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BEST PRACTICES

# The Leading Trends in Visual Collaboration for 2024

What Organizations Need to Know as Digital  
Teamwork Moves Into the Mainstream



**Dion Hinchcliffe**  
VP & PRINCIPAL ANALYST



Produced exclusively for Constellation Research clients

# TABLE OF CONTENTS

|  |    |
|--|----|
| Executive Summary.....   | 3  |
| The Rise of Visual Collaboration.....  | 4  |
| The Recent Evolution of Visual Collaboration .....                             | 5  |
| The Current Capabilities of Visual Collaboration Tools.....                    | 6  |
| How Visual Collaboration Tools Have Been Utilized in Different Industries..... | 16 |
| Leading New Trends in Visual Collaboration Tools for 2024.....                 | 17 |
| Shift Toward More Immersive and Interactive Experiences .....                  | 24 |
| Case Examples of Large-Scale Visual Collaboration in the Enterprise.....       | 25 |
| Future Trajectory of Visual Collaboration Tools Post-AR/AI.....                | 29 |
| Visual Collaboration as a Key Element of Digital Work.....                     | 30 |
| Endnotes .....   | 32 |

# EXECUTIVE SUMMARY

Visual collaboration tools have transitioned from basic collaborative utilities to essential components in many key industries, evolving in response to modern work's increasing complexity and demands.

This report tracks their growth, evolution, refinement, and future as these tools become a central plank in redefining how collaborative work gets done, with dramatic productivity gains of as much as 33% in the organizations examined for this report.

## BUSINESS THEMES



Future of Work

# THE RISE OF VISUAL COLLABORATION

The work landscape is currently witnessing a steady paradigm shift in collaboration methods as organizations transition further into the digital era. With the increasing adoption of remote work and hybrid work models, the need for efficient tools that can facilitate collaboration across distances has never been greater. Visual collaboration tools, such as the Lucid Visual Collaboration Suite, Mural, and Miro, have emerged as front-runners in bridging this spatial and cognitive divide, offering dynamic platforms that individuals and teams can use to express ideas, plan projects, and visualize solutions.

Visual collaboration is not just a fashionable new mode of digital work: It has genuine impact on organizational performance. Recent research reveals that companies using visual collaboration platforms typically see a 20% increase in worker productivity<sup>1</sup> and 15% faster decision-making.<sup>2</sup> Customer interviews conducted for this report also indicated that typical meeting times are reduced by as much as one-third (33%).

Although the merits of these tools can be seen across multiple sectors, their impact is profoundly apparent in industries that rely heavily on brainstorming, iterative feedback, process planning, and multifaceted collaboration. The worlds of creative work and engineering, for example, demand intricate levels of detail and innovation, where visualization becomes an invaluable tool for conceptualization and problem-solving. Similarly, in marketing and software development, where the flow of ideas and iterative adjustments is pivotal, these visual tools have demonstrated the capacity to streamline workflows and foster a more cohesive, interactive environment.

Visual collaboration tools, which are usually equipped with several standard features such as digital whiteboarding as well as integrations with key workplace applications such as Microsoft Office and Google Workspace, provide a multidimensional space where participants can not only share but also build upon each other's inputs. This immersive experience addresses the tangible challenges of remote or hybrid work, where team members may feel disconnected or struggle to communicate complex ideas via traditional channels. A recent study by Owl Labs found that 72% of remote workers believe that visual collaboration tools are essential for their productivity.<sup>3</sup>

Diagramming features also play a key role in visual collaboration software, enabling teams to come together and align on more complex use cases, such as product roadmaps, strategic planning, wireframing, enterprise architecture, or database diagrams. Allowing for these more complex use cases as well as more unstructured collaboration such as brainstorming to exist in the same platform helps organizations remove silos often found between departments, better enabling alignment on cross-functional initiatives.

Moreover, visual collaboration seems to be overcoming the inherent challenges of hybrid work. In such setups, where teams are split between onsite and remote environments, ensuring uniformity in understanding and execution is paramount. Visual collaboration tools bridge this disparity by offering a shared digital space where teams, regardless of their location, can cohesively collaborate, ensuring that all team members have an equal voice and visual perspective on projects.

As the future of work continues to evolve, fostering effective collaboration becomes increasingly critical. Visual collaboration tools now stand out as a first-class digital workplace category and as instrumental catalysts for this evolution, catering to diverse work styles, worker profiles, and environments and proving that visualization might very well be the key to mastering the many challenges of the modern hybrid workplace.

## THE RECENT EVOLUTION OF VISUAL COLLABORATION

One of the most prominent trends observed in visual collaboration tools is the emphasis on integration capabilities. As organizations continue to use a plethora of software solutions, the need for seamless interoperability has become more evident. The makers of tools such as Lucid, Mural, and Miro have responded by offering integrations with popular project management, communication, and cloud storage platforms. For instance, several of these visual collaboration tools have added integration with tools such as Slack, Jira, and Google Drive, showcasing how these platforms are expanding beyond their primary use cases to ensure that users can have a unified workflow without the need to frequently toggle between different applications and enhancing convenience, unification of work, and productivity.

Another prevailing trend is the enhancement of real-time collaboration features. With global teams and distributed work becoming the norm, these tools are putting a premium on ensuring that team members can work synchronously, no matter their location. Features such as live cursors, real-time commenting, and instant synchronization have become standard. For instance, some tools offer enhanced facilitator capabilities such as a “Follow Participant” function that can enable users to see the board from another participant’s perspective, making collaborations more engaging and immediate and replicating an in-person brainstorming session.

User experience (UX) and customization have also taken center stage. Recognizing that every team and project is unique, platform companies are investing in making their tools more intuitive and adaptable. Most visual collaboration platforms offer customizable templates, which cater to various industries and use cases, from agile methodologies to design-thinking processes. Drag-and-drop interfaces and diverse sets of icons, shapes, and sticky notes, combined with color coding and tagging capabilities, ensure that users can tailor the platform to their specific needs.

Lastly, there’s an increased emphasis on scalability and security. As more enterprises adopt these tools, the need to support larger teams while ensuring data security has become paramount. Some solutions now offer enterprise-grade security features, including single sign-on (SSO) and encrypted data transmission. Furthermore, the platforms are ensuring that they remain agile, catering to both small-team brainstorming sessions and large-scale collaborative projects and emphasizing that no team or project is too big or too small to benefit from visual collaboration.

## **THE CURRENT CAPABILITIES OF VISUAL COLLABORATION TOOLS**

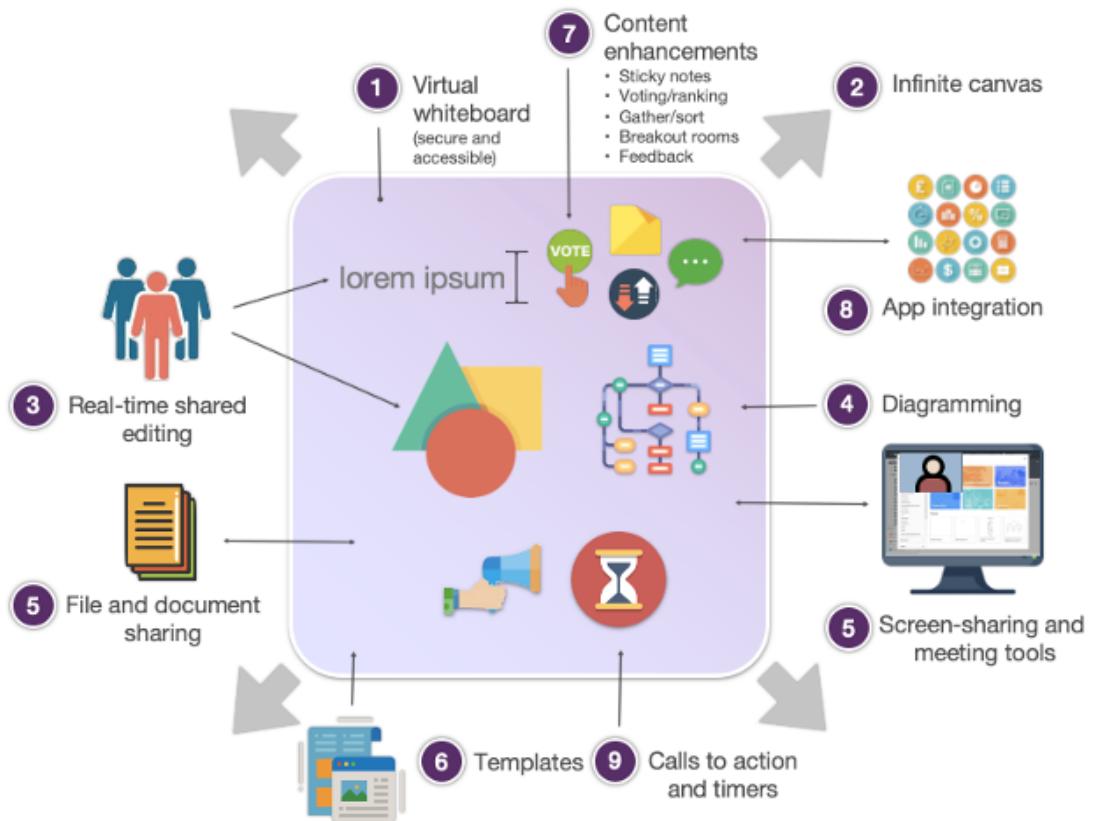
In the ever-evolving landscape of digital communication and teamwork, visual collaboration tools have carved out a significant niche for themselves, becoming indispensable assets for organizations around the globe. Seamlessly melding the intuitive nature of visual representation with the dynamism of real-time collaboration, these tools have redefined the way teams conceptualize, communicate, and execute

ideas. It's worth delving into the contemporary landscape of these tools to explore their prevalent features, useful capabilities, and the nuanced ways in which they're enhancing both remote and in-person collaboration in today's increasingly interconnected world (see Figure 1).

The following are standard features of most enterprise-class visual collaboration tools today:

- **Virtual whiteboards.** Modern visual collaboration tools have evolved from the traditional physical whiteboard to provide teams with a digital canvas for expressing, structuring, and synergizing their ideas. Unlike their physical counterparts, virtual whiteboards bring a host of advanced features to the table. The intuitive nature of these digital boards is reminiscent of the traditional whiteboard experience but with a twist: Digital whiteboards can seamlessly integrate with the expansive nature of an “infinite canvas” (see below). This ensures that although teams get the familiar feel of a whiteboard, they are not limited by physical boundaries, leading to an unimpeded flow of creativity.

**Figure 1. The Nine Classic Capabilities of Visual Collaboration Tools**



Source: Constellation Research

- **Infinite canvases.** One standout feature of modern visual collaboration tools is the concept of an infinite canvas. This expansive, limitless space offers vast horizons where ideas can evolve, spread out, and connect without restraint. In traditional visualization tools, users often find themselves restricted by the size or format of the canvas, leading to cramped layouts or even the necessity to truncate or overly condense ideas. With an infinite canvas, teams can think big, sketch out sprawling ideas, and connect multiple concepts. As brainstorming evolves, there's no need to erase or resize; teams simply pan or zoom out. This flexibility not only adapts to a project's needs but also encourages users to explore tangents and nuances, making the collaborative experience richer and more comprehensive.
- **Real-time shared editing.** This feature stands as a cornerstone of modern visual collaboration tools, transforming the very dynamics of teamwork in the digital realm. Real-time sharing enables multiple users to simultaneously interact with and modify a shared visual workspace, such as a digital whiteboard or canvas, from their respective devices, irrespective of geographical constraints. Unlike traditional methods where users would have to wait for one person to finish making changes before another could begin, real-time shared editing enables instantaneous, concurrent input. Every stroke, note, or alteration made by a user is immediately visible to all other participants, ensuring that all collaborators have an up-to-date view of the collective output. This instantaneous interaction fosters a sense of unity, replicating the immediacy and synergy of an in-person collaboration session.

For instance, consider a global product development team using a visual collaboration tool for brainstorming a new product feature. The lead designer in New York might sketch an initial product design on the shared canvas. Almost simultaneously, a team member in London can add annotations suggesting modifications while a marketer in Tokyo places sticky notes highlighting potential market trends on which the product can capitalize. Meanwhile, an engineer in San Francisco can draw potential workflow diagrams or pinpoint challenges directly on the same canvas. As changes are made, every team member can see them in real time, ask questions, make further suggestions, or even use tools such as real-time chat or videoconferencing to discuss certain aspects, ensuring that the brainstorming session is dynamic, immediate, and holistic. This shared real-time interactivity not

only speeds the decision-making process but also ensures that every team member's voice and input are acknowledged and integrated.

- **Diagramming.** This foundational feature of visual collaboration tools provides a structured and shared visual way for teams to represent complex information, processes, and systems. These tools come equipped with a myriad of prebuilt shapes, connectors, and templates, enabling users to easily create flowcharts, mind maps, organizational charts, unified modeling language (UML) diagrams, and more. Beyond the foundational elements, advanced functionalities such as automatic alignment, distribution, and dynamic resizing ensure that the diagrams are not only aesthetically pleasing but also coherent and legible. Whether used for technical system designs, mapping out business processes, or simply organizing ideas, the diagramming capabilities of visual collaboration tools make abstract concepts tangible, ensuring clearer communication and understanding across teams.
- **File, document, and screen sharing.** These three related features in visual collaboration tools serve the critical purpose of providing a holistic and multifaceted collaborative experience, bridging the gap between ideation and actual content. At the heart of these features is the notion of seamless integration, ensuring that teams can not only brainstorm or visualize concepts but also dive deep into the specifics without toggling between multiple platforms.
  - **File and document sharing.** By enabling users to embed files and documents directly into a visual workspace, these tools ensure that all relevant materials are readily accessible in the context of a discussion. For instance, consider a marketing team working on a new product launch. The main canvas may have a timeline and action items plotted, and a team member can directly attach a draft of marketing collateral or a detailed product specifications document, enabling the team to refer to these documents as they plan and ensure that their strategies align with the provided materials.
  - **Screen sharing.** This feature elevates the collaborative experience by enabling users to share live visuals from their screen, ensuring real-time feedback and discussion. Take, for example, a software development team troubleshooting a specific bug. A developer can screen-share to

display the code in question or replicate the error, and others can immediately point out issues or suggest corrections. This instant back-and-forth, enhanced by the visual immediacy of screen sharing, accelerates problem-solving and ensures that everyone is on the same page.

In each of these real-world examples, the core value proposition of file, document, and screen sharing is clear: These features ensure that visual collaboration tools are not just platforms for ideation but instead are comprehensive collaborative hubs, facilitating detailed discussions, feedback loops, and informed decision-making by providing a full spectrum of contextually relevant information in a single, visually integrated environment.

- **Templates.** Predesigned content templates in visual collaboration tools serve as powerful accelerators for efficient and structured collaboration. By providing predefined layouts and structures tailored to specific tasks or workflows—such as brainstorming sessions, project roadmaps, or user journey maps—templates eliminate the initial setup time, enabling teams to dive straight into the core of their collaborative efforts. Beyond providing mere convenience, templates also introduce best practices, ensuring that teams follow tried-and-true methodologies that enhance clarity, coherence, and productivity. In essence, they act as blueprints, guiding teams toward more streamlined and effective collaboration and enabling them to harness the full potential of the tool without starting from scratch each time.
- **Content aids and enhancements.** As visual collaboration tools have transcended traditional boundaries, they have continued to introduce innovative content-enhancement features. These features not only facilitate brainstorming and idea generation but also streamline the decision-making process, resolving differences of opinion, encouraging participation, and ensuring clarity.
  - **Voting and ranking.** These are pivotal features for group decision-making. After brainstorming, teams can use voting mechanisms to prioritize ideas, ensuring democratic selection. For instance, after a product team lists potential features for an upcoming release, members can vote on which ones are paramount. Ranking further refines this process, enabling users to order ideas based on importance, feasibility, or any other criteria.

- **Sticky notes.** A digital adaptation of the classic brainstorming tool, sticky notes in visual collaboration platforms enable users to jot down ideas, feedback, or reminders. Their dynamic nature means they can be easily moved, grouped, or categorized. For example, during a strategy meeting, different-colored notes can denote ideas, challenges, and questions, making the visualization of discussion points both intuitive and organized.
- **Gathering/sorting of text input.** Collaboration tools often incorporate features where text input from various participants is gathered and then sorted or grouped. This is beneficial during feedback sessions or ideation where myriad points are raised. Postgathering, these inputs can be categorized, ensuring structured and coherent discussions. For instance, customer feedback can be sorted into categories such as “product improvements,” “new features,” and “bug reports.”
- **Breakout rooms.** Breakout rooms in visual collaboration tools enable larger teams to split into smaller groups, facilitating focused discussions on specific topics. Postdiscussion, teams can reconvene and share their findings with the larger group. For instance, in a corporate workshop, participants can be divided into breakout rooms to discuss different aspects of a business challenge and later integrate their solutions into a comprehensive strategy.
- **Feedback.** Instant feedback mechanisms—be they through comments, annotations, or even emotive reactions (such as thumbs-up/down)—empower participants to voice their opinions without disrupting the flow of a session. In a design review, for instance, designers can receive immediate feedback on various elements, helping them iterate more effectively.
- **Application integration.** The overall digital workspace has evolved into a complex ecosystem of diverse applications, each catering to specific facets of work. In such an environment, the integration capabilities of visual collaboration tools emerge as paramount, offering a seamless bridge between these many, varied platforms to ensure that users have all the requisite resources at their fingertips, without the need to constantly switch between applications or import/export data and suffer all the data consistency and synchronization issues this entails.

These are the key capabilities of application integration with visual collaboration tools:

- **Consolidated information access.** Integration enables users to pull data, files, or insights from other platforms directly into the visual collaboration space. This ensures that all relevant information is consolidated and accessible in a single unified platform, enhancing efficiency and reducing the chances of oversight due to fragmentation of data sources.
- **Visual synchronization.** One of the tools' most notable integration capabilities is seamless visual integration with other products, such as the widely used corporate wiki Confluence. This means that teams can brainstorm, design, and create visuals within a visual collaboration space and then effortlessly embed or transfer these images into Confluence pages or other documentation platforms. Such integrations facilitate the interplay between brainstorming and documentation, ensuring that insights and ideas are not just captured but also are well documented and contextualized within a broader project framework. Given the fluid nature of project management and the interdependence of tools, this integration between visual collaboration platforms and content-related products stands out as one of the most utilized and valued features by teams using such tools.
- **Real-time data sync.** Integration ensures that data changes or updates in one platform are immediately reflected in the visual collaboration tool. This real-time sync ensures that teams always work with the latest and most accurate data, reducing discrepancies and the need for manual updates.
- **Streamlined workflow.** Direct integration with task management, customer relationship management (CRM), or enterprise resource planning (ERP) systems means that actions taken within a visual collaboration tool can trigger corresponding actions in other platforms. For instance, a decision made during a brainstorming session can directly create a task in a project management tool or update a lead status in a CRM system.

Good examples of useful application integrations are:

- **Jira integration.** For teams using Jira as their tracking tool, integrating it with visual collaboration platforms means they can directly transform operational outcomes into actionable tasks. For instance, ideas finalized on a digital whiteboard can be dragged and dropped as new tasks in Jira, ensuring a seamless transition from ideation to execution.
- **Slack integration.** By integrating Slack, a leading communication platform, into visual collaboration tools, teams can receive real-time notifications about updates, comments, or changes made in the collaborative space. This ensures that even team members not actively present in the visual tool remain informed and can quickly jump into discussions when needed.
- **Google Drive integration.** The ability to pull documents, spreadsheets, or presentations directly from Google Drive into a visual workspace means that teams can readily access, reference, and collaborate on these files. This is particularly useful during review sessions where, for example, a team can collaboratively annotate a Google doc, ensuring that feedback is immediately captured and actionable.
- **Calls to action and timers.** Visual collaboration tools aim to drive engagement, clarity, and productivity during team interactions. Within this scope, features such as calls to action (CTAs) and timers can play pivotal roles, each designed to foster directionality and maintain momentum in collaborative sessions.
  - **CTAs**
    - **Direction and focus.** CTAs serve as guideposts within the visual collaborative space, directing participants toward specific tasks or areas of interest. In a vast digital workspace, they help pinpoint what needs immediate attention or where contributions are most needed.
    - **Engagement.** By providing clear and actionable instructions, CTAs keep participants actively engaged. For example, a CTA prompting team members to “Vote on your preferred design concept below” ensures that participants not only view the content but also interact with it meaningfully.

- **Efficiency.** CTAs streamline the collaborative process by minimizing ambiguity. Instead of participants' wondering what they should do next, CTAs guide them, ensuring that time is spent productively on task-relevant activities.

- **Timers**

- **Structured activities.** Timers can be employed to set boundaries for specific activities. For instance, during a brainstorming session, setting a timer ensures that the team stays focused and that the activity doesn't last too long, keeping the session energetic and efficient.
- **Promote decision-making.** Timers instill a sense of urgency, pushing teams to arrive at decisions or conclusions within the set timeframe. This is particularly valuable in scenarios where teams tend to deliberate excessively, causing delays.
- **Break management.** In longer collaborative sessions, timers can also be used to manage breaks, ensuring that participants return on time and the session proceeds as scheduled.

- **Meeting tools and session controls.** These features often encompass a range of functionality—from scheduling tools that enable users to set up and send invites for collaborative sessions to participant management features—enabling hosts to control who can join, view, or edit within the collaborative space. Additionally, there are real-time communication tools such as built-in chat, voice, or videoconferencing, ensuring seamless dialogue as participants collaborate. Session controls may also include the ability to record sessions for future reference, playback, or training, alongside features such as screen sharing, annotations, language transcription, and interactive polling. Collectively, these tools and controls ensure that virtual meetings are as organized, interactive, and productive as their in-person analogs, if not more so.
- **Accessibility features.** These capabilities in visual collaboration tools ensure that these platforms are inclusive and usable by individuals with diverse abilities, broadening their reach and impact. Many of these tools incorporate features such as screen-reader compatibility, enabling visually impaired users to receive auditory feedback about on-screen content. Contrast settings and adaptable color schemes

can cater to those with color blindness or vision challenges, ensuring legibility and clarity. Additionally, keyboard shortcuts and navigation capabilities facilitate ease of use for those who may find traditional mouse-based navigation challenging. Some platforms also integrate with speech-to-text tools, making it easier for users with hearing impairment to participate actively in collaborative sessions. Through these accessibility features, visual collaboration tools underscore a commitment to inclusivity, ensuring that all team members, regardless of their physical abilities, can engage fully and effectively.

- **Enterprise features.** These are functions within or aspects of visual collaboration tools that cater specifically to the nuanced requirements of larger organizations, ensuring data integrity, compliance, and operational efficiency. Fine-grained security mechanisms offer detailed access controls, enabling organizations to meticulously dictate who can view, edit, or share content, thereby safeguarding sensitive information. Audit logs bolster transparency and accountability by maintaining a comprehensive record of all user activities and changes within the platform, essential for tracking, compliance, and resolving discrepancies. Furthermore, document retention policies enable enterprises to set predetermined life spans for documents and data, ensuring that content is automatically archived or deleted after a specified period and aiding in both data management and adherence to regulatory requirements. Together, these features ensure that visual collaboration tools are robust, secure, and aligned with the complex operational landscapes of enterprise environments.

The above is far from an exhaustive list of features in today's visual collaboration tools, but it is representative of the capabilities leading products in the space generally offer.

## HOW VISUAL COLLABORATION TOOLS HAVE BEEN UTILIZED IN DIFFERENT INDUSTRIES

Visual collaboration tools, with their dynamic interfaces and interactive features, have been successful in transcending conventional boundaries of teamwork and communication, finding utility across diverse sectors. From software development to the creative arts, these platforms have tailored their capabilities to suit specific industry needs, ensuring that collaboration is not just effective but also innovative.

Analysis of four leading industries that have leveraged such tools provides insights into how visual collaboration transcends traditional collaborative methods, offering distinct advantages that cater to the unique challenges and demands of each sector.

## **Software Development and Information Technology**

The software and IT industry thrives on iterative processes, frequent team interactions, and agile methodologies. Visual collaboration tools provide a platform for developers, QA testers, and project managers to use for brainstorming, storyboarding, and tracking progress. With visual collaboration tools, teams can visually map out user journeys, create wireframes, or plan sprints. The infinite canvas of these tools is especially beneficial in developing complex architectures or systems where traditional tools might be limiting. As a more advantageous option than traditional tools, visual collaboration platforms enable real-time feedback, ensuring rapid prototyping, testing, and refinement.

## **Design and Creative Industries**

For designers, advertisers, and creative professionals, visual collaboration tools are a natural extension of their workspace. These platforms facilitate mood boarding, sketching, and collaborative ideation sessions, where visuals often play a more prominent role than text. Given the visual nature of their work, these tools offer a distinct advantage over traditional collaboration tools by enabling team members to co-create, comment on visual elements, and iterate designs in real time, ensuring that the final output resonates with the collective vision.

## **Consulting and Strategy Development**

Consulting firms and strategists often deal with complex problems, requiring comprehensive data analysis, brainstorming, and solution mapping. Visual collaboration tools enable consultants to build flowcharts, SWOT analyses, or stakeholder maps collaboratively with clients or teams. Compared with traditional tools, these visual platforms enable a more holistic view of the problem, encourage active participation, and ensure that strategies are not just discussed but also visualized, fostering clarity and consensus.

## Education and Training

The education sector, especially in the age of remote learning, relies heavily on tools that facilitate engagement and comprehension. Educators and trainers employ visual collaboration tools to create interactive lessons, workshops, or brainstorming sessions. These platforms make abstract concepts tangible via mind maps, flowcharts, or interactive diagrams. In contrast to traditional teaching tools, visual collaboration platforms can engage learners more interactively, catering to diverse learning styles and fostering a more participatory and inclusive learning environment.

In each of these industries, visual collaboration tools not only enhance the efficiency of collaborative efforts but also redefine the very nature of teamwork, making it more dynamic, inclusive, and results-oriented.

## LEADING NEW TRENDS IN VISUAL COLLABORATION TOOLS FOR 2024

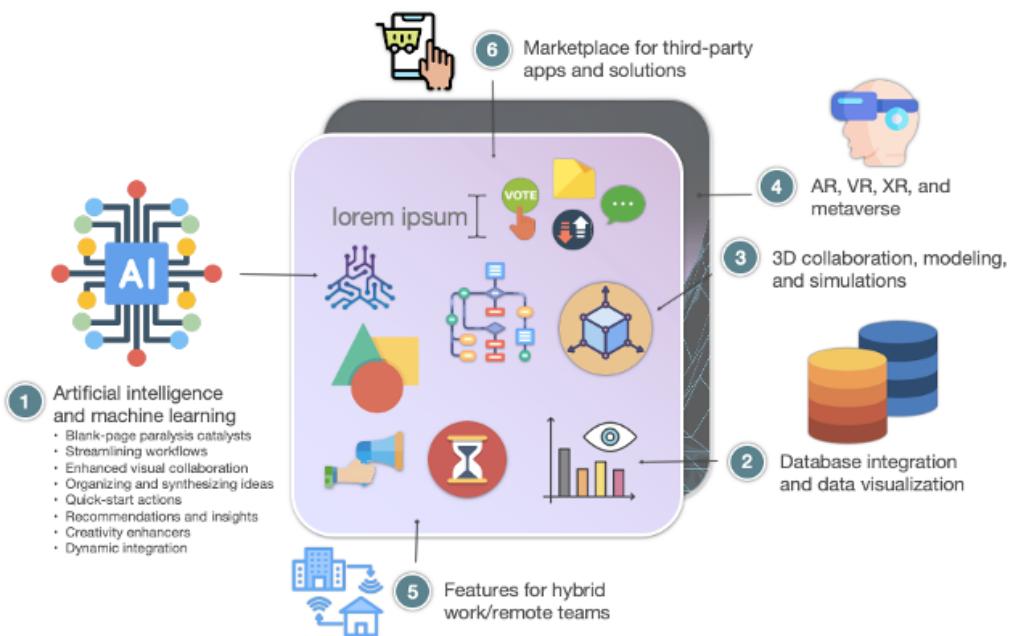
Several key advances, often built on existing pioneering work by visual collaboration firms on the cutting edge, are likely to transform visual collaboration starting in 2024. Here's an examination of the six most likely new capabilities (see Figure 2).

### Artificial Intelligence and Machine Learning

The integration of artificial intelligence (AI) and machine learning (ML) into visual collaboration tools offers a multitude of benefits that can significantly enhance the user experience and improve productivity. Included below are some of the AI use cases already emerging in the leading tools such as Lucidspark and Mural.

- **Overcoming blank-page paralysis.** One of the challenges in brainstorming or starting a project is the intimidation of a blank canvas. AI can help overcome this by suggesting ideas or kick-starting the creative process, ensuring that teams can get into the flow of work more quickly.

**Figure 2. The Six New Capabilities Forecast for Visual Collaboration**



Source: Constellation Research

- **Streamlining workflows.** AI can automate manual and time-consuming tasks, enabling users to focus on higher-order thinking skills that require creativity and deep analysis. This means that routine tasks can be handled by AI, freeing users to concentrate on more complex and meaningful work.
- **Enhanced visual collaboration.** Visual collaboration tools that integrate AI can offer features such as automated mind mapping based on a central idea, helping teams visualize how concepts are interconnected. This aids in brainstorming and exploring topics in depth.
- **Organizing and synthesizing ideas.** AI-powered features can automatically identify patterns and similarities between ideas, such as clustering related items. This helps not only in organizing thoughts but also in understanding the broader themes and connections within a brainstorming session.
- **Quick-start actions.** AI can assist in setting up meetings, formatting content, and ensuring that sessions run smoothly. This enables teams to focus on the content of the meeting rather than getting bogged down by administrative tasks.

- **Recommendations and insights.** AI can provide better recommendations based on the content being discussed, even tapping into corporate large language models (LLMs) to bring in enterprise information from across all available internal knowledge, ensuring that teams have all the information they need in order to make informed decisions.
- **Creativity enhancers.** By offloading monotonous tasks to AI, users can focus on solving complex problems and driving the right business outcomes. This ensures that the creative process is unblocked and teams can innovate more effectively.
- **Dynamic integration with other platforms.** AI-powered visual collaboration tools can seamlessly and automatically integrate with other platforms on demand, enhancing the overall user experience and ensuring that teams have all the tools they need at their fingertips.

The integration of AI and ML into visual collaboration tools not only enhances the user experience but also ensures that teams can work more efficiently and creatively. By automating routine tasks and providing insights and recommendations, AI empowers teams to focus on what they need to do: innovate and collaborate.

## Database Integration and Data Visualization

Database integration and data visualization are pivotal advances that can be significantly improved by visual collaboration platforms, with vendors such as Lucid pioneering the way in this feature category in particular. With databases' being integrated directly into these platforms, users can access, manipulate, and visualize real-time data without having to switch between multiple tools or applications. This seamless integration ensures that data-driven insights are immediately available, fostering a dynamic environment where decisions are made based on up-to-date information. Furthermore, as businesses become increasingly data-centric, the ability to pull data from various sources and present it in a comprehensible manner within a collaborative space becomes invaluable. It eliminates the barriers between raw data and actionable insights, enabling teams to interact with data in ways that previously were cumbersome or even impossible.

Visual collaboration platforms, with their inherent emphasis on visual representation and interactive engagement, are ideal vehicles for data visualization use cases. Visualizing complex datasets in easily digestible formats such as charts, graphs, and infographics not only simplifies understanding but also facilitates deeper discussions and brainstorming sessions based on the data. When teams can collaboratively engage with visualized data, they can identify patterns, anomalies, and insights more effectively. This collaborative approach to data analysis promotes a shared understanding, ensuring that all stakeholders are on the same page. In essence, the fusion of data visualization with visual collaboration platforms empowers teams to transform raw data into meaningful narratives, driving informed decision-making and fostering innovation.

## 3D Collaboration, Modeling, and Simulations

The rise of 3D collaboration, modeling, and simulations represents a significant leap in the realm of digital interaction, and visual collaboration tools are poised to play a pivotal role in this evolution. These tools—with their capabilities for facilitating real-time collaboration, annotations, and feedback—can greatly enhance the experience of working with 3D models and simulations. Features such as multiuser access, real-time editing, and the ability to overlay comments directly onto 3D models enable teams to collaboratively design, iterate, and refine complex 3D projects. Additionally, the integration of augmented and virtual reality (AR/VR) capabilities within visual collaboration platforms can provide users with an immersive experience, enabling them to interact with 3D models in a more intuitive and lifelike manner.

Imagine a situation where an architectural firm is designing a state-of-the-art building. Using a visual collaboration tool, the architects, engineers, and interior designers from different locations can collaboratively access the 3D model of the building. As they navigate through the virtual structure, they can make real-time modifications, place annotations, and even simulate different lighting conditions or material finishes. If there's a structural issue or a design enhancement, team members can highlight the specific area, provide feedback, and even sketch out potential solutions. This collaborative approach,

facilitated by the features of visual collaboration tools, ensures that the final design is a culmination of collective expertise, reducing errors and enhancing the overall quality of the project.

## Advances in Augmented Reality, Virtual Reality, and the Metaverse

The convergence of AR, VR, and the metaverse with visual collaboration platforms heralds a new era of digital interaction, blurring the lines between the physical and virtual realms. AR, with its ability to overlay digital information onto the real world, can transform visual collaboration by enabling users to interact with real-world objects and digital data simultaneously. For instance, in the realm of healthcare, surgeons could use AR-enhanced visual collaboration tools to overlay diagnostic images directly onto a patient during surgery, allowing for more precise and informed procedures. This integration of real-world context with digital insights can lead to more accurate and efficient decision-making processes (see Figure 3).

VR takes visual collaboration a step further by immersing users completely in a digital environment. This full immersion can revolutionize fields such as education and training. Consider a scenario where engineering students from around the world don VR headsets and enter a shared virtual laboratory. Here, they can collaboratively conduct experiments, manipulate virtual equipment, and observe phenomena in real time, all without the constraints of physical location or resources. Such a VR-enhanced collaborative environment can provide hands-on experience, bridging the gap between theory and practical application and fostering a deeper understanding of complex concepts.

The metaverse—a collective virtual shared space created by the convergence of virtually enhanced physical reality and interactive digital spaces—represents the next frontier in visual collaboration. Within the metaverse, collaboration is not just about sharing information: It's also about shared experiences, interactions, and even economies. A high-value use case could be in the domain of business conferences. Instead of having traditional video calls or physical meetings, professionals could enter a virtual conference room in the metaverse, complete with interactive 3D presentations, virtual product demos, digital twins, and networking lounges. This would not only reduce the logistical challenges of

**Figure 3. Augmented Reality for Visual Collaboration Can Mix Content Types in a Holistic 3D Experience Projected on the Real World**



Source: Microsoft

international conferences but also offer a richer, more engaging experience. As these technologies continue to evolve, visual collaboration inevitably will become more immersive and three-dimensional, weaving together the fabric of reality and the digital world in ways we are only beginning to imagine.

## Features to Explicitly Support Hybrid Work/Remote Teams

Visual collaboration tools are increasingly recognizing the challenges posed by hybrid work environments, particularly the potential for inequity and lack of inclusion among remote team members. To address this, these platforms are integrating features designed to level the playing field and ensure that all participants, regardless of their location, have an equal voice and presence in collaborative sessions. For instance, many tools now offer real-time transcription and translation services. This

ensures that team members who might not be native speakers or who have hearing impairments can fully engage in discussions. Additionally, features such as digital hand raising, polling, and sentiment analysis ensure that even those who might be reticent in physical meetings have a platform for expressing their views and contributing to the conversation.

Another significant advancement is the integration of virtual “breakout rooms” in collaboration platforms. In a scenario where a large team is brainstorming ideas, these rooms can be used to divide participants into smaller groups, allowing for more intimate and focused discussions. This is especially beneficial for remote workers who might feel overwhelmed or sidelined in larger group settings. After the breakout sessions, teams can reconvene in the main virtual room to share their insights, ensuring that every voice is heard. Features such as these not only enhance the collaborative experience but also actively work toward creating a more inclusive and equitable environment for all team members, irrespective of their physical location or personal challenges. More features like these are expected in the coming years as better digital techniques for inclusion are developed.

## Marketplaces and App Stores for Third-Party Templates and Integrations

The evolution of visual collaboration tools is rapidly moving beyond just facilitating communication and collaboration. As these platforms become central hubs for a myriad of business activities, there's a growing demand for customization, scalability, and enhanced functionality. This has paved the way for the emergence of marketplaces and app stores within these platforms, enabling users to access third-party templates, app integrations, and bespoke applications tailored to their specific needs. Just as smartphones became exponentially more powerful and versatile with the advent of app stores, visual collaboration tools stand to gain similar transformative capabilities. By hosting a marketplace, these platforms can offer a diverse range of tools, solutions, and integrations developed by third-party developers, catering to niche requirements and industry-specific needs that the core platform might not address.

The rationale behind this shift is multifaceted. First, businesses today use a wide range of software solutions, and the ability to integrate these seamlessly into a visual collaboration environment can significantly enhance productivity and user experience. For instance, a design team could benefit from a third-party template tailored for UX wireframing and a project management team might seek integrations with task tracking or agile development tools. Second, by opening up their platforms to third-party developers, visual collaboration tool providers can foster innovation and rapid feature development without bearing all the development costs and challenges themselves. This ecosystem approach not only diversifies the offerings available to end users but also creates a competitive landscape where the best and most useful integrations thrive, ensuring that businesses have access to top-tier tools and applications that can drive their operations forward.

## **SHIFT TOWARD MORE IMMERSIVE AND INTERACTIVE EXPERIENCES**

The realm of user interface (UI) and UX design is undergoing a transformative shift, with a focus on creating more immersive and interactive experiences. This evolution is poised to significantly elevate the capabilities and appeal of visual collaboration tools. The integration of larger screens and projected displays, for instance, allows for a more expansive and detailed view of collaborative content, enabling teams to work on intricate projects with a level of detail and clarity previously unattainable. These expansive displays can facilitate multiuser interactions where team members can collaboratively edit, annotate, or brainstorm on a shared canvas, ensuring that everyone has a clear and unobstructed view of the content.

Spatial computing, which involves the use of space around the user as a medium for interaction, further amplifies the potential of visual collaboration tools. By recognizing and interpreting the user's movements and gestures, spatial computing can offer a more intuitive and natural way to interact with digital content. Imagine a scenario where team members, wearing devices such as an Apple Vision Pro headset, can virtually reach out and manipulate 3D models, charts, or diagrams in a shared digital space. Such interactions, which merge the physical and digital realms, can lead to more engaging and

productive collaborative sessions. The Apple Vision Pro headset, with its advanced sensors and display capabilities, could potentially offer a glimpse into this future, where the boundaries between the real world and digital collaboration blur, ushering in a new era of teamwork and creativity.

## CASE EXAMPLES OF LARGE-SCALE VISUAL COLLABORATION IN THE ENTERPRISE

For this report, two large companies shared their experiences anonymously with Constellation Research on their widespread use of visual collaboration tools from Lucid Software.

### Multinational Financial Services Firm

Lucid, a well-known visual collaboration product, has been adopted by various teams within a leading financial services firm, although a full rollout within the organization is not yet complete. The product has been particularly beneficial for facilitating virtual workshops, allowing for a more dynamic and organic presentation of ideas than with traditional linear methods such as using Microsoft PowerPoint. The infinite canvas feature of Lucid enables users to map out complex ideas and roadmaps without the constraints of a single slide, making it a preferred tool for teams that require a broader view of projects or concepts. Additionally, Lucid's ability to prepopulate canvases and gather input during and after sessions has garnered positive feedback, especially when used for workshops. The platform's asynchronous bulletin board capability offers teams a more flexible and informal structure than other tools such as Jira, making it adaptable to various needs.

Outside of its primary technology-focused user base, Lucid has seen adoption by business strategy teams, which utilize it as a key platform for presenting ideas, almost replacing traditional tools such as PowerPoint. This unexpected adoption by nontechnical teams was highlighted as one of the pleasant surprises of using Lucid. The platform's evolution, combining features from Lucidspark and Lucidchart, along with the introduction of Lucid's Team Spaces and Visual Activities capabilities, has piqued the interest of users, leading to discussions about further training to maximize these features. Additionally, the potential for third-party app integrations with Lucid is seen as a promising direction for the platform.

## Business Benefits Cited for Lucid's Visual Collaboration Suite

The financial services firm reported the following business benefits of visual collaboration, compared with legacy tools:

- **Virtual workshop facilitation.** Enables more efficient organization and execution of virtual business workshops
- **Strategic mapping.** Provides a more useful infinite canvas for plotting out complex business strategies and roadmaps, with less time spent reformatting and keeping within the boundaries than with traditional tools
- **Dynamic presentations.** Acts as a better alternative to traditional tools such as PowerPoint, allowing for more organic and adaptable business presentations
- **Feedback collection.** Facilitates improved real-time input during business sessions, aiding in decision-making and strategy adjustments
- **Asynchronous collaboration.** Serves as a flexible bulletin board that teams can use to update and inform each other, enhancing team coordination
- **Business strategy pitches.** Creates a shared platform that can be used to present business ideas in a nonlinear manner, suitable for high-level executive pitches
- **Integration.** Easily connects to valuable third-party business apps, streamlining processes and enhancing productivity
- **Visual business collaboration.** Promotes a better visual approach to business collaboration, aiding in clearer communication and idea visualization
- **Adaptable storyboarding.** Allows business teams to better drive and adapt storyboards based on emerging discussions, enhancing engagement during pitches

- **Enhanced productivity tools.** Aids the business with a richer set of collaboration, thanks to the evolution of Lucid's features, including Team Spaces and Visual Activities

## Global Media Conglomerate

This organization has integrated Lucid—specifically Lucidspark and Lucidchart—into various work streams to enhance visual collaboration and digital whiteboarding. The company highlighted that Lucid's intuitive interface has significantly streamlined its meetings and processes. Historically, certain team ceremonies, such as project kickoffs, could take as long as three hours. However, with Lucidspark, the company has managed to consistently reduce these sessions by as much as an hour, a significant (33%) time savings, achieving the same outcomes in less time. This reduction represents not only a quantitative benefit in terms of time saved but also a qualitative improvement in the effectiveness of these meetings. The digital artifacts produced during these sessions are more actionable, and the entire process is more oriented toward achieving tangible results.

## Promoting Asynchronous Work and Hybrid Collaboration

In today's global work environment, the organization places a strong emphasis on asynchronous collaboration. Lucid has proven to be instrumental in this regard. The tool's capabilities have been especially beneficial for teams operating in a hybrid work model, bridging the gap between remote and onsite collaborators. The company also emphasized the value of Lucid in promoting asynchronous work, which is essential, given the global nature of its teams. The platform's infinite canvas and seamless integrations with other office products such as Microsoft Word, Excel, and PowerPoint have made it an option preferred to other tools, enabling team members to collaborate more broadly on a unified platform.

## Business Benefits Cited for Lucid's Visual Collaboration Suite

The media conglomerate reported the following business benefits of visual collaboration, compared with legacy tools:

- **Streamlined meetings.** Lucidspark has reduced the duration of certain ceremonies such as project kickoffs, often reducing the length of meetings of any kind by a third while achieving the same outcomes.
- **Actionable artifacts.** Meetings and sessions produce more actionable digital artifacts, enhancing the effectiveness of collaboration.
- **Promotion of asynchronous work.** Lucid supports and enhances asynchronous collaboration, essential for global teams and hybrid work environments.
- **Seamless integrations.** Lucid offers smooth integrations with other office products such as Microsoft Word, Excel, and PowerPoint, facilitating broader collaboration.
- **Enhanced visual collaboration.** Lucidchart provides tools for tasks such as creating process flow diagrams and doing customer journey mapping, expanding the original core value of visual collaboration within the company.
- **Support for hybrid collaboration.** Lucid products bridge the gap between remote and onsite collaborators, making hybrid work more efficient and cohesive.

## FUTURE TRAJECTORY OF VISUAL COLLABORATION TOOLS POST-AR/AI

With the recent integration of AR, VR, and AI into the mainstream of visual collaboration tools, the next 10 years promise an even more radical transformation. As we move deeper into this era, strategic creative work is set to become the dominant form of labor, reshaping and even becoming the very fabric of organizational operations and the tools we use to realize them.

Neural interfaces, which directly link the human brain to digital platforms, are on the horizon in this timeframe. These interfaces likely will make the act of visual collaboration almost telepathic. Imagine brainstorming sessions where ideas are exchanged not via words or sketches but by way of seamless thought transmission. Teams will collaboratively navigate complex data landscapes in real time, making decisions at the speed of thought. However, this profound level of interconnectedness will raise unprecedented ethical and security concerns. Safeguarding the sanctity and privacy of human thought will become a paramount challenge as visual collaboration moves to the forefront of how we work.

As strategic creative work becomes central, the very architecture of how organizations work will evolve. Hierarchies will almost totally flatten, replaced by fluid project-based and strategic goal-based structures. In this landscape, visual collaboration tools will likely transform from mere facilitation platforms to become the primary interfaces for organizational operation. Every function, from recruitment to project management to performance reviews, can be conducted in rich, interactive, three-dimensional collaborative spaces—ones that may even be projected directly onto our senses. This would not only enhance efficiency but also foster a deeper sense of community and shared purpose among remote and decentralized teams.

Furthermore, as these tools become central to operations, they'll likely integrate more deeply with other emerging technologies. Quantum computing, for instance, holds the potential to supercharge the analytical capabilities of these platforms, allowing for real-time simulations and scenario modeling during collaborative sessions. This would enable teams to instantly visualize the potential outcomes of strategic decisions, making the decision-making process more informed and agile.

The next 10 years of visual collaboration will witness a paradigm shift in the way organizations function and collaborate. Visual collaboration tools, enriched by highly advanced technologies, will sit at the heart of this transformation, continuously turning futuristic visions into everyday realities as the primary tool of work. As organizations stand on the cusp of this exciting future, the challenge lies in harnessing these tools responsibly, ensuring that they fully empower humanity in a safe and positive manner.

# VISUAL COLLABORATION AS A KEY ELEMENT OF DIGITAL WORK

Visual collaboration tools have evolved significantly, transitioning from mere supplementary utilities to become integral components in the workflow of diverse sectors. Historically, collaboration relied predominantly on text-based interactions and linear communication channels. However, with the rise of digital transformation and the increasing complexity of modern work, visual platforms emerged as a solution, providing dynamic interfaces and facilitating multidimensional interactions. These tools, originally designed to simplify visual representation, began to embed deeper functionalities tailored to the specific needs of industries such as software development, design, creative arts, consulting, and education. Their ability to bring abstract concepts to life, ensure real-time feedback, and foster an inclusive and interactive workspace made them indispensable in these domains.

As the industry reflects on their trajectory, it's evident that visual collaboration tools have not only mirrored the evolving demands of businesses but also have proactively anticipated and addressed emerging challenges. From infinite canvases for unrestricted ideation to features that prioritize security and enterprise integration, these tools have matured alongside the very nature of collaborative work. Their continued relevance and growth underline the critical role they play in shaping the future of teamwork, making collaboration not just effective but also innovative and visionary.

The future of visual collaboration is set to be a transformative journey, marked by advancements in UI, UX, and integration with emerging technologies. As these platforms evolve, they are moving beyond traditional boundaries, embracing larger screens and projected displays that offer expansive and detailed views and facilitating intricate multiuser interactions. The integration of spatial computing, coupled with new mostly heretofore unseen devices, promises a seamless blend of the physical and digital realms. This convergence enables users to interact with digital content in more intuitive and immersive ways, from virtually manipulating 3D models to engaging in real-time brainstorming sessions on shared canvases.

As visual collaboration tools incorporate these cutting-edge features, they are poised to not only redefine the very essence of teamwork and creativity but also to lead the transformation of work. The fusion of immersive experiences, interactive displays, and spatial interactions will ensure that collaboration is not just about sharing information but also about shared experiences in a digitally augmented environment. This evolution will fundamentally reimagine how teams are empowered to work more efficiently, innovate more effectively, and bridge the gap between the physical and digital worlds. The future of visual collaboration is a horizon where technology deeply amplifies human potential, fostering deeper connections, insights, and innovations.

## ENDNOTES

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<sup>1</sup> 5 benefits of online collaboration tools,” Ideagen, November 29, 2021. <https://www.ideagen.com/thought-leadership/blog/5-benefits-of-online-collaboration-tools>

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<sup>2</sup> “10 business use cases made better with visual collaboration,” Lucid. <https://lucid.co/blog/use-cases-visual-collaboration>

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<sup>3</sup> “State of Remote Work 2022,” Owl Labs, 2022. <https://owlabs.com/state-of-remote-work/2022>

## ANALYST BIO

# Dion Hinchcliffe

### Vice President and Principal Analyst

Dion Hinchcliffe is an internationally recognized digital thought leader, industry analyst, business strategist, enterprise architect, transformation consultant, and keynote speaker. He is widely regarded as one of the most influential figures in enterprise IT.

Currently a VP and principal analyst of Constellation Research, Hinchcliffe is a well-known industry expert on the topics of digital transformation, CIO issues, digital workplace, ecosystem strategy, digital business, and next-generation enterprises. His thought leadership can be found on ZDNet, ebizQ, *On Digital Strategy*, and *Enterprise Irregulars*. He is co-author of the bestselling *Social Business by Design* (John Wiley & Sons).

Hinchcliffe is an executive fellow at the Tuck Center for Digital Strategies and was recently identified as one of the top three people most mentioned by IT leaders. Industry analytics firm Onalytica ranks Hinchcliffe as the No. 2 influencer globally on the subject of digital transformation. He has keynoted or spoken at hundreds of leading industry conferences, including CeBIT, KMWorld, IT Roadmap, Dreamforce, CIO Perspectives, AIIM Conference, IBM Connect, and other industry events.

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## Organizational Highlights

- Named Institute of Industry Analyst Relations (IIAR) New Analyst Firm of the Year in 2011 and #1 Independent Analyst Firm for 2014 and 2015.
- Experienced research team with an average of 25 years of practitioner, management, and industry experience.
- Organizers of the Constellation Connected Enterprise—an innovation summit and best practices knowledge-sharing retreat for business leaders.
- Founders of Constellation Executive Network, a membership organization for digital leaders seeking to learn from market leaders and fast followers.

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