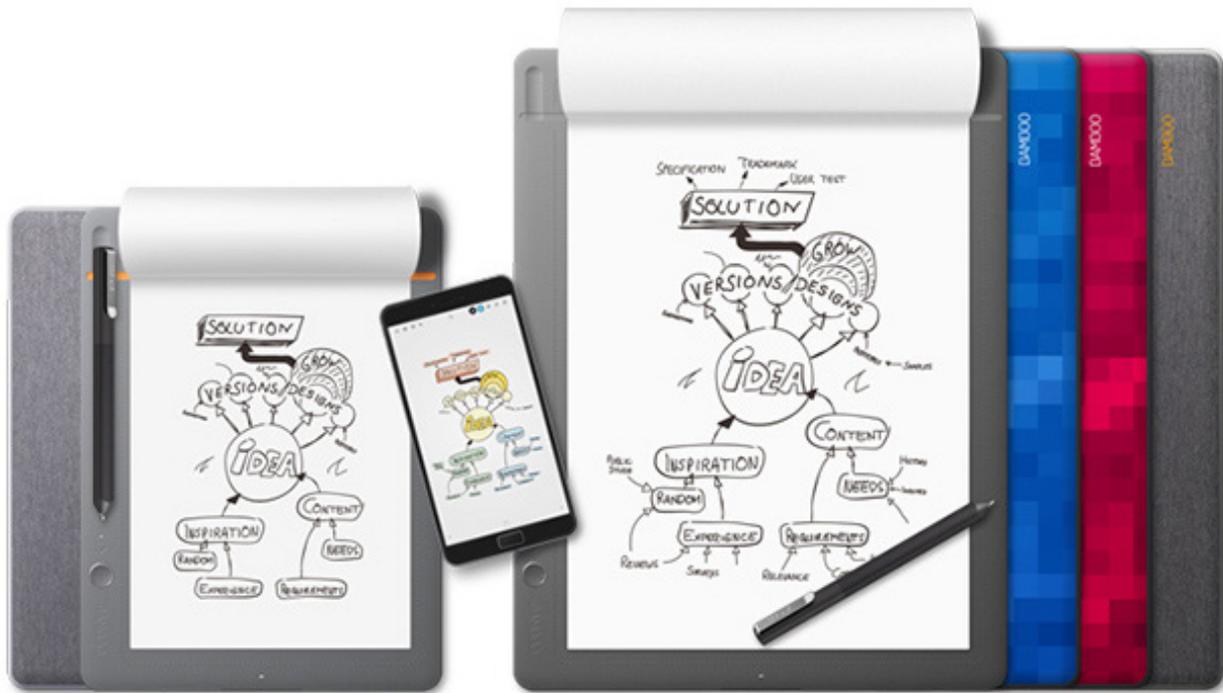
As note-taking becomes a larger part of our lives, users want – and have come to expect – more natural and intuitive user experiences. With digital ink technology, note-taking can capture more than just a single user’s remarks. The implementation and integration of artificial intelligence and semantic technology in writing and drawing systems will enable notes to be digitally rendered, annotated and shared across entire groups. Further technology advancements will allow note-taking tools to offer digital assistant functionality such as adding meeting dates to a group calendar or semantic search capabilities such as automatically recommending online resources for technical terms and concepts.

This is why Montblanc, Wacom, and other members of the Digital Stationery Consortium Use Case Work Group, including the German Research Center for Artificial Intelligence (DFKI), are researching what is possible when it comes to next-generation note-taking as a use case. Based on DSC Use Case Work Group research- the full report is available exclusively to DSC members - the highlights below provide insights into how artificial intelligence and semantic technology advancements might enhance the DSC’s own universal digital ink technology framework based on WILL™ (Wacom Ink Layer Language). The DSC aims to understand how to take note-taking to the next level; join today to access the full report and participate in these efforts.

### Advancing Collaboration

Many of today’s note-taking solutions are on the cusp of becoming global collaboration platforms. While these tools allow entire groups to take notes using one solution, they are often limited to select operating systems, devices and geographies or take advantage of the latest advances in digital ink, semantic or AI technology. The DSC believes that by advancing a universal digital ink framework with semantic and AI technologies, digital note-taking could dramatically improve how groups and individuals organize, collaborate, make connections and

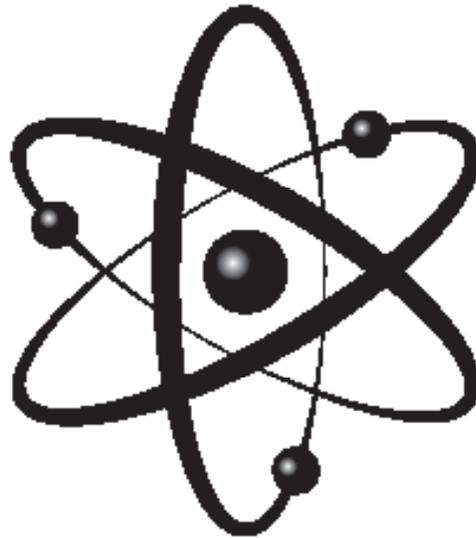
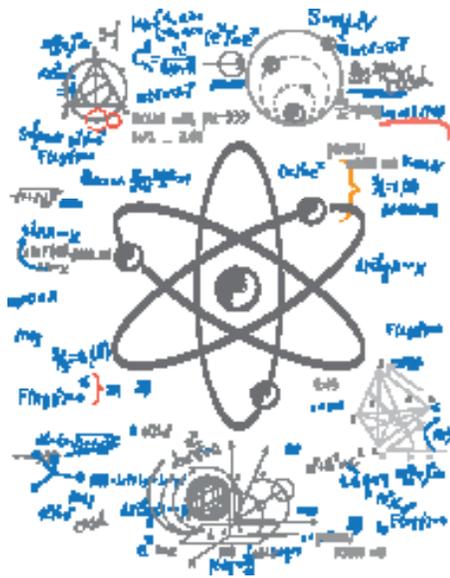
synthesize information. Scientists, educators, lawyers, architects or any type of teams could sync their notes with other note-takers in their group using any operating system or any device. Using a universal digital ink framework, groups could use any note-taking application to understand their organizational vocabulary as well as to import and embed documents, images, drawings and web pages directly into the group's annotated notes.



Future digital stationery note-taking applications could use a universal digital ink framework to sync notes with other devices regardless of operating system, hardware or software (Image courtesy of Wacom)

## Turning Note-takers Into Knowledge Workers

The DSC is examining how its universal digital ink technology framework could advance to allow note-taking solutions to connect ideas and concepts through semantic technology. By extracting the meaning from a group's vocabulary of terms and drawings, semantic technology enables notes to be used within other workflows. If note-taking solutions could learn to understand the meaning and context of a group's terminology or hand-drawn illustrations, they could increase the group's conceptual understanding of a topic. Using sketches, photos and handwritten notes from a lecture, a semantic note-taking solution could organize notes in a way that makes it easier for the group to understand architecture, chemistry or engineering concepts that previously were difficult to learn. With the ability to automatically identify the meaning of hand-written notes or tags as contextual information, digital ink technology could help note-takers become knowledge workers. A semantic-based note-taking solution could also learn to understand when to look up complicated research terms online, bring up a video of a professor explaining a problematic concept, or schedule a call with a researcher for extra assistance.



Common symbols and diagrams hand-drawn with digital ink and aided by AI could enable digital stationery applications to interpret the drawing and digitally render the correct diagram (Image courtesy of Wacom)

## Streamlining Workflow with Semantics

Today's note-taking solutions are designed to simplify a user's or group's digital workflow. When working on research documents using Google Docs or a Microsoft PowerPoint presentation, note-taking solutions act as cross-platform solutions that capture handwriting, import photos, annotate documents and bring together links needed for research, while also enabling the user to search their notes or to share and receive feedback with others via email. Using semantic technology, note-taking solutions can create a searchable network of ideas using text, links, images and even video from a wide range of inputs, systems, and devices. Note-takers could find information by searching based on where they took the notes or whether a user's name appears in the presentation or files. In fact, digital ink technology can become smart enough to understand when to make digital assistant-style recommended prompts. Notes about a board meeting, product, a place, research, video, homework, or more could prompt actions like "schedule flight," (show airline homepage) "search for hotels," (online search) "send me city information" (email) or the user's own notes or personal tags (e.g., "Lunch with the team") if desired.

## Conclusion

Using advances in semantic technology, digital note-taking has the power to transcend this traditional definition of organization. By understanding the context or meaning of a user's note-taking vocabulary, digital ink technology can enable users to create a more integrated neural network-style of the organization. With the right support from semantic technology, a new generation of note-takers could digitize their notes and find them by when, where or how they were taken - according to their own natural and intuitive organizational processes.

The digital stationery industry is quickly evolving. AI and semantic technologies are evolving what note-taking solutions can do. However, there is a growing need to bridge the gap between individual note-taking solutions and how they work with a larger ecosystem of apps, operating systems, digital assistants, and devices. The key to advancing note-taking is to ensure that the cross-industry collaboration efforts enhance a universal

framework that works across all types of industries, operating systems, devices, or applications. The DSC looks forward to working with the Technology Work Group on making the ultimate note-taking use case part of a proof-of-concept that could be added to WILL use across all systems, platforms, and services.

## Collaborating to enable change

Digital ink technology offers new opportunities for stationery products companies to expand their product capabilities and deliver new value to customers. The adoption of a universal, open and smart content format and a common framework for sharing and collaborating with digital ink will greatly expand these benefits. The DSC is working to lead this effort based on WILL™ digital ink.

We invite others to join the DSC to shape how digital ink innovations become part of a larger digital stationery market. All companies interested in the digital ink ecosystem are encouraged to become a DSC member. DSC membership levels, Contributor and Promoter, are open to companies across any business vertical. Digital stationery-focused technology start-ups and academic entities are invited to submit a free Promoter member application. Once approved, the Promoter membership fee is waived, and members can participate in DSC's technical and educational efforts via the consortium's Work Groups. Members receive access to WILL™ technology as well as the opportunity to become involved in various membership initiatives, Work Groups, and member-only meetings.

## About the DSC

The Digital Stationery Consortium is an association of global industries and thought leaders with the shared mission to advocate the value of human creativity and to lead the creation of a new market category of smart digital stationery solutions that serve creative minds naturally and intuitively. Contributor members, who also represent the DSC Board of Directors, include E Ink, Fujitsu Client Computing Limited, iFlytek, Montblanc, Samsung Electronics, and Wacom. The consortium's focus is to establish digital ink as a universal, open and smart content format and a common framework for sharing and collaborating with ideas based on WILL™ digital ink.