Hype Cycle for Digital Workplace Applications, 2023

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Initiatives: Digital Workplace Applications

> Digital workplace application leaders are coping with big changes in 2023, including the move to hybrid work, a newfound focus on the broader digital employee experience and the looming impact of generative AI. This research helps leaders optimize tools and services impacting the digital workplace.

Strategic Planning Assumption(s)

Analysis

What You Need to Know

Gartner's 2023 Hype Cycle for Digital Workplace Applications highlights the forces that elevate the digital dexterity of the workforce, including rapid tool innovation, and new opportunities for workers to learn digital skills and work in new and more effective ways.

Organizational commitment to the overall digital employee experience, which uses technology to empower, connect and augment workers while improving employee engagement, is crucial because employee appetite for change (after years of pandemic-impacted work) is at an all-time low. Only 38% of workers in 2022 were willing to support organizational change, compared to 74% in 2016. [1]

This diminished support for organizational change also coincides with the move into the tumultuous AI era of computing, leading with widespread investment in generative AI (GenAI) technologies which will be woven into most digital workplace applications over the next 24 months.

The aspects of the digital workplace that focus on technology deployment, management and operational fitness are covered in Hype Cycle for I&O Digital Workplace Transformation, 2023.

The Hype Cycle

The innovations in this Hype Cycle roughly fall into four categories essential to the digital employee experience:

- Collaborative applications
- Workforce digital dexterity dynamics
- AI services
- Digital workplace disciplines

In the first category, collaborative applications, we've introduced collaborative workflow automation tools. It represents the evolution of workstream collaboration applications into the business operations (BizOps) space (see Innovation Insight for Collaborative Workflow Automation). This application category, alongside collaborative work management, collaborative content workspaces and no-code tools, underscores a trend of digital workplace applications moving beyond a primary focus on free-form productivity to more intentional productivity within process and operational work scenarios.

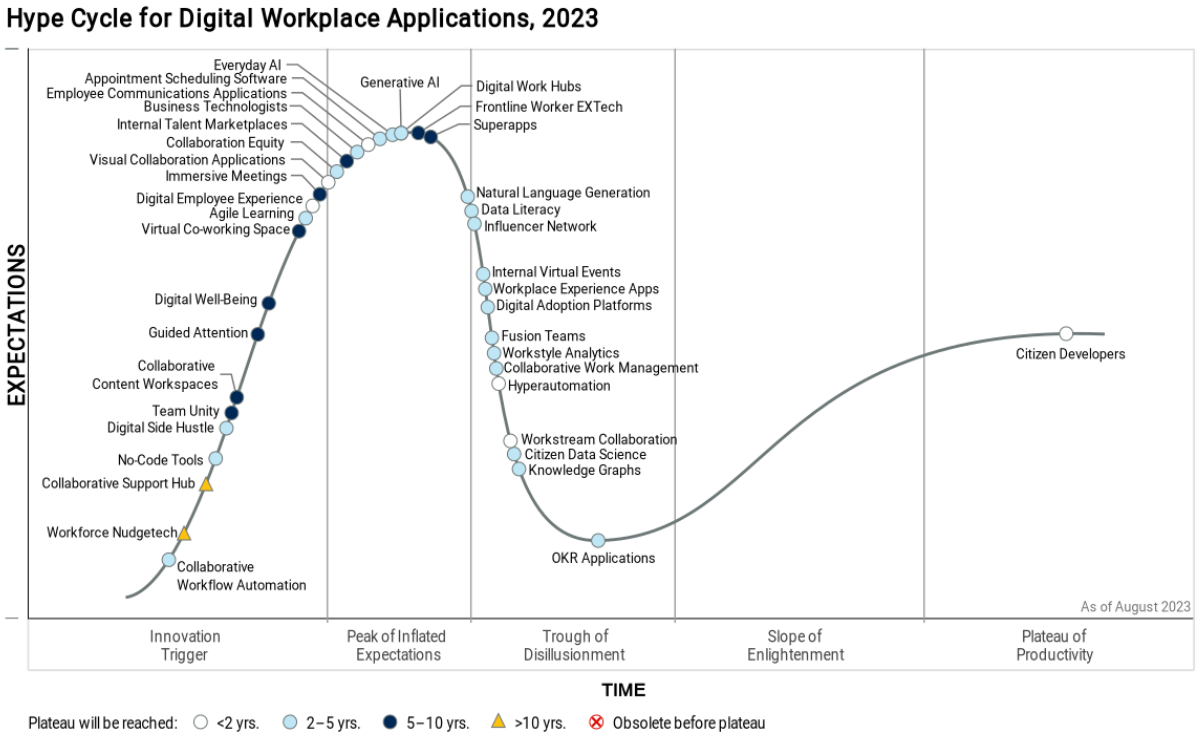
This trend is further evidenced by innovations in workforce digital dexterity dynamics, which fuel business technologists for automation, development and business intelligence. No-code tools allow more employees to simply customize capabilities. These tools will quickly go beyond "what you see is what you get" to "what you say is what you get" with GenAI capabilities. We added the collaborative support hub this year, which is an IT service management program that allows non-IT employees to help peers with best practices and problem resolution.

For AI services, we continue to lead with everyday AI, which is the fulcrum for empowering workers with a broad range of AI services. This year we added GenAI, which will have a significant impact on workforce digital dexterity by allowing employees to use natural language prompts to interact with complex applications, thereby moving the cognitive load from navigating the application to problem solving (see Quick Answer: How Should Organizations Prepare for the Addition of Generative AI to the Microsoft Stack?). GenAI also has the tantalizing prospect of helping nearly half of workers struggling to find information or data needed to do their jobs. [2]

We also added natural language generation this year, which has leaped forward with the assistance of large language models. These developments also serve to highlight the criticality of knowledge graphs, which have become a central repository for contextually grounding GenAI prompts.

Finally, in the digital workplace disciplines category, innovations that emerged during the COVID-19 pandemic and helped hybrid work achieve success include collaboration equity, team unity, workplace experience applications and digital well-being.

Figure 1: Hype Cycle for Digital Workplace Applications, 2023



The Priority Matrix

The Priority Matrix maps the benefit rating for each technology against the amount of time it requires to achieve mainstream adoption. Transformational innovations listed in the table below tell the story of an ambitious digital workplace.

The innovations all reflect the digital employee experience, and empower business technologists with automation, data science, application development and BizOps skills (via collaborative workflow automation and collaborative work management). All of them can drive business transformation particularly with fusion teams.

GenAI makes all the technologies more intuitive and accessible via a conversational user interface. A digital side hustle is the second step in our enablement continuum (after digital citizen) for digital skills acquisition (business technologists is the third; see Create an Enablement Continuum to Advance Digital Skills Outside of IT). Workplace experience apps help ensure that workers have a sustainable work-life balance (see Market Guide for Workplace Experience Applications).

These digitally dexterous employees, who possess a transformative mix of technical and business skills, are then primed to participate in an internal talent marketplace starting in 2028. In this future marketplace, algorithms will track worker skills, work histories and aptitudes, calculate the optimal assembly of talent for particular business projects, and then make specific suggestions for team composition.

This evolution of the digital employee experience creates new more efficient ways to work, and leads to business transformation which will help organizations to achieve Levels 4 and 5 goals established by Gartner's digital workplace maturity model (see Enhance Maturity and Improve Investment Prioritization Using Gartner's Digital Workplace Maturity Model).

Table 1: Priority Matrix for Digital Workplace Applications, 2023

(Enlarged table in Appendix)

Benefit	Years to Mainstream Adoption			
↓	Less Than 2 Years ↓	2 - 5 Years ↓	5 - 10 Years ↓	More Than 10 Years ↓
Transformational	Digital Employee Experience Hyperautomation	Business Technologists Citizen Data Science Collaborative Workflow Automation Data Literacy Digital Side Hustle Everyday AI Fusion Teams Generative AI Workplace Experience Apps	Internal Talent Marketplaces	
High	Citizen Developers Digital Work Hubs Employee Communications Applications Visual Collaboration Applications Workstream Collaboration	Agile Learning Collaborative Work Management Digital Adoption Platforms Influencer Network Knowledge Graphs Natural Language Generation No-Code Tools Workstyle Analytics	Collaborative Content Workspaces Frontline Worker EXTech Guided Attention Immersive Meetings Superapps Team Unity	Workforce Nudgetech
Moderate		Appointment Scheduling Software Collaboration Equity Internal Virtual Events OKR Applications	Digital Well-Being	Collaborative Support Hub
Low			Virtual Co-working Space	

Source: Gartner (August 2023)

Off the Hype Cycle

The following innovations were removed from this year's Hype Cycle for Digital Workplace Applications:

- Ambient social meetings which was renamed virtual co-working spaces for greater descriptive accuracy.
- API marketplace, which is more closely related to Hype Cycles focusing on software engineering.
- Assemble your own app, which was renamed collaborative content workspaces for greater descriptive accuracy.

- Insight engines, which is only occasionally the responsibility of the digital workplace team.
- Intranet as a service, which has graduated from the Hype Cycle to mainstream use.
- Metaverse, which is more focused on consumer applications at present.
- Experience-level agreements (XLAs), which has largely failed to move from the province of digital workplace outsourcers to internal digital workplaces.

On the Rise

Collaborative Workflow Automation

Analysis By: Mike Gotta, Jason Wong

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Embryonic

Definition:

Collaborative workflow automation (CWA) integrates digital workplace applications with CRM or operational applications into a conversational, task-centric work hub. CWA targets nonroutine work, bringing together multiple collaboration tactics to expedite problem solving, work handling, and decision making. CWA leverages graphs, analytics and AI to promote decision intelligence. Low-code/no-code capabilities empower teams to customize their own work environment.

Why This Is Important

CWA helps employees manage nonroutine collaboration within and across teams under highly dynamic situations, which depend on rapid decision making and fluid work coordination. CWA fills a gap between free-form collaboration and role-based apps. It enables teams to customize and extend their work hub themselves. It also leverages decision intelligence, action framework capabilities, generative AI, knowledge and work graphs to automate fragments of people-driven collaborative work.

Business Impact

CWA enables organizations to shift digital workplace applications beyond free-form productivity to more focused, intentional productivity within process and operational work scenarios. It encourages teams to exploit their own mastery and autonomy to perform at the higher level, both individually and collectively with their cohorts. Such experiences contribute to great staff engagement and retention. CWA helps teams make better decisions that contribute to total experience needs.

Drivers

- Workstream collaboration market evolution: CWA is a solution pattern for workstream collaboration (WCS) vendors trying to tackle more complex work scenarios involving operations, processes and frontline workers. The WCS market for everyday productivity use cases is largely “well-settled,” motivating vendors to move beyond everyday productivity to expand business models and align with higher customer expectations.
- Hybrid and remote work: Decentralized work coordination presents challenges for teams to “get on the same page,” make decisions, balance workloads and optimize work-handling activities. CWA tools straddle the free-form use of productivity tools and the structure of collaborative work management tools. It is a type of digital workplace work hub that is designed to focus on more process-centric, operational use cases that entail customer-facing work or “back-office” work.
- Expanded use of digital workplace applications: Sixty-eight percent of enterprise application leaders are more focused on improving business outcomes, while 66% are focused on improving process design, and 59% on reducing costs. CWA provides an opportunity for digital workplace leaders to align with application leader needs, expanding the digital workplace charter as a result.
- Business-led technology decisions: Business technologists, citizen developers and fusion teams all have a great impact on technology selection and delivery. CWA provides a technology baseline, such as low-code/no-code, that supports the goals of IT leaders to stand up intelligent applications with embedded AI, while promoting high levels of customization and augmentation by end users themselves.

Obstacles

- Technology risk: CWA is a work-in-progress with no vendors having a complete solution. Most vendors need to build out a dynamic work coordination that embeds real-time decision intelligence. CWA may overlap with WCS vendors that are already deployed.
- Business sponsors: CWA focus is on functional areas that cut across sales, marketing, service or other business units. This can challenge business case development resourcing if multiple sponsors need consensus.
- Lack of proof: CWA is an emergent technology that does not have a track record within the organization. Absence of experience or public testimonial can make CWA more relevant to innovation teams, fusion teams and business technologists. But vendors may not have a means to connect with these influencers and decision makers,

- Culture and skills: CWA represents a highly dynamic way of collaborating, requiring team leaders and members to work in new ways. It may take time to develop intentional collaboration practices.

User Recommendations

- Identify use cases: Look for activities where nonroutine work is more common, such as higher exception handling, delayed customer deliveries, poor quality or other indicators that suggest poor decision making or cross-functional collaboration. Work with business leaders to refine those use cases to see if they align with what CWA could improve on.
- Start small and iterate: Lack of maturity and completeness means that efforts should progress in an iterative learn-and-expand mode with the opportunity to fail-safe. Focus efforts where sponsors are aware of risks as well as value. Establish roles, and support structures and governance principles to ensure consistency, quality, and best-practice diffusion.
- Address governance issues: CWA creates a dynamic technology orchestration across different types of applications and developer audiences, such as business technologists. Getting the proper governance framework that works with the business and IT culture is crucial.

Sample Vendors

Alibaba Group; Coolfire; Mattermost; Salesforce (Slack Technologies); Symphony Communication Services

Gartner Recommended Reading

Innovation Insight for Collaborative Workflow Automation

Market Guide for Collaborative Work Management

Quick Answer: How Can Digital Workplace Leaders Support Business Technologists?

Workforce Nudgetech

Analysis By: Rania Stewart

Benefit Rating: High

Market Penetration: Less than 1% of target audience

Maturity: Embryonic

Definition:

Workforce nudge technology (nudgetech) is a form of AI-enabled choice architecture designed to elicit behaviors aimed at accelerating targeted positive outcomes at the individual, team and/or organizational level. Nudgetech incorporates behavioral economic principles, hyperpersonalized through AI. Nudges come with the freedom of choice and are often based on worker behavior data, including workstyle analytics.

Why This Is Important

Nudgetech can be transformative in its potential to enable high-impact behavioral change, often with low-effort investment by the individual. Nudgetech is seeing traction in leading-edge people development, personal productivity and employee experience applications. Use-case relevancy continues to grow and expand, particularly where desired behaviors are not immediate or certain (requiring greater interpretation, judgment and agency of choice, hence benefiting from nudge guidance).

Business Impact

Nudgetech uses technology to drive small, beneficial changes that are good for employees, managers and the organization. These small changes are designed to effectively compound to scale toward a greater impact on the desired behavioral outcome. And yet these outcomes can be positive, net neutral or even inadvertently negative. Without AI-enabled feedback loops, nudges can backfire and become mass-scale “sludge,” deterring progress.

Drivers

- Personalized guidance is invaluable to change, learning and improvement initiatives at every level (individual, team, department, organization). It is simultaneously difficult to scale, due to the combination of required subject matter expertise and contextual knowledge required of the individual and their team/organization.
- The 2022 Gartner Digital Worker Experience Survey found that 26% of workers consider themselves to be either novice or have developing knowledge of the digital technology used for work. Fifty-five percent of these workers struggle to find information or data needed to do their job and 43% admit to having made the wrong decisions due to lack of awareness.
- This scalability challenge drives the value proposition of nudgetech to close the behavioral gap from where you are today to where you ideally want to be tomorrow. The most concentrated workforce-targeted use-case applications observed to date include enabling the following outcomes — agile culture and adaptive teams, inclusion and belonging, manager and leader effectiveness, proficiency with digital tools, security-conscious culture, and well-being and personal effectiveness.

Obstacles

- **Lack of definition:** Nudgetech is not yet sufficiently far along to have a commonly accepted definition.
- **Filter the nudge noise:** A nudge is not a reminder or a notification by itself. Those are common delivery mechanisms that are often, understandably, referred to as "nudges," but lack the systematic rigor of nudge technology.
- **Is it really AI-enabled?:** This can be difficult to uncover, in that the behavioral economics of nudge technology will likely present as more static, decision-tree logic. This should be complemented by AI-driven feedback loops, where the system learns which nudges work better for which people (completion rates) and outcomes (impact tracking).
- **"Sludge" vs. nudge:** Employees may develop "nudge fatigue" from too many nudges or ineffectual or inappropriate nudges that ultimately deter progress.
- **Choice is key:** If there's no option to pass, it is not a nudge, but rather a prescriptive action, which is less effective at sustainable behavioral change.

User Recommendations

- **Prioritize which organizational outcomes may benefit the most from nudge technology.** The ideal fit would be an outcome theme that enables you to start small, with easy but potentially high-impact outcomes (see Create Self-Sustaining Culture Hacks by Applying Nudging Techniques).
- **Experiment selectively with isolated proofs of concept within your own organization.** Depending on available in-house skills and expertise, it may be an option to pursue this as an internal build. Many larger organizations have the requisite data science capability. If yours does not, consider contracting with an organizational psychologist or related firm to create the nudge library.
- **Encourage bidirectional discussions with prospective or existing vendors.** How do you encourage select prospective vendors (or even current ones) to consider the pros and cons of investing in nudgetech? You ask them. You put it on their radar. You encourage bidirectional discussions.

Sample Vendors

Beamery; BetterUp; Digital Attitude; Humu; Perceptyx (Cultivate); Workday (Peakon)

Gartner Recommended Reading

Establish a Security-Conscious Culture Using Behavioral Economics

How to Use Behavioral Economics to Drive Adoption and Save Money in Your Organization

Collaborative Support Hub

Analysis By: Chris Matchett

Benefit Rating: Moderate

Market Penetration: Less than 1% of target audience

Maturity: Embryonic

Definition:

A collaborative support hub is a formalized system of engagement that provides support and sharing of best practices for both IT and non-IT employees, built around a central collaboration solution that is integrated with an IT service management (ITSM) platform. It enables business consumers to obtain guidance from a community of IT service desk experts, technical experts, product teams, business process experts, or peers and colleagues.

Why This Is Important

Collaborative support hubs are appearing where a traditional IT service desk "Levels 1, 2 and 3" tier format struggles to address modern trends such as peer support, swarming and product management. The formal system of engagement evolves peer IT support forums and will complement the IT service desk through ITSM platform integration.

Business Impact

Collaborative support hubs provide these benefits:

- Formalize and expand support channels to improve engagement for employees who choose not to contact the IT service desk.
- Improves IT visibility and ability to support activities that do not flow through the IT service desk.
- Expedite incident resolution using swarming, when expertise resides in both IT and business expert teams.
- Foster peer support, which encourages non-IT employees to develop and share skills and best practices.

Drivers

- Interest in alternative support models surged with the shift to remote work and the need to ease the IT service desk workload.
- A third or more of digital workers outside of the IT department access digital channels where they can ask IT support questions and/or turn to IT subject matter experts for help on nonroutine tasks.
- Seventy-seven percent of digital workers have an IT specialist within their business unit. Business-led IT is becoming the norm as IT organizations reposition themselves to support improved business outcomes.
- Many organizations have deployed collaborative work management on tools such as Microsoft Teams, Cisco Webex Teams or Slack, enabling employees to communicate through broader and more diverse channels.
- Some ITSM platform vendors have added collaborative hub capabilities to their product roadmaps.
- Eighty-five percent of infrastructure and operations (I&O) leaders, surveyed in 2021, said their organizations had partially adopted a collaborative swarming model alongside traditional tiered support for incident resolution where the service desk was engaged.
- A third or more of digital workers outside of the IT department access digital channels to ask IT support questions and/or turn to IT subject matter experts for help on nonroutine tasks, according to the 2022 Gartner Digital Worker Survey.

Obstacles

- Remote working led to a drop in “ask a colleague for help” frequency according to our digital workplace surveys in 2020 and 2022. Many business consumers prefer to contact only traditional support channels.
- Collaborative hubs require collaboration tools to succeed. While there are many options, all have different limitations, making it difficult to standardize on one solution.
- ITSM platforms’ inability to recognize the time and effort of both IT experts and non-IT employees working on and solving issues requires management to manually log or estimate these metrics.
- Business executives may be resistant to allocating time/resources for this ad hoc or unstructured type of support.
- Roles required to support distributed models like collaborative support hubs differ from those associated with traditional tiered support, and I&O leaders struggle to find employees with experience managing and supporting communities.

User Recommendations

- Pursue collaborative support hubs proactively as a complementary model to accommodate shifts in work arrangements and changes in worker engagement preferences.
- Continue to provide an IT service desk alongside the hub, to avoid alienating employees who prefer that option.
- Start with topic groups for products where substantial knowledge capital/subject matter expertise is known to exist in both IT and business domains.
- Gain and maintain endorsement from business managers by demonstrating the value gained through the collaborative support hub via reporting usage data, impact on the number of contacts IT receives and user feedback in a business value dashboard.
- Operate the collaborative support hub efficiently by appointing a community manager and community moderators.
- Create opportunities for broader engagement and career advancement by enlisting non-IT employees where they can demonstrate and develop their digital dexterity.

Gartner Recommended Reading

Innovation Insight for Collaborative Support Hub

Transform IT Support by Developing Collaborative Support Hub Roles and Competencies

What Workers Want: Top 10 Insights From the Digital Worker Experience Survey

No-Code Tools

Analysis By: Jason Wong

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Emerging

Definition:

No-code tools eschew coding of any sort in favor of designing and creating new technologies using predefined models, components and other abstraction capabilities. No-code tools advance the democratization of technologies to include even more business users in the building of new digital capabilities. Generative AI will be a key enabler for the next generation of visual no-code tools as they go beyond “what you see is what you get” to “what you say is what you get.”

Why This Is Important

“No code” has typically been used as a marketing term, implying the tool is for nontechnical users. However, when applied to specific domain areas and use cases — such as business operations or collaborative workflows — no-code tools can be very powerful in the hands of citizen developers, automators and data scientists. No-code tools expand on recent trends of using business technologists, composable applications and generative AI to enable greater digital dexterity across the organization.

Business Impact

No-code tools are becoming part of every vendor's business applications, from Adobe to Zendesk. These SaaS applications embed visual tooling to customize, extend and sometimes build new capabilities. No-code tools are beginning to incorporate generative AI and conversational development to go beyond visual development techniques — to "what you **say** is what you get." No-code tools will increasingly be included in job descriptions and the resumes of applicants to highlight their digital dexterity.

Drivers

- Low-code tools have been a hot topic and trend for several years, but we are starting to see more products and technologies focus on no-code capabilities that are more highly abstracted than low-code tools. No-code tools aim to provide all the building blocks for customers, usually on an ongoing release basis. Vendors are offering assembly blocks that are small enough to allow developers to assemble a bigger custom application component if needed, but writing code is not enabled.
- Today's no-code tools have a visual interface without the need for writing lines of code to create a tech capability. It's point-and-click, drag-and-drop, and expressions. But since the no-code tools are basically abstractions of patterns and models, the creation process can be trained on large AI language models, and conversational input can be used to describe the desired output.
- No-code vendors are active in several university programs and are influencing the next generation of IT and business leaders. No-code building tools are starting to appear in games like Minecraft, and are encouraging younger and younger users to hone their digital skills.

Obstacles

- No-code tools are mainly brought in by the business and influenced heavily by business technologists. Without strategic alignment to the use of these tools, they either end up being point solutions that have limited use/value, or they do a very similar job to other technologies, which can compound governance challenges.
- Security and compliance challenges and poor judgment around the use of no-code tools (and their creations) could lead to more restricted use of no-code tools.
- Technical debt building up over time in these vendor-controlled, closed platforms and their outputs could hamper maintenance and modernization.
- Vendor lock-in for the output can create and perpetuate silos and fragmentation of no-code tools across an organization.

User Recommendations

- Ensure proper training, learning and development for no-code tools. “No code” does not necessarily mean “no technical skills needed.” It implies that no programming language is used, but even some visual modeling tools require a degree of technical expertise or an understanding of programming metaphors.
- IT leaders need to better understand, support and govern the range and power of no-code tools, typically brought in by the business, before they become “too big to fail.” Organizations that plan strategically on a portfolio of no-code tools and the citizen developer and data science programs for users will see much greater impact to the digital dexterity effectiveness of employees.
- Develop a no-code digital side hustle as part of a continuum of enablement services to foster workforce digital dexterity.

Sample Vendors

Bubble.io; Google; Kissflow; Quickbase; Quixy; Smartsheet; TAAP; Unqork

Gartner Recommended Reading

Quick Answer: What Is the Difference Between No-Code and Low-Code Development Tools?

Forecast Analysis: Low-Code Development Technologies, Worldwide

Emerging Technologies: The Future of Low Code

Digital Side Hustle

Analysis By: Joe Mariano, Matt Cain

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Adolescent

Definition:

A digital side hustle is a strategy to help interested employees master new technologies to boost business outcomes for individuals and the broader team. Using a grassroots approach, a side hustle can allow driven employees to take advantage of their natural inclination to expand and improve their technical skills, leading to increased digital proficiency and the possibility of them transitioning into a business technologist position.

Why This Is Important

The digital aspects of most jobs are expanding, and future organizational prosperity depends on employees' ability to take full advantage of the technologies provided to them to deliver business outcomes.

Business Impact

By empowering employees through digital side hustle programs, organizations have seen significant resource and cost-efficiency gains. These gains have included employees creating applications that have reduced the need for paper, saved significant costs and streamlined work processes.

Drivers

- Career development and growth opportunities are the top factors influencing employee engagement and attraction to their roles.
- Ensuring that employees can connect the need to improve their digital dexterity to their professional development goals is critical to digital skills development.
- Employees depend increasingly on the digital skills of colleagues when working remotely, exacerbating the need to build processes and social constructs to exploit constant technology disruption.
- Results from Gartner's 2022 Digital Worker Survey show that 89% of respondents consider "improvement in digital technology skills" as highly important for career advancement. In the same survey, 95% of employees cite "improvement in digital technology skills" as being critical for work effectiveness. Finally, employees satisfied with digital workplace applications are 1.6 times more likely to want to stay and grow in their current organization.
- Traditional IT-centric approaches to workforce digital enablement have failed to keep pace with technology change. Digital business skills are becoming increasingly critical, and a digital side hustle program helps employees see how their digitally enabled activities directly support the goals of the organization, such as: creating dashboards to help employees find the best sources of data, eliminating repeatable and mundane work tasks through automation tools, running meetings that employees want to attend and putting AI to work for the team.

Obstacles

- A key reason the gap between digital tool growth and workforce digital dexterity continues to widen is that leadership has not prioritized digital skills.
- Leadership does not have a good understanding of the technology skills that business employees currently have.
- The most popular suites of team collaboration tools release hundreds of feature updates a year, with little notice or information on what they do. This can cause IT teams to struggle to keep up with change without the resources for more proactive approaches to skills development, such as a digital side hustle program.
- The lack of coordination between IT and HR for digital enablement can create friction.
- Team managers are afraid of losing talent to work on things that are not their primary job.
- Sustainability of side hustles can initially be difficult until the value is recognized.

User Recommendations

- **Determine your side hustle goals:** Side hustles should reflect organizational needs. There can be a finite number of side hustles with different goals, such as improving meeting effectiveness or working toward rollout of a new collaboration tool.
- **Identify IT resources to guide initial side hustlers:** The side hustle program requires a minimum of IT oversight. The digital workplace team should take the lead to ensure that learning content is fresh and intuitive, track participation and progress, and offer course correction when needed.
- **Articulate the value to middle managers:** Focus on interest first; determine the employee's aptitude based on their technical and nontechnical competencies. An alternative model allows employees to participate in a side hustle program rather than being nominated by managers.
- **Connect side hustlers with relevant work and teammates:** Once side hustlers start to grow their skills, they need to identify opportunities to apply the learning within their own work activities. Managers must ensure employees can carve out time to focus on the side hustle (typically no more than 10% to 15% of their time).
- **Make digital side hustles self-sustaining:** As side hustlers mature in their skills, build communities of practice around each side hustle. This grassroots program helps digital side hustlers become self-sustaining, limiting the need for IT's involvement by engaging mature side hustlers with aspiring new side hustlers.

Gartner Recommended Reading

Create an Enablement Continuum to Advance Digital Skills Outside of IT

Quick Answer: How Can I Empower Ambitious Employees to Grow Digital Skills?

Case Study: Employee Development Framework for Digital Transformation (VDOT)

Case Study: Kick-Starting a Low-Code/No-Code Community of Practice (Heathrow Airport)

Team Unity

Analysis By: Mike Gotta

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Definition:

Team unity (TU) is a collection of work and social practices needed to promote productive and collaborative teamwork. Team connections focus on relationships within the group. Team health focuses on well-being. Team identity focuses on group purpose and shared values. Collaboration equity focuses on participation parity in all areas of team engagement. A mix of etiquettes, behaviors, coaching and leadership practices is needed to influence cohesion and solidarity.

Why This Is Important

Collaboration and organizational development strategists have long sought reliable ways to create high-performing teams that achieve superior business results. With hybrid work now mainstream, distributed teams face unique hurdles. It is challenging for members to stay focused, participate equally and build social connections if the group lacks cohesion, trust and shared identity. TU drives engagement and motivation, contributing to higher performance.

Business Impact

TU affects business results by influencing talent retention, employee engagement and organizational alignment. TU helps by:

- Enabling employees to feel more connected to team cohorts regarding work practices and social connections.
- Providing a framework for discussions on collaboration expectations and practices.
- Driving team leadership, team building and cross-team networking.
- Focusing on well-being and participation parity, which makes it valuable to HR, and supporting collaboration equity.

Drivers

- TU addresses the permanency of hybrid work styles that make it challenging for teams to maintain the type of cohesion found when they work together in the office. TU is still relevant to those remote workers who are far-flung or otherwise not part of a hybrid strategy.
- Business transformation requires teams to collaborate in a dynamically changing work environment, where quickly establishing and maintaining team unity is important to continue delivering business results. This applies to colocated teams, remote teams and hybrid teams.
- Employee experience and engagement can be negatively impacted by poor team unity, leading to suboptimal team performance, talent retention concerns and other issues.
- HR groups are concerned over workers feeling disconnected from the organization and to each other, raising the priority of TU as a discipline for leadership practices, including team managers.
- Managers responsible for teams containing hybrid or remote staff must take steps to establish and maintain team unity. This is a core competency expected of managers, to ensure effective leadership and consistent results.
- Organizational development leaders can be a key stakeholder for TU as a means to encourage co-creation, self-direction, autonomy and shared decision rights.
- Gartner's digital worker experience survey found that workers would prefer to spend only 18% of their time in hybrid meetings, and only 17% of workers believed that hybrid meetings are productive to meet business goals. Meanwhile, 46% believed in-person meetings were productive, and 23% believed in the productivity of virtual meetings with audio and video.

Obstacles

- IT, HR and business leaders often disagree about whether team unity is already addressed by other managerial and community-building practices. Some may perceive less of a need for TU.
- Workers may perceive that efforts to improve team unity are not authentic, unless they align with broader cultural practices that value employees.
- Workers may be concerned that activities and practices to enhance team unity are a distraction from “real work.”
- TU is not aligned to a single technology. TU-related tools span various markets — such as social recognition, feedback polls, watercooler interactions, gamification — making it difficult for IT to make recommendations without understanding the context.
- TU practices may introduce subjective, nonfunctional requirements that IT may struggle to address.
- Different teams may require different mixes of TU tactics, making it difficult for team leaders and other stakeholders to codify best practices.

User Recommendations

- Consolidate requirements and align collective goals by collaborating with HR, business leaders and digital workplace strategists.
- Survey team leaders to find out their concerns, practices and suggestions.
- Avoid a technology-first approach by understanding how to sustain team unity over time and at scale, before promoting fixes such as watercooler interactions or icebreakers.
- Minimize risk by mentoring and coaching team leaders about issues raised by remote and hybrid work, and socialize ways to get started with TU efforts.
- Ensure TU has value by examining ways to correlate improvements to business outcomes. When uncertain, use parallel pilot projects to A/B test ideas in order to discover what works.

Gartner Recommended Reading

Collaboration Equity Helps Build Team Unity and Improve Performance

Quick Answer: How Can the Digital Workplace Cultivate Team Unity?

Quick Answer: Team Guidelines for the Promotion of Healthy Hybrid Work

Team Collaboration Attributes That Drive High Performance

Collaborative Content Workspaces

Analysis By: Joe Mariano, Jason Wong, Larry Cannell

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Definition:

Collaborative content workspaces (CCWs) enable employees to connect live components such as lists, text blocks, and data fields to achieve their personal, team, and line of business goals. These workspaces can be either temporary or permanent, depending on the need. With real-time co-editing, any changes made are promptly reflected on the canvas, fostering a dynamic and flexible collaborative workspace experience with highly effective content organization.

Why This Is Important

CCW offers an innovative approach to no-code citizen automation and development and alternative to low-code development tools that could be overkill. CCW allows citizen developers to design report dashboards, automation, and collaboration areas in a well-defined environment. By integrating data and features from other technologies, CCW reduces the need for context switching. As a result, CCW boosts digital employees' experience and accuracy, resulting in better business outcomes.

Business Impact

Live, co-editable and online collaborative components, such as task lists, charts or online documents allow teams of virtually any size to organize, coordinate and track their efforts. CCW is a shared resource from conception and requires a different mindset from staff. This goes away with CCW and it is now owned at a group level. Business use cases include team collaboration, user-built custom workflows, flexible data gathering (e.g., departmental OKR tracking), wikis and knowledge bases.

Drivers

- Employees are constantly seeking out new technologies that meet critical business needs. A third of the participants in Garter's Digital Worker Survey are acquiring apps with and without IT support. Potentially, CCW tools can supplement the need for new technology in favor of combining data and integrating with other services to create a new tool to meet personal, group and line of business needs.
- Microsoft's introduction of their CCW, Loop, as a future model of collaboration will drive major interest in this technology space, which is very different from traditional tools such as content services and workstream collaboration.
- Rising workforce digital dexterity is empowering and inspiring tech-savvy employees to develop technology competencies they can share with the team (what we sometimes refer to as a "digital side hustle"). CCWs enable employees to apply their skills to shape workspaces to meet their specific needs.
- Gartner's 2022 Digital Worker Survey data shows 47% of participants struggled to find the information or data needed to do their job. CCW has the potential to provide real-time data and content delivery in appropriate business contexts across many channels, combined with application logic that can be easily adapted to changing needs. This enables employees to keep up with the accelerating pace of business. Data fields from diverse applications can be treated as objects in a CCW. This can allow for more dynamic search on more elements of content within CCWs.

Obstacles

- Since this market is emerging, functionality is not consistent from vendor to vendor. Security and governance features, collaboration features and content creation and ownership are not standardized. This can cause confusion when comparing vendors.
- CCW tools require a different mindset from staff as well as the time needed to understand valid use cases and train staff on how to use them.
- CCW represents potentially deploying yet another digital workplace tool. Employees may face some form of "digital burnout," with most employees needing to get used to this form of other tools.
- Consider that investing in any CCW tool will cause some level of locking, as migration services to move from one to the other do not exist at this time.
- Entrenched work patterns — shaped through decades of emailing document attachments and scheduling meetings in order to collaborate — are difficult to alter and may not be recognized as a problem by users.

User Recommendations

- Connect with influencers and innovative users, some of whom may already be using CCWs. Find, prepare, and learn from influencers around your company, especially those who are frustrated with existing toolsets and are willing to encourage their colleagues to consider alternatives.
- Educate stakeholders about how the collaboration tool market is changing. By bypassing traditional collaboration patterns CCWs will increase competition among tool vendors, bringing with them new options and innovations. Work with governance teams and senior IT leaders to educate them on CCW tools and opportunities to pave the way for potential pilots.
- Make plans to experiment, as vendors such as Google and Microsoft will increasingly add CCW capabilities. Ensure that workers understand the benefits of composability and see early promises with an @mention, or an information card displayed upon hovering on a word or phrase.

Sample Vendors

ClickUp; Google Workspace; Microsoft Loop; monday.com; Notion; Salesforce (Slack)

Gartner Recommended Reading

Quick Answer: Who's Who in the Life Cycle of Composable Applications?

Becoming Composable: A Gartner Trend Insight Report

Guided Attention

Analysis By: Craig Roth

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Emerging

Definition:

Guided attention is a discipline that uses technology and worker-driven processes to help workers notice important information while avoiding distractions and wasted time by demoting or suppressing information that is not important to them.

Why This Is Important

Digital workplaces provide a wide variety of collaboration and content tools, but each tool adds yet another thing to check (YATTC). Extra notifications and alerts can impact employee focus and flow. Without guiding attention, productivity is decreased, and workers may not notice an important signal due to the background noise and clutter of their information environment. Technology is emerging, which (based on historical preferences) elevates or demotes information based on relevance.

Business Impact

Inability to guide attention impacts decision quality and reaction time. Decision quality decreases when decision makers are unaware of key information or distracted by superfluous information. Digital friction results when workers endure interruptions and waste time sorting through irrelevant information. Reaction time increases when alarming signals are noticed in a timely fashion. Boosting worker information utilization yields a cascading improvement in team effectiveness.

Drivers

- Improvements in AI: SaaS tools enable centralized tracking of activities indicating interest and disinterest in content. Graph databases can be leveraged by the AI-based pattern recognition in “everyday AI” to determine relevance of content to a particular worker. Generative AI has shown initial promise in being able to summarize information and detect whether anything demanding attention is present in a document.
- Proliferation of attention-demanding applications: The number of applications where a critical bit of content could appear continues to increase, and so does the amount of unimportant information that obscures insights and drains the time and energy of the worker. The 2022 Gartner Digital Worker Survey found that 48% of users made a wrong decision (occasionally or more frequently) because they did not have the information they needed. In addition, 54% of users reported failing to notice important information (occasionally or more frequently) because of too many applications or the volume of information. Microsoft 365, for example, has over a dozen applications that generate alerts and notifications. Applications configured to send notifications often contribute to the noise when they are sent without consideration of relevance to current work and other notifications demanding attention.

Obstacles

- Software often lacks capabilities to guide attention. If it does have them, the defaults are often tuned to maximum noise.
- Businesses have generally been successful at demanding more time and engagement from workers to address the increased pace of work. Mobile devices raise expectations of monitoring content and message feeds at any time.
- The attentional aspect of user experience is absent from product evaluations, so vendors deprioritize features such as sorting by relevance and rules. Workers lack commonly accepted terms to demand improvements.
- Workers do not complain due to learned helplessness (assuming it is insolvable) or fear of sounding incompetent for saying they cannot keep up with the rising information flow.
- Organizations rarely assign formal responsibility and budget to a role that can improve guided attention. The role is therefore taken on by unauthorized and self-motivated volunteers.

User Recommendations

IT leaders should take an enterprisewide approach to improve decision quality and reaction time with concrete steps in digital workplace tools and processes:

- Take ownership of guiding attention and the unique opportunity of an IT leader to establish best practices and communicate them to the business.
- Research the information consumption habits and challenges of key roles in the organization.
- Use digital employee experience (DEX), a strategy focusing on employees' technology experience, by creating journey maps around how they notice important information.
- Optimize application defaults or predefined rules (such as predefined routing or notification defaults) wherever possible.
- Use capabilities or, in rare cases, new products to address the most glaring inhibitors of guided attention.
- Update user interface guidelines to address alerting, notification, subscription and blocking of information on interfaces.
- Explore and pilot opportunities to use generative AI to prioritize important content.

Digital Well-Being

Analysis By: Rania Stewart

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Digital well-being is the pursuit of a healthy relationship with technology — both in the workplace and in its intersection with personal life — by way of promoting healthy use habits and limiting unnecessary distractions in daily life. It is one of several aspects of overall workplace well-being and represents an expanding discipline that spans multiple applications and experiences.

Why This Is Important

Digital well-being enables employees to more productively focus on their work by way of reducing technology-related fatigue and distractions that are frequent barriers to a healthy, balanced life. Promoting digital well-being practices is also associated with work-life harmony, which is an essential element of employee satisfaction and ensuring a positive employee experience.

Business Impact

Excessive technology usage has been linked to employee burnout symptoms that directly impact talent outcomes like retention, absenteeism, safety and talent agility. Similarly, frontline workers experiencing a relative lack of digital inclusion can suffer the effects of poor digital well-being. Overall, workers who adopt robust digital well-being practices are more likely to demonstrate behaviors that enable them to engage digitally more effectively improving business outcomes.

Drivers

- In this climate of intense talent competition, organizations are making every reasonable effort to simultaneously address the drivers of talent attrition and make their employer brand more attractive. Digital well-being serves to improve both top-of-mind priorities while also contributing to a more engaged and resilient workforce essential to business agility.
- Two types of software applications actively promote the habits and discipline of digital well-being. With time and greater maturity, this list will likely expand as digital well-being practices reach a larger span of workplace applications.
- The two software applications include modern digital workspace technologies that support digital well-being by way of ease, flexibility and automation of common day-to-day application needs through a single, configurable workspace portal and coaching platforms with offerings that target workplace burnout and build organizational resilience.

- Digital well-being programs have more defined “better practices” and include applications and practices such as: digital well-being literacy content (videos, articles, training) and recommended screen-time limits or nudges, microapps to streamline and automate simple work tasks (e.g., auto-RSVP for calendar invites and routine transaction auto approvals), application portfolio usage insights to help visualize time and activities in each application, and timely “focus time” reminders and using organizational “whitespace” time as designated unplugged time are also common.
- Other practices include mindfulness activities that mitigate excessive tech usage symptoms, ergonomic resources (such as blue-light blocking glasses, standing desks and IoT armbands), and, of course, physical breaks (time to get up and move around).

Obstacles

- Many organizational cultures are not well-positioned to get maximum value from these applications without using change management program resources. Digital well-being is about habit building, which requires extended “practice” and use of smart features within a supportive environment.
- Leading organizations promote a multipronged wellness strategy complete with multiple phases and rolling stages of investment that require thoughtful planning and coordination.
- While it’s tempting to look for all-in-one well-being vendors to fulfill your digital well-being needs, most corporate well-being providers fall short on these targeted capabilities. More depth than breadth is required in this particular area of focus.
- The pervasive shift (as compared to prepandemic times) to greater virtual and hybrid work has already prompted a whole new way of working for many. Organizations may resist screen time calibration on the basis of “productivity perception” (similar to being in the office extra hours).

User Recommendations

- Take stock of your organization's current digital well-being culture. Is after-hours email monitoring expected? Are employees considered less productive when unavailable for virtual collaboration?
- Identify signs of digital exclusion in pockets of your organization. Are you ignoring your frontline workers' digital needs at the expense of hyperfocusing on your office workers?
- Give due consideration and coordinate appropriate planning to get organizational buy-in and executive sponsorship as part of your digital well-being technology investment and rollout.
- Seek grassroots, peer support, discussion and activism for digital well-being by sponsoring a coalition of digital well-being champions. This can take the form of an official, organization-backed ERG community.
- Include a corporate digital well-being program and practices communication campaign, along with a companion incentive package, with the objective of reinforcing your organization's commitment.

Sample Vendors

Bessern; BetterUp; Bravely; Citrix; meQuilibrium; Microsoft

Agile Learning

Analysis By: Jose Ramirez, Graham Waller

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

Agile learning is a mindset and method of skills development, via iterative short bursts, applied in the flow of achieving outcomes that can dynamically adjust with changing needs.

Why This Is Important

Today's hypercompetitive labor market has increased the talent demand, heightening the need for the rapid upskilling of employees. Additionally, the future of work trends, including hyperautomation and artificial intelligence (AI)-driven applications, are accelerating skills shifts, particularly digital skills, through all roles. These trends are shortening the half-life of skills demanding agile learning to future-proof employees. Unfortunately, traditional training is often too time consuming and slow to respond to these changes and trends.

Business Impact

Agile learning connects learning curves with earning curves. For employees, learning advances their career, future-proofs them against change and increases their value. For an enterprise, learning fills the pipeline of dynamic skills critical to executing the organization's mission.

Agile learning helps enterprises to:

- Positively impact business outcomes
- Adapt rapidly to changing business needs
- Effectively upskill and reskill employees
- Provide a clear plan to fulfill skill needs

Drivers

- Agile learning summarizes a set of principles and practices that have been emerging and coalescing in the market. Gartner research indicates that 27% of enterprises have adopted agile learning principles to achieve superior talent and business outcomes from their training investments. Agile learning organizations reported remarkable improvements over their peers in Gartner's 2020 agile learning survey. Agile learning is an imperative for organizations since the total number of skills required for a single job is increasing by 5.4% year over year.

- Agile learning enterprises embed learning continuously into the flow of work, resulting in 9.9 times the impact of achieving learning outcomes, the highest impact ratio of any driver.

- Agile learning enterprises devote double the time to both training and learning as nonagile organizations. Giving employees the time to learn has a 7.2 times impact on achieving outcomes.
- Agile learning enterprises promote learning communities, which spread knowledge and skills more effectively than individual learning. Social learning has a 4.3 times impact on achieving outcomes.
- Agile learning enterprises harness data-driven learning techniques 64% more than nonagile learning peers and report roughly twice the confidence in the effectiveness of learning measurement.

Obstacles

- Many leaders are unaware of the agile learning approaches that are now possible. Although learning occurs daily in organizations, it's seldom intentional, siloed or fragmented. Leaders often view learning as time away from employees' work versus being integral to highly productive work. Providing employees the time to learn can feel ambiguous, and leaders are skeptical that employees will use the time effectively. Leaders also believe they can hire new talent to fill skills gaps rather than foster a culture of learning with current employees.
- Enterprises reported that "lack of employee motivation" (where employees feel that the learning is low priority in their work) and "time constraint" (where employees are not given the time to acquire that learning) are the top barriers preventing harnessing modern learning techniques. "Can't find time to learn" prevented employees from embracing agile learning in 51% of nonagile enterprises compared to only 31% reported by agile learning enterprises.

User Recommendations

- Reframe learning as central to everyone's job, not time away from the job. Embed learning into the flow of activities that employees perform to deliver their outcomes.
- Factor the hybrid work environment into the design of your learning program. For example, make learning content available regardless of where and how employees are working.
- Share the agile learning manifesto with the enterprise to champion agile learning. Shape a culture that connects learning and earning curves by using its four values and eight principles.
- Engage in frequent microlearning, applied as a part of your daily work, toward achieving an important outcome. Role model agile learning for your organization.
- Integrate agile learning immediately by starting small, i.e., select a single skill to develop or a small team so that iterative changes can be made along the way.

Gartner Recommended Reading

Agile Learning Manifesto

Future of Work Trends: The Agile Learning Imperative

An Executive Leader's Guide to Agile Learning

Foster a Culture of Agile Learning to Upskill IT Employees Faster

Digital Employee Experience

Analysis By: Lane Severson, Tori Paulman

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Emerging

Definition:

Digital employee experience (DEX) is a discipline that focuses on how technology affects the overall employee experience (EX). With work becoming increasingly dependent on digital technologies, organizations must embrace experience-focused methods, such as personas, journey mapping, measurement and listening, to deliver an experience that boosts digital dexterity and personal growth, builds team unity, and helps employees achieve organizational goals.

Why This Is Important

Employees spend more of their time working digitally than ever before; the digital experience affects the overall employee experience. Digital experiences make up most employee experiences, but 66% of employees experience moderate to high digital friction when using technology. On an average, employees must use 11 applications to do their work, with 36% using 11 to 25, and 5% using more than 26.

Business Impact

A holistic, coordinated approach to DEX across IT and with non-IT partners can minimize digital friction and maximize workforce digital dexterity and well-being. IT teams delivering great DEX improve their organization's talent retention, team effectiveness and process efficiencies, and adopt new ways of working. DEX significantly impacts a workers's intent to stay, with 82%, who believe they work with modern technology and engaged IT staff, intending to stay and/or grow within their organizations, compared to only 58% who do not.

Drivers

- Companies look for every advantage to attract and retain talent. Organizations must go beyond providing modern technology and services to deliver digital experiences that meet a diverse set of employees where they are in their digital workplace maturity and alignment with digital workplace ambitions.
- As foundational digital workplace technology is standardized across organizations, IT leaders are looking to provide differentiation by the way they facilitate the customization of tools to roles and processes in the organization.
- Persona, journey mapping, user experience (UX) design and design thinking are being used to ensure technology investments have a positive impact on both DEX and EX.
- Business leaders are increasingly looking for guidance on how technology can help address key strategic concerns around employee productivity, engagement experience, well-being and skills development, as well as organizational alignment.
- IT leaders are increasingly investing in DEX tools that collect and combine qualitative measurement (employee feedback) with quantitative measurement (performance, stability and use) of technology, and leverage automation and employee engagement to improve DEX.

Obstacles

- Building a business case for DEX is difficult. Common measures are subjective and benefits can't be directly attributed to DEX initiatives.
- Cost to acquire, implement and integrate technologies to improve DEX.
- DEX requires shifting from activity- and service-based to new experience- and value-based measures of success.
- The human-centric nature of DEX may not be appreciated by technology-centric IT leadership and staff.
- Low-maturity organizations may not be ready for DEX, because their focus remains on basic IT operations concepts (for example, IT service management [ITSM], endpoint management and technical debt reduction).
- Clients often cite lack of IT leader and staff skills to pivot focus toward experience development. Most organizations still do not see this as a part of their remit.
- Because DEX and EX are directly linked, if IT and HR (who owns EX) are not collaborating, success in improving either will be impaired.
- Organizations facing staffing reductions may not have the resources to invest in DEX leadership, staffing or technology.

User Recommendations

- Make the digital workplace the central point of coordination for all DEX activities.
- Align key partners in EX, HR and facilities, along with business leaders, by expanding the employee value proposition (EVP) to include DEX.
- Focus DEX initiatives by creating employee personas and prioritizing high-impact roles first. These may include revenue generating roles, customer service or product development.
- Identify key moments in an employee journey such as “the first day at work” or “return to the office” to improve, as opposed to attempting to change, the entire onboarding process.
- Combine personas and journey mapping to catalyze identification and reduction of digital friction points.
- Combine objective data from DEX, or other monitoring and management tools, with subjective data from employee listening and voice of the employee programs to guide DEX initiatives.

Gartner Recommended Reading

Deliver Peak Digital Employee Experience Excellence in 4 Steps

Tool: Digital Employee Experience Journey Maps

Innovation Insight for the Digital Employee Experience

Virtual Co-working Space

Analysis By: Christopher Trueman

Benefit Rating: Low

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Definition:

A virtual co-working space (VCS) is a real-time collaboration tool that supports interactions over a network between team members to more closely approximate a real-world office experience. VCSs are often positioned as creating a "virtual office" environment by using always-on meeting rooms/channels with rich presence or gamified, social spaces to connect colleagues via video. In this way, VCSs make video an omnipresent part of the work environment.

Why This Is Important

Virtual co-working spaces emerged from the meeting solutions market in response to the unique needs of remote/hybrid workers. VCSs' persistent video channels or gamified virtual office spaces better enable ad hoc collaboration. VCSs promote more social and collaborative work styles and encourage spontaneous meetings — the virtual equivalent of chatting to someone in the office. Most organizations should treat a VCS as a complement to, not a replacement for, existing meeting solutions.

Business Impact

VCSs add new ways to engage remote/hybrid workers. They are useful for IT leaders and managers seeking to increase social collaboration and foster team unity. This engagement style can:

- Build team unity
- Mitigate feelings of isolation
- Raise intent to stay
- Improve responsiveness
- Foster serendipity
- Create more productive work styles

Teams spread across different time zones (i.e., more than four to five hours difference) will see a reduced impact due to VCSs' reliance on real-time communication.

Drivers

- Workers ranked virtual meetings as less productive than in-person meetings, but more productive than hybrid meetings. The 2022 Gartner Digital Worker Survey shows they would prefer to spend 48% of their time in virtual meetings, 35% of their time in-person, and only 18% of their time in hybrid meetings, on average.
- Organizations know video meeting tools are fundamental to maintaining productivity and team cohesion in a hybrid or remote-first work environment.
- Meeting solutions allowed structured and planned collaboration activities to continue, but spontaneous real-time interactions have proven difficult to replicate. As a result, IT leaders and managers have explored alternative solutions, such as VCSs.
- VCSs provide new capabilities to make spontaneous and unstructured conversations more tenable than traditional meeting solutions. They do this in one or both of the following ways: (a) by creating persistent, video-enabled, virtual rooms or channels. Entering a channel is analogous to opening your office door, inviting colleagues to drop in throughout the day; or (b) by introducing spatial video capabilities, where users can only hear/see those in close proximity to them within the app. Users are represented as an icon or avatar and can either click on colleagues to join them or can roam a 2D virtual space. All VCSs provide rich presence features and visually show the meetings taking place within a team or group, raising transparency.
- Most of the technological hurdles have been solved by the conferencing and meeting solutions that preceded today's VCS vendors.
- A VCS can greatly benefit teams or groups whose activities require frequent contact or are conversationally driven.
- Even hybrid teams with infrequent conversation needs may find a VCS necessary to bridge the gap created by moving work out of the office.
- VCSs are not immersive (virtual reality) technology; however, many VCS apps have rebranded as 2D metaverse applications amid the surrounding hype.

Obstacles

- Most IT organizations prefer to minimize the number of collaboration tools they support. The value a VCS can bring has had difficulty resonating with enterprise IT buyers as VCSs are unlikely to replace traditional video conferencing tools. Gartner clients report purchasing decisions are primarily led by line-of-business leaders or adopted by teams in a grassroots fashion.
- The use of VCSs is still very new. Cultural and work style changes will be required for successful adoption of a VCS at most organizations. This means that strong messaging and example setting from leadership/team managers will be needed. Customers and VCS vendors will evolve together. In a market this new, a customer with heavy usage can influence the product roadmap.
- VCSs are built around real-time video capabilities. VCSs do not work well for teams spread across time zones that are more than four or five hours apart.
- Due to the emerging nature of this market, privacy, security and compliance concerns persist.

User Recommendations

- Evaluate VCSs as a means for achieving collaboration equity, engagement and increasing visibility of remote workers by first piloting them as social gathering spaces.
- Align your organization's use cases for VCS with the most appropriate vendor(s) by assessing each vendor's strengths and weaknesses. Some VCS vendors specialize in internal, team collaboration, while others specialize in education or social gatherings.
- Don't become locked into an individual VCS vendor early as this is an emerging market. Be prepared to switch vendors as the market evolves. Gartner has seen vendors enter and exit the market (through acquisition or insolvency), and expects to see more churn over the next few years. Additionally, a number of established vendors (such as Zoom and RingCentral) are adding VCS capabilities to their product suites.
- Avoid unnecessary purchases by evaluating alternatives. Community and peer networking tools, and workstream collaboration apps may overlap with VCS for some use cases.

Sample Vendors

Bramble; Gather; RingCentral (Team Huddle); Sococo; SpatialChat; Topia; Welo; Zoom (Huddles)

Gartner Recommended Reading

Market Guide for Meeting Solutions

Digital Workplace Applications Primer for 2023

Immersive Meetings

Analysis By: Christopher Trueman

Benefit Rating: High

Market Penetration: Less than 1% of target audience

Maturity: Emerging

Definition:

Immersive meetings involve the use of immersive technology (VR, AR, MR, metaverse) to host meetings and gatherings. Attendees — represented by avatars or holograms of real people — are able to see, move and interact with shared virtual elements and other people in a manner similar to an in-person meeting or social gathering.

Why This Is Important

Immersive meetings provide a more natural meeting experience by providing presence, body language or gestures with virtual representations of people and/or a shared, 3D frame of reference — including physical objects for local participants and digital objects for remote participants. Traditional videoconferencing and meeting solutions do not provide the same level of immersion. Hosting an immersive meeting results in a more casual and human experience, and could ease meeting fatigue.

Business Impact

Immersive meetings range from a few to hundreds of attendees (often spread across multiple instances). Remote collaboration scenarios see the greatest benefits due to their impact on participant engagement. Several added values provided by these technologies over existing videoconferencing and meeting solutions include:

- Greater participant engagement
- Reduced distractions/multitasking (in VR specifically)
- Natural gestures and body language
- Replacement of additional physical meetings in the long term

Drivers

- Employee preferences have shifted in favor of remote and hybrid working, a trend that Gartner expects to continue. Organizations are reevaluating their strategies and processes as a result of this shift, making them open to disruptive new technologies such as immersive meeting tools.
- Immersive meetings provide new capabilities that allow certain meeting use cases to be more effectively digitized, such as training in hazardous environments or design review meetings for physical products. As such, these meetings are more likely to remain virtual, reducing the need to travel and generating potential cost savings.
- Companies seeking to actively reduce travel to meet corporate sustainability goals can tie immersive meeting technology to these key initiatives.
- Proven success stories from organizations pioneering immersive meeting tools will drive more companies to pilot and adopt these solutions.
- The move from in-person meetings to videoconferencing platforms was successful for most meeting types, but informal, social and highly interactive meetings struggled to reach the same level of engagement. There is a growing interest in using immersive technologies to build more engaging virtual meeting experiences going forward.
- Creating a virtual space, or overlaying virtual elements on a real world location, allows meeting organizers, planning teams, advertisers and vendors to leverage their existing skills. Banner advertisements, booths, stages, showrooms, information desks, gathering spaces, signage and other aspects of physical spaces can be recreated virtually.
- Head-mounted display (HMD) technologies will see significant improvements and price reductions in the coming years, reducing the cost of entry, especially for interactions using hands-free or wearable devices.
- Eye-tracking and pupillometry sensors in HMDs can provide unique data and analytics opportunities.

Obstacles

- For multiple reasons, immersive meetings cannot currently replace traditional videoconferencing.
- HMDs are expensive today, and a lack of standardization in display technologies, controllers and input devices means that selected devices can limit or enhance the user experience and make setup difficult.
- Creating custom environments and experiences require specialized skills that most organizations lack. Extensive professional service engagements or commissioned work can inflate costs.
- VR can cause users to experience motion sickness, eye strain, headaches and other physical symptoms. This can make immersive meetings challenging for many users. Some users may see symptoms lessen with increased exposure to the technology, but some never do. Improvements to hardware, devices and VR collaboration software to mitigate these adverse reactions are still in an early, experimental stage, with options varying by platform.
- The long-term value of immersive meetings is as yet unproven.

User Recommendations

- Start any virtual or augmented reality implementation by carefully considering the use cases for immersive meetings within your organization.
- Create a successful initial pilot by targeting an area where there is a clear benefit for immersive meetings over a traditional videoconferencing approach.
- Link immersive meetings to key business initiatives, such as organizational digital transformation, by coordinating your actions with key stakeholders.
- Supplement any lack of skills or experience with immersive meetings within IT by leveraging professional services, training and other resources available from your service providers, partners or third parties.

Sample Vendors

Arthur; ENGAGE; Glue; Kazendi; meetingRoom; MeetinVR; Meta; Remio; Spatial

Gartner Recommended Reading

Quick Answer: What Is a Metaverse?

Quick Answer: How Will the Metaverse Shape the Digital Employee Experience?

Quick Answer: What Emerging Metaverse Capabilities Should Be Prioritized for More Effective Meetings?

Emerging Tech: Impact of Metaverse on Edge Devices and Infrastructure

At the Peak

Collaboration Equity

Analysis By: Christopher Trueman

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Collaboration equity (CE) is a discipline that relies on a set of work practices, etiquettes and technologies to ensure workers can fully participate in team activities and influence business outcomes, regardless of their environment. CE fits within a broader employee experience strategy, supporting both evolving flexible work initiatives and organizational values for employee engagement, productivity and innovation.

Why This Is Important

Flexible working arrangements and multilocation organizations require CE initiatives to ensure that all employees have equal opportunity to participate fully in team activities. This requires employees to have equitable access to corporate resources, decision makers and peers — and the agency to act to improve their standing in the organization and create value for the business.

Business Impact

Achieving CE strengthens organizational cohesiveness by:

- Creating richer employee engagement for all, irrespective of work location, role or task.
- Meeting employees' expectations for inclusivity and for access to resources and each other.
- Ensuring all employees deliver full value in their roles and assigned projects.
- Boosting productivity and innovation through intentional collaboration.
- Facilitating employee relationships by establishing and nurturing ties both strong and weak.

Drivers

Organizations with flexible work policies require proactive implementation of best practices and technologies relating to CE in order to deliver an exceptional digital employee experience by:

- Supporting flexible work at scale. This requires you to build a cohesive team to maintain productivity and create innovation in support of business goals.
- Reducing remote employees' fear of missing out on decisions and actions relevant to their roles.
- Providing team leaders with greater visibility into how their teams are performing across locations, using, for example, agile disciplines, objectives and key results (OKRs), and collaborative work management tools.
- Fostering team unity by creating the trusting relationships that come with an open, equitable environment.
- Retaining and recruiting valuable employees. This involves highlighting how both in-person and remote employees have equal opportunities to influence decisions and actions. Team members do not generally look for preferential treatment, but everyone wants to be treated fairly.
- Setting the stage for collaboration strategists to focus CE practices on improving team dynamics and delivering business value.
- Demonstrating deep commitment to flexible work policies and the workers who take advantage of them. This encourages workers to use all the options available to them, and confers additional agency and agility in terms of how they work. In time, this can create a positive feedback loop.
- Supporting hybrid meetings. These will be a reality for many organizations, though Gartner's 2022 Digital Worker Survey found that workers want to spend only 18% of their time in these meetings and view them as significantly less productive than in-person and virtual meetings using audio and video.

Obstacles

- A corporate culture built on traditional team structures might be insensitive to the need for CE, beyond tactical technology implementations.

- Employees in office locations might not have equal respect for those who choose to work elsewhere.
- When under duress, managers might turn for help to employees who are in the same office, rather than consider remote employees, even if they would be a better choice.
- An organization might lack a digital workplace program mature enough to allow for the level of cooperation between IT and non-IT stakeholders necessary to achieve all of a CE program's goals.
- Investment in technology may be needed to equip all employees and conference rooms with the necessary tools to enable successful collaboration with peers, partners and customers.

User Recommendations

- Test ideas that will help your organization get closer to the ideal of CE before making significant new investments. CE is more of an aspirational strategy than a well-defined set of implementations.
- Be agile rather than prescriptive when making changes. Achieving CE requires an evolving strategy that includes incremental modifications and validation through analysis of employee sentiment.
- Improve meeting etiquette and the layout of meeting rooms, as this can help remote meeting participants who may struggle to influence discussions held in conference rooms. This also helps prepare an organization for more CE initiatives.
- Plan for procedural, behavioral and cultural changes. Technological changes may improve CE, but they are unlikely to deliver it fully on their own.
- Set and assess OKRs to ensure work assignments and opportunities are assigned to employees equitably and based on merit.

Internal Talent Marketplaces

Analysis By: Emi Chiba

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Internal talent marketplaces (ITMs) are intelligent platforms that match internal or contingent workers to work opportunities without recruiter involvement. They provide personalized recommendations aligned to workers' unique skills and experiences. Opportunities include gigs, time-boxed projects, stretch assignments, mentoring or full-time roles. ITMs offer marketing features, matching algorithms and feedback functionality, while aligning with adaptive organizational design principles.

Why This Is Important

Continued market uncertainty and demand for new skills have made adaptability and resilience critical. Volatility combined with worker demands for increased mobility and development opportunities has led to the adoption of ITMs. ITMs provide organizations with valuable insight into skills and workers equitable insight into available growth opportunities. They are key to enabling adaptability, resilience and experiential learning.

Business Impact

Adopters of ITMs use them to:

- Understand workforces through a different lens — focused on the skills needed, rather than the role.
- Gather skills data and support talent through experiential learning and hands-on opportunities.
- Encourage and track employee development and collaboration in new ways, with a focus on skills.
- Address rapidly changing business priorities, and redeploy or reskill existing employees in order to improve organizational sustainability, while increasing employer brand appeal.

Drivers

- **Business agility and composability:** Agile and composable organizations require more flexible deployment of workers across projects, products and other initiatives. Composable businesses are architected for real-time adaptability and resilience in the face of uncertainty. They need people with learning agility to adapt to changing skills demands. They also need to be able to align a highly networked workforce to the work that needs to get done in a dynamic way.
- **Talent visibility:** HR and other organizational leaders benefit from the data and insights from ITMs to support workforce planning and other talent processes. Team, project and product leaders within organizations benefit from more flexible staffing and improved visibility into talent.
- **Worker demand for growth opportunities:** Deployed correctly, ITMs provide employees and contingent workers with better visibility into work opportunities. They can stretch and build up their skills and experiences in order to grow their portfolio of work and careers.
- **Technology availability:** Hype around the ITM has increased. The market for these platforms consists of human capital management (HCM) suite providers, talent acquisition vendors, learning platforms and specialist point solutions. Maturity in applying AI to detect, infer and map relationships between skills has increased, as has the use of AI techniques to automatically match talent to work opportunities.

Obstacles

Organizational challenges impeding adoption include:

- Lack of cultural readiness for more dynamic and adaptive organizational models and project- or gig-based work.
- Talent hoarding due to fear of lack of resources. Managers may discourage team members from seeking outside opportunities as they only see talent engaging in work for other teams, and fear not having enough talent to get assigned work done on their own team.
- Lack of psychological safety. Workers may not be confident enough to bid on projects or gigs for fear that they will not be selected. Uncertainty can also exist around how performance on projects will impact annual performance reviews.

Data-related challenges include:

- Access to data regarding worker and worker experiences, knowledge and skills.
- Use of organization-specific and more granular skills to enable better matching.
- Difficulties in balancing privacy and the need for a significant amount of talent data to enable better user experiences through more relevant matching.

User Recommendations

- Pilot ITMs within business units that use adaptive or agile organization models, or work with progressive talent management leaders who want to deliver agile skills development.
- Invest in design thinking, work design and workplace ethnography. Allowing workers to bid for projects and gigs, represents a significant change to management practices.
- Inventory current skills ecosystem and data sources to decide what may feed into matches and recommendations in the ITM prior to vendor evaluation.
- Evaluate vendors by assessing user experience, ability to incorporate diverse sources of data and skills ontologies. When evaluating vendors with similar capabilities, prioritize user experience as user adoption is critical to the adoption and success of an ITM.
- Market the ITM, as it gets adopted within your organization, as an essential, growth-focused part of your differentiated employer brand.

Sample Vendors

365Talents; Degreed; Eightfold AI; Fuel50; Gloat; Oracle; ProFinda; SAP; Workday

Gartner Recommended Reading

Market Guide for (Internal) Talent Marketplaces

Innovation Insight for AI-Enabled Skills Management

Market Guide for Talent Acquisition (Recruiting) Technologies

Future of Work Reinvented: Shifting Talent and Skills

Visual Collaboration Applications

Analysis By: Brent Stewart

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Definition:

Visual collaboration applications are cloud-based tools that enable teams to communicate and creatively collaborate during both asynchronous and real-time work. They provide a shared digital canvas offering collaboration features and templates for common frameworks, flows, activities and designs.

Why This Is Important

During the pandemic, visual collaboration applications became an essential part of the digital product team's toolset, and have only grown in popularity and impact as organizations return to the office or engage in hybrid work models. The most significant insights, ideas, strategies and designs for leading digital products emerge on the whiteboard of a visual collaboration app. As such, they are seen by many as the place where "the magic happens" for design, product and engineering teams.

Business Impact

Visual collaboration applications make remote and hybrid creative work possible. Without them, the only other viable approach is colocated, workshop-style collaboration that used to be standard practice for digital product teams. In fact, Gartner hypothesizes visual collaboration apps elevate creativity and productivity, regardless of whether they are used remotely or in person, due to the templates they provide, team participation they promote and traceability they enable.

Drivers

- Permanence of remote and hybrid work: The global shift to remote and hybrid work makes visual collaboration applications the “new whiteboard” and a required platform for any digital product or business strategy team, whether used in person or remotely.
- Product team collaboration: Coordinating handovers between product management, design and development can take significant effort, and a misaligned product team results in misaligned products. Visual collaboration apps reduce, and even eliminate, handovers between stakeholders and contribute to the delivery of more cohesive products.
- Design thinking and collaborative creativity: The rise of design thinking and collaborative creativity, in the form of workshops, design sprints, strategy sessions and more, requires a workspace that enables shared ideation, evaluation and decision making.
- Templates: Visual collaboration tools include templates for brand, business, marketing and product strategy methods and techniques that accelerate discovery, exploration and validation of insights, ideas, strategies and designs.
- Integrations: Recent feature enhancements from vendors include integrations with popular product management, user experience (UX) design and software engineering tools.
- Generative AI: With AI completing increasingly more production work, such as screen designs, user flows, and code, the role of the human will shift strongly towards research and strategy activities. Visual collaboration tools will become the single-most important “home” for human creativity in the enterprise.

Obstacles

- Customer perception as a remote-only tool: Many view visual collaboration applications as a solution for remote or hybrid teams only. As organizations transition from fully remote work to in-office or hybrid arrangements, it is possible purpose-built visual collaboration applications (e.g., Miro, Mural, Klaxoon, etc.) will be viewed as expendable by some teams.
- Competition from design and business communication platforms: Collaboration and co-design features (such as a digital whiteboard) in design platforms (e.g., Figma [FigJam]) and business communication platforms (e.g., Microsoft Teams, Zoom Video Communications, etc.) are close to — or on par with — purpose-built visual collaboration tools.

User Recommendations

- Build a platform evaluation and selection process, by ensuring that the needs of all product stakeholders are considered when choosing a visual collaboration application.
- Employ a visual collaboration application as the de facto means for sharing product and design knowledge with development. Plan and execute workshops and design sprints on the selected platform, whether working remotely or in person.
- Use a visual collaboration application to plan and execute user research activities that require real-time, one-on-one facilitation.

Sample Vendors

Bluescape; Figma; InVision; Klaxoon; Lucid; Miro; Mural

Business Technologists

Analysis By: Nikos Drakos, Jason Wong

Benefit Rating: Transformational

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

Business technologists are employees who report outside of IT departments (centralized or business unit IT) and create technology or data and analytics capabilities for internal or external business use (either full time or part time).

Why This Is Important

Sustained digital transformation requires technology capabilities to be continuously developed and adapted. Democratized delivery by business technologists enables an organization to apply technology closest to where value is created. IT organizations must partner with business technologists to keep up with the increasing demand for technology solutions. The agility and insight provided by business technologists are needed to transform disparate business units without overtaxing IT.

Business Impact

Business technologists represent a shift in technology production, to where there is both business and technology expertise, forming fusion teams. They can scale technology production in responsive, agile and innovative ways to supplement IT's capabilities. They can also help reduce unnecessary effort by working on digital capabilities that impact strategic-to-tactical priorities and internal-to-external use cases.

Drivers

- Rising digital skills among employees, in general, and as a result of employer initiatives targeting data literacy, digital dexterity and innovation acceleration.
- Increasing availability of intuitive, self-service, low-code and no-code tools, and new generative AI technologies for building technology solutions, or analyzing and using data effectively.
- The need to accelerate digital delivery through collaborative and agile methods throughout the business to reduce time to market, optimize channels and incorporate customer feedback.
- Breadth of use cases involving technologist engagement, such as building web and mobile forms for employees, partners or customers; automating personal and departmental workflows; connecting data and content across SaaS applications; and creating reports and data visualizations within the platform to improve productivity.
- Reduction in the workload of the IT organization, enabling them to focus on more strategic projects.
- Opportunity to shift the value proposition of IT organization, from a provider of digital solutions to that of a digital accelerator that empowers others to build digital capabilities.

Obstacles

- A major obstacle is uneven learning and development to motivate employees to contribute as business technologists.
- The autonomy that business technologists enjoy can lead to misallocation of resources, inconsistent designs, duplication of effort, missed opportunities for reuse and increased risk to the organization.
- Overly restrictive governance and control by the IT organization or lack of a strategic approach to scaling business technologists across the enterprise are also challenges for business technologists.
- Business technologists and business leadership may not be aware of, or interested in dealing with, the management implications of the solutions they create, such as quality control, security, performance management, or long-term support and maintenance.

User Recommendations

- Assess, recognize and nurture the work that business technologists already do in your organization to build on the work of motivated individuals and to attract others into business technologist roles.
- Foster enterprisewide digital skills development by creating business technologist roles for employees and technology management roles for business executives.
- Connect business technologists to other technologists and technical or subject matter experts by encouraging communities of practice.
- Provide all technologists, including business technologists, with modular components and foundational platforms to advance their skill set.
- Establish criteria for separating roles and responsibilities for technology management between IT and business, and how these complement each other.
- Help business teams understand technology ownership responsibilities, and develop consultative and collaborative services to empower others to build digital capabilities.

Gartner Recommended Reading

Future of Work Trends: Tinkerers Become Mechanics

Quick Answer: How Can Digital Workplace Leaders Support Business Technologists?

Quick Answer: What Types of Fusion Teams Do Business Technologists Lead?

Video: What CIOs Need to Know About Governing Business Technologist-Led Fusion Teams

Harness the Disruptive Powers of Low-Code: A Gartner Trend Insight Report

Appointment Scheduling Software

Analysis By: Sohail Majumdar, Adam Preset, Tori Paulman

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Appointment scheduling software are applications that simplify the scheduling process by matching calendars, automating coordination and setting up appointments among internal and external participants. Apart from core features, such as meeting coordination and scheduling, differentiating capabilities typically include notifications, platform integrations, event management capabilities and dashboards for meeting insights.

Why This Is Important

The new ways of working have increased the number and complexity of meetings. Hybrid work's ubiquity has resulted in meeting attendees joining meetings via multiple platforms, devices, locations and time zones. This complexity of meetings coupled with the expectation to provide attendees with an optimal premeeting experience has warranted the implementation of appointment scheduling to reduce back and forth, automate coordination and mitigate no-shows while improving end-user experience.

Business Impact

Adopt the right appointment scheduling software to:

- Reduce back and forth by providing employees the ability to make their available slot visible, reducing manual coordination.
- Save time by informing businesses about time needed for certain types of appointments to avoid overbooking.
- Reduce no-shows via automated email and SMS reminders.
- Improve customer, interviewee, client impact by providing a seamless pre meeting experience via a comprehensive, easy-to-understand and quick-booking page interface.

Drivers

- Appointment scheduling technology is used as a gatekeeper/proxy to cover internal and external attendees for a meeting (e.g., scheduling sales calls, citizen services and patient care).
- The increase in meetings, especially hybrid meetings, is necessitating digital workplace application leaders to address pain points around coordination.
- Vendors specializing in appointment scheduling often solve for industry or experience-specific examples and have developed differentiated features to support key use cases, such as CRM capabilities, automated workflows, Health Insurance Portability and Accountability Act [U.S.]/Department of Health/General Data Protection Regulation (HIPAA/DOH/GDPR) compliance certifications, complex dashboards for meeting behavior insights, resource scheduling, etc.
- Appointment scheduling vendors are differentiating by integrating appointment scheduling with workplace experience aspects like resource scheduling, queue management, wayfinding, visitor management, etc.

Obstacles

- Market maturity in internal meetings: The internal meeting use case has been ingrained in employees' behavior unless application leaders want additional features like meeting behavior insights that could help them optimize their real estate portfolio by merging the data with space usage metrics.
- Time and energy spent onboarding an additional tool: IT does not want to worry about a new tool for meetings as it makes training and supports cumbersome unless there is a solid proof of concept aligned with a specific use case that a new tool solves.
- Potential disruption in the market by existing enterprise suites: The appointment scheduling market can see mergers and acquisitions, and product development across existing players and enterprise suites increasing the risk of getting stuck with a redundant product having signed a long-term contract.

User Recommendations

- Shortlist vendors by matching capabilities (good interface, meeting insights, resource scheduler, queue management, etc.) with employee experience aspects that your organizations must solve. E.g., automated reminders for reducing no-shows, dashboards for meeting insights, automated workflows for simplifying coordination, compliance certifications for added layers of data security, etc.
- Use existing suite offerings to solve coordination use cases using existing features and/or API integrations. For complex industry-specific and/or business-critical use cases, choose third-party specialist appointment scheduling vendors.
- Improve the visitor experience and user acceptance by paying special attention to appointment scheduling software that either has in-built features or can integrate with existing systems to provide workplace experience functionalities like resource scheduling, queue management, wayfinding capability, navigation, etc.

Sample Vendors

Acuity Scheduling; Bookafy; Calendly; Chili Piper; GoodTime; Microsoft; Sign In Solutions; SimplyMeet.me; TIMIFY

Gartner Recommended Reading

Redesigning Work for the Hybrid World: Opportunities for Knowledge Workers

Build Better Meeting Rooms to Support Hybrid Work

Video-Enable Meeting Rooms for Collaboration Equity in Hybrid Workplaces

Market Guide for Workplace Experience Applications

Employee Communications Applications

Analysis By: Mike Gotta

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Adolescent

Definition:

Employee communications applications (ECAs) enable organizations to manage the planning, creation, personalization, delivery and analysis of internal communications (IC). These technologies also encourage feedback via polls, surveys, chat and comments. ECA solutions contribute to a broad strategy to improve employee experience and engagement, including for frontline workers.

Why This Is Important

Effective IC affects employee experience in a variety of ways. When done well, employees are more aware of what's going on in terms of strategic and operational activities, and gain a better understanding of what's being asked of them and how they add value. ECA technology underpins these efforts, providing communicators with governance over how communications are created, distributed and experienced. ECA enables employees feedback to management and analytics for ECA sponsors to assess value.

Business Impact

ECA helps organizations reach their entire workforce, including highly mobile workers or those with limited digital interfaces. ECA tools provide communicators (those in formal roles and responsible for certain types of messaging) the means to plan, manage and analyze communication efforts. Employee value of ECA is based on personalized, relevant and contextual communications, along with the opportunity to provide feedback and gain access to key applications (e.g., payroll, benefits and shifts).

Drivers

- ECAs are deployed to address employee experience and engagement needs. They are part of a collection of digital workplace applications that build connectedness and organizational alignment.
- Leadership teams have recognized the need for more effective frontline worker communications to address productivity and retention needs. Technology enablement for frontline workers is driving the use of workforce superapps.
- Dissatisfaction with email and legacy intranets is encouraging exploration of modern ECA tools designed for multichannel and multidevice experiences (including digital signage).
- ECA capabilities are broadly available, making them easy to procure but at some risk. Vendors have different levels of completeness and buyers have varying levels of maturity when defining needs. With major vendors (such as Microsoft) in the space, IT organizations are taking a greater role in the evaluation and selection process.
- ECA is expanding to include guided experiences that nudge employees to opportunities where they participate in programs related to ERGs, well-being and career matters. Expansion into communities and live events is progressing.
- Interest in generative AI and ChatGPT are encouraging ECA vendors to innovate either by helping in the creation phase of internal communications, or in ways that affect the employee experience by making it easier to navigate and consume the most relevant information needed.
- ECA tools are often used by IC teams working with HR, executives and internal marketing groups. However, for frontline workers, decisions are often driven by operational leaders in cooperation with IC groups. The divergence in frontline and office workers in terms of requirements and digital employee experience needs can lead to multiple solutions.
- ECA analytics creates workforce insights that appeal to other stakeholders, such as those involved in talent, voice of the employee or operational improvements.

Obstacles

- Business value from ECA is hard to prove. Measurements may not have enough “hard data” to satisfy sponsors who may be reluctant to rely on qualitative data combined with tool usage reports.
- Diversity of ECA vendor offerings makes it critical to establish selection criteria related to personas, editorial and campaign management, channels, integrations and analytics. The effort requires collaboration across multiple stakeholders including IT.
- Emergence of generative AI/ChatGPT in ECA will focus on communicators first, a small audience. Until vendors extend AI-enablement to employee experiences, higher-value impacts will take time.
- The ECA market is in transition. Capabilities are common in intranet packaged solution providers and mega-suite vendors such as Microsoft and ServiceNow. ECA for frontline workers are evolving into frontline superapps and work hubs. Such dynamics creates tension between short- and long-term decisions. Conservative firms may wait until the market settles down.

User Recommendations

- Take a programmatic approach by identifying use cases, worker segments, channels, content types, goals, integrations, access and analytics, by working with stakeholders focused on employee experience, engagement and frontline workers.
- Augment ECA vendor selection criteria by including subjective qualities, such as usability, digital employee experience and options to capture staff feedback.
- Ensure ECA analytics are well-defined, as measuring communications effectiveness is key to identifying business value.
- Ensure operational readiness by taking advantage of vendor options like strategy, proof of concept (POC), administrative training. Execute pilots to assess impact and expand use. Address governance by defining content and administration frameworks to ensure consistency and quality.
- Connect efforts and engage stakeholders to select and deploy ECA technology by involving those in related areas, such as digital workplace, intranets, frontline workers and business continuity.

Sample Vendors

Beekeeper; Firstup; LumApps; Microsoft; Poppulo; Staffbase; Unily; Workvivo; YOOBIC; Zipline

Gartner Recommended Reading

Modernize Employee Communications to Improve Digital Experiences and Workforce Engagement

Market Guide for Employee Communications Applications

Tool: Employee Communications Applications Vendor and Product Data

Market Guide for Intranet Packaged Solutions

Digital Work Hubs

Analysis By: Joe Mariano, Gavin Tay

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Definition:

Digital work hubs are an assembly of ever changing team productivity and collaboration applications created for employees with diverse needs. It can be augmented with services for development, automation, artificial intelligence (AI) and analytics.

Why This Is Important

Foundational work hub services (e.g., Microsoft 365, Google Workspace, etc.) have peaked in usage. However, gaps in these services continue demand for purpose-built work hub services (visual collaboration, collaborative work management, workstream collaboration, meeting services and content services platforms, etc.). In many cases these services are not deployed enterprisewide. Instead they are implemented at the domain or situational level to meet line of business strategic needs.

Business Impact

The impact of effective work hub usage starts with productivity, but ends with opportunities to reduce cycle time and improve business results arising from more effective collaboration. This coordination via the hub can be especially helpful to citizen developers and business technologists working in fusion teams leveraging work hubs to meet organizational goals.

Drivers

- Foundational work hub services, such as Google Workspace and Microsoft 365, have become the focal point of work hub application portfolios. However, IT leaders, business technologists and fusion teams are beginning to realize that they can't do everything for domain and situational needs. The impact on domain and situational work hub services means updating digital workplace charter to better align with strategic line of business needs.
- Executive leadership wants to exploit the value of work hub services long term, not just for the ROI, but to drive and enable employees' digital skills to help build digital side hustles and develop employees into business technologists.
- 2022 Gartner's Digital Worker Survey found participants on average use 11 different applications to get work done and more than 70% of the digital workers use between 6-25 applications at work. Also almost half of respondents struggled to find the information or data needed to do their job. IT leaders will need to better assess employees' needs and take greater care in creating digital employees and experience that streamline the use of multiple work hubs.

Obstacles

- IT leaders think that a foundational work hub services will meet all their collaborative needs. In fact, best-of-breed services will be needed to meet the contextualized use cases of groups such as frontline workers, marketing and sales.
- The rate of additional functions added to work hub services has accelerated to the point that IT resource and business employees cannot keep up, which is limiting the overall value of tools.

User Recommendations

- Assume that a single work hub vendor will not meet all your needs. In order to meet your digital employee experiences (DEX) goals it will take a combination of both foundational and domain or situational services.
- IT leaders must take on more of a collaborative role, working with business functions to understand the employee needs, especially with business technologists who can help drive new use cases and popularize digital workplace technology rather than IT working with one another.
- Use Gartner's ACME framework to govern usage efforts by focusing on domain and situational needs.
- Assess the technical fitness of your work hub applications to determine fit for purpose. If applications with similar functionality can be merged, better resource allocation can be reached. Deem the work hub to be a source of continuous innovation in a form that is relatively easy to adopt. Tie augmentation services (e.g., everyday AI, cross-tool integration and citizen development tools) to further growth in the value of the services.

Sample Vendors

Alibaba; Google Workspace; Microsoft 365; Monday.com; Salesforce; Slack; Zoho

Gartner Recommended Reading

Video: Use Gartner's ACME Framework to Rationalize Your Digital Workplace Application Portfolio

Tool: Digital Employee Experience Journey Maps

Innovation Insight for Collaborative Workflow Automation

Everyday AI

Analysis By: Adam Preset

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

Definition:

Everyday AI refers to snippets of AI services that help workers improve productivity, deliver higher-quality work and save time. Workers interact with everyday AI mostly as features of widely used personal and team productivity applications that are typically deployed across an organization horizontally. These AI services are used by employees throughout the day, and will become increasingly varied and integrated into our working lives.

Why This Is Important

Everyday AI technology aims to help employees deliver work with speed, comprehensiveness and confidence. Recent advances in generative AI promise to streamline content creation, analysis and collaboration. Machine learning and natural language processing capabilities are becoming more common and embedded in application features to enable automation and efficiency. Everyday AI supports a new way of working where intelligent software is acting as more of a collaborator than a tool.

Business Impact

Everyday AI can amplify the productivity of any worker. As digital work becomes more complex, workers are expected to master more capable yet complex applications. Everyday AI can simplify some of that complexity. Employees who wield everyday AI can focus on meaningful, high-value, creative output rather than the routine tasks that can be delegated away. Deployment of technology to meet this need is more scalable and efficient than hiring and training additional talent.

Drivers

Vendors in different technology markets seek to improve worker productivity in novel ways beyond simple application and feature enhancements. The development of everyday AI capabilities delivers these productivity benefits while also providing vendors with a marketable and monetizable set of new capabilities. Gartner expects to see continuing innovation from vendors as they expand their everyday AI features, with collaboration megavendors making the most aggressive investments and prominent announcements.

Several enterprise application markets have AI assist capability that aids workers in various ways. Following are examples of categories and functions that employ everyday AI:

- Business productivity: correcting errors, improving message clarity, coordinating meetings.

- Content creation: composing entire documents or designing presentations based on modest prompts.
- Workstream collaboration: notifications, canned responses, task execution.
- Meeting solutions: transcription, translation, highlighting and identifying action items, meeting scheduling.
- Search: aggregating, summarizing and citing information following natural language prompts.
- HR applications: streamlining access to organizational and employee information.
- Performance management: aggregating metrics data, providing coaching guidance.

Workers generally embrace everyday AI as it helps them save time while reducing drudgery and stress. Organizations will invest further in everyday AI as they see the technology is able to multiply their workers' output and effort. Everyday AI will become increasingly sophisticated, moving from a service that, for example, can sort and summarize chats and email messages, to services that can write a report with minimal guidance. In many ways, everyday AI is the future of workforce productivity.

Obstacles

- Employees are unaware of everyday AI features. They distrust everyday AI, are concerned about privacy and may resist use due to poor early experiences with it.
- Some routine work processes may not be suitable for everyday AI. Enterprises may need to create foundational governance policies and practice guidance to enable the use of everyday AI. New everyday AI tools backed by generative AI demand more cloud computing resources, so sustainability and environmental impact may limit comfort with the technology.
- The benefits of successful use may be hard to capture or attribute to everyday AI capabilities. Everyday AI may require an explicit request for service, rather than being integrated into how people work where contextual disclosure can be applied.
- Vendors may overrepresent the capabilities of everyday AI. They may create and charge for product models where varying levels of everyday AI features are available at different tiers, which can make broad adoption confusing or expensive.

User Recommendations

- Ensure that employees are aware of everyday AI capabilities in the tools they use. Find out why employees may be hesitant to use everyday AI features and methodically address objections, particularly around privacy.
- Maintain a running inventory of everyday AI features and create an everyday AI digital side hustle. Retain healthy skepticism when vendors claim to have advanced everyday AI capabilities.
- Track new everyday AI usage patterns to inform enablement strategies. Make everyday AI a top software evaluation criterion.
- Be increasingly bold in the approach to everyday AI; look for applications where the use of everyday AI can have an increasingly larger impact, such as in common activities such as creating written and visual content, data analysis and improving meetings.

Sample Vendors

AmplifAI; Beautiful.ai; Calendly; Google; Grammarly; Microsoft

Gartner Recommended Reading

Predicts 2022: Digital Workplace Is Foundational for Employee Experience

Quick Answer: How Can Everyday AI Improve Worker Digital Dexterity?

Quick Answer: How Will AI in Microsoft 365 Copilot Impact the Workplace?

Generative AI

Analysis By: Svetlana Sicular, Brian Burke

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Adolescent

Definition:

Generative AI technologies can generate new derived versions of content, strategies, designs and methods by learning from large repositories of original source content. Generative AI has profound business impacts, including on content discovery, creation, authenticity and regulations; automation of human work; and customer and employee experiences.

Why This Is Important

Generative AI exploration is accelerating, thanks to the popularity of Stable Diffusion, Midjourney, ChatGPT and large language models. End-user organizations in most industries aggressively experiment with generative AI. Technology vendors form generative AI groups to prioritize delivery of generative-AI-enabled applications and tools. Numerous startups have emerged in 2023 to innovate with generative AI, and we expect this to grow. Some governments are evaluating the impacts of generative AI and preparing to introduce regulations.

Business Impact

Most technology products and services will incorporate generative AI capabilities in the next 12 months, introducing conversational ways of creating and communicating with technologies, leading to their democratization. Generative AI will progress rapidly in industry verticals, scientific discovery and technology commercialization. Sadly, it will also become a security and societal threat when used for nefarious purposes. Responsible AI, trust and security will be necessary for safe exploitation of generative AI.

Drivers

- The hype around generative AI is accelerating. Currently, ChatGPT is the most hyped technology. It relies on generative foundation models, also called “transformers.”
- New foundation models and their new versions, sizes and capabilities are rapidly coming to market. Transformers keep making an impact on language, images, molecular design and computer code generation. They can combine concepts, attributes and styles, creating original images, video and art from a text description or translating audio to different voices and languages.
- Generative adversarial networks, variational autoencoders, autoregressive models and zero-/one-/few-shot learning have been rapidly improving generative modeling while reducing the need for training data.
- Machine learning (ML) and natural language processing platforms are adding generative AI capabilities for reusability of generative models, making them accessible to AI teams.
- Industry applications of generative AI are growing. In healthcare, generative AI creates medical images that depict disease development. In consumer goods, it generates catalogs. In e-commerce, it helps customers “try on” makeup and outfits. In manufacturing, quality inspection uses synthetic data. In semiconductors, generative AI accelerates chip design. Life sciences companies apply generative AI to speed up drug development. Generative AI helps innovate product development through digital twins. It helps create new materials targeting specific properties to optimize catalysts, agrochemicals, fragrances and flavors.
- Generative AI reaches creative work in marketing, design, music, architecture and content. Content creation and improvement in text, images, video and sound enable personalized copywriting, noise cancellation and visual effects in videoconferencing.
- Synthetic data draws enterprises’ attention by helping to augment scarce data, mitigate bias or preserve data privacy. It boosts the accuracy of brain tumor surgery.
- Generative AI will disrupt software coding. Combined with development automation techniques, it can automate up to 30% of the programmers’ work.

Obstacles

- Democratization of generative AI uncovers new ethical and societal concerns. Government regulations may hinder generative AI research. Governments are currently soliciting input on AI safety measures.
- Hallucinations, factual errors, bias, a black-box nature and inexperience with a full AI life cycle preclude the use of generative AI for critical use cases.
- Reproducing generative AI results and finding references for information produced by general-purpose LLMs will be challenging in the near term.
- Low awareness of generative AI among security professionals causes incidents that could undermine generative AI adoption.
- Some vendors will use generative AI terminology to sell subpar “generative AI” solutions.
- Generative AI can be used for many nefarious purposes. Full and accurate detection of generated content, such as deepfakes, will remain challenging or impossible.
- The compute resources for training large, general-purpose foundation models are heavy and not affordable to most enterprises.
- Sustainability concerns about high energy consumption for training generative models are rising.

User Recommendations

- Identify initial use cases where you can improve your solutions with generative AI by relying on purchased capabilities or partnering with specialists. Consult vendor roadmaps to avoid developing similar solutions in-house.
- Pilot ML-powered coding assistants, with an eye toward fast rollouts, to maximize developer productivity.
- Use synthetic data to accelerate the development cycle and lessen regulatory concerns.
- Quantify the advantages and limitations of generative AI. Supply generative AI guidelines, as it requires skills, funds and caution. Weigh technical capabilities with ethical factors. Beware of subpar offerings that exploit the current hype.
- Mitigate generative AI risks by working with legal, security and fraud experts. Technical, institutional and political interventions will be necessary to fight AI's adversarial impacts. Start with data security guidelines.
- Optimize the cost and efficiency of AI solutions by employing composite AI approaches to combine generative AI with other AI techniques.

Sample Vendors

Adobe; Amazon; Anthropic; Google; Grammarly; Hugging Face; Huma.AI; Microsoft; OpenAI; Schrödinger

Gartner Recommended Reading

Innovation Insight for Generative AI

Emerging Tech Roundup: ChatGPT Hype Fuels Urgency for Advancing Conversational AI and Generative AI

Emerging Tech: Venture Capital Growth Insights for Generative AI

Emerging Tech: Generative AI Needs Focus on Accuracy and Veracity to Ensure Widespread B2B Adoption

ChatGPT Research Highlights

Frontline Worker EXTech

Analysis By: Ranadip Chandra, Sam Grinter

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Frontline worker EXTech is an approach that delivers distinctive employee experiences to frontline workers by unifying a collection of applications that promote staff engagement and a sense of community. Applications typically include administrative support, recognition, well-being, internal communications and personal development processes. These apps are primarily designed for use via smartphones and tablets with digital signage sometimes complementing the approach.

Why This Is Important

Organizations in verticals like retail, healthcare, manufacturing and logistics have many more frontline workers than desk-based workers. Globally, Gartner estimates that there are 2.8 billion frontline workers — more than twice the number of desk-based workers. Despite this, technology initiatives have often focused solely on desk-based workers. Delivering technology focused on addressing this unmet need is a significant opportunity for improving the experience of this underserved section.

Business Impact

- Frontline jobs come under extreme stress and burnout. Positive experience in day-to-day business applications would remove stress and improve retention.
- Quick access to training or standard operating procedures for broken equipment is very beneficial for logistics and manufacturing industries.
- Frontline worker EXTech represents an opportunity to aggregate 10+ different applications these workers engage with daily and replace clunky homegrown portals.

Drivers

A common driver of investment in frontline worker EXTech has been the mismatched job openings and hire rates. According to the U.S. Department of Labor — Bureau of Labor Statistics April 2023 report, the number of job openings stands at 9.9 million, but the number of hires stands at 6.2 million, indicating retention is a key driver for organizational sustainability.

Drivers in individual application categories used by frontline workers are:

- Workforce management core administration: Significant changes in work for many frontline roles. This trend increases the importance of dynamic task management to frontline workers.
- Benefits and recognition platforms: These applications enable frontline workers to receive rewards that are easily redeemable while someone is on the road and facilitate immediate acknowledgments of co-workers across teams without complex workflows.
- Well-being/experience for frontline workers: These applications track health through wearables or offer stress reduction for employees dealing with a high volume of customers directly.
- Employee communication applications (ECA): Include internal communication channels for organizational communications and are often better designed to meet the needs of frontline workers than mainstream consumer-based communication platforms. These channels also integrate with schedules and include the ability to create communities with common interests or work.
- Learning platforms for frontline workers: Retail and hospitality frontline workers are increasingly leveraging dedicated frontline worker learning solutions to read job-specific learning bytes.
- Superapps: Some organizations are piloting with front-end platforms for employees that consolidate multiple application services such as payment and help desk allowing for new miniapps to be built in a composable way. These apps provide both the work and life needs of frontline workers by allowing them to pick and choose which miniapps they use when they need them.

Obstacles

- Similar to workforce management technology, frontline worker experience initiative suffers from a lack of ownership at the vertical or horizontal executive levels. Some initial projects led by application leaders are maturing from the early adoption stage, but most are stand-alone deployments led by the head of the department or line of business.
- In some industries, for safety reasons, frontline workers are prohibited from using mobile applications for the entire length of the shift.
- The solutions need to prove the nontracking of time and data during off-shift hours to build greater trust.
- The discipline of providing compelling frontline worker experience needs a combination of many different applications from different markets and/or often vertical-specific products, making it difficult to navigate the market or recommend best practices for deploying and managing the portfolio.
- Many industry-specific applications prove to be important for the frontline worker in the short term, but adoption and usage decrease over time due to a lack of improvements.

User Recommendations

- Evaluate solutions based on their ability to work uninterruptedly for hours in the background and provide significant value in little interaction time. Many frontline workers would only access the application between time-consuming tasks.
- Set a criterion that any solution that “needs more than two minutes to complete a moderate complexity use case” or “takes more than five clicks/form parameters” should not be considered.
- Analyze the employee engagement metrics filtered to identify the specific figure for frontline workers. Establish frontline worker engagement as a key metric for the success of the employee experience strategy of the organization.
- Balance the content of frontline EXTech applications between critical tasks and communications with well-being and DEI announcements.
- Explore how frontline worker EXTech can coexist with applications that meet more stringent needs, such as clinical collaboration or purpose-built tools for certain operational work.

Sample Vendors

Blink; DaysToHappy; Flip; Headspace; Perkbox; Site Diary; SparkPlug; Workstream; Wyzetalk; YOOBIC

Gartner Recommended Reading

Quick Answer: How Does a Superapp Benefit the Digital Employee Experience?

How Organizations Are Taking Action to Increase Frontline Flexibility

Presentation Materials: The Future of Frontline Work

Superapps

Analysis By: Jason Wong

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Emerging

Definition:

A superapp is a mobile app that provides end users (e.g., customers, partners or employees) with a set of core features, as well as access to independently created miniapps. The superapp is an open platform to deliver a miniapps ecosystem. Users can choose miniapps from this ecosystem to activate for consistent and personalized app experiences. There is no separate app store or marketplace for miniapps; instead, superapp users discover, activate and deactivate miniapps in the superapp.

Why This Is Important

Users demand mobile-first experiences that are powerful and easy to use. Superapps have expanded outside China and South Asia to India (e.g., Tata Neu, MyJio and Paytm); Latin America (e.g., Rappi, PicPay, Mercado Libre); and the Middle East/Africa (e.g., M-PESA, Careem and Yassir). The superapp concept is rapidly expanding to employee-facing use cases, such as frontline workers, and employee communications and engagement, such as Walmart's me@Walmart and Wipro's MyWipro apps.

Business Impact

Organizations can create superapps to consolidate multiple mobile apps or related services that reduce user experience (UX) friction (such as context switching) and development effort. Superapps can achieve economies of scale and leverage the network effect of a larger user base and multiple providers. Superapps provide a more-engaging experience for their customers, partners or employees. They improve UX by enabling users to activate their own toolboxes of miniapps and services.

Drivers

- Superapps are gaining interest from forward-thinking organizations that embrace composable application and architecture strategies to power new digital business opportunities in their industries or adjacent markets.
- Superapps are growing beyond mobile apps for consumer use cases. Frontline and remote work trends are driving the evolution of employee communications apps into workforce superapps through the addition of plug-ins for HR, payroll, shift management and other miniapp functions.
- The superapp concept is expanding into enterprise software as a service (SaaS) applications and tools, such as workflow, collaboration and messaging platforms (e.g., Slack and Microsoft Teams, which already have a large number of add-on apps to their main applications). Superapps are starting to expand to support a wide range of modalities, including chatbots, Internet of Things (IoT) technologies and immersive experiences.
- To achieve agility and digital transformation, a superapp advances the concept of a composite application that aggregates services, features and functions into a single app. Multiple internal development teams and external partners can provide discrete services to users by building and deploying modular miniapps to the superapp. This development ecosystem also amplifies the superapp's value, by providing convenient access to a broader range of services in the app.

Obstacles

- There are numerous technical ways to build a superapp, but creating the business ecosystem can become a bigger challenge than technology implementation. A superapp serves as a platform for internally developed miniapps across the business and for third-party, externally developed miniapps. Business partners are needed to create an extended ecosystem for monetization by deploying miniapps to an established user base.
- Another obstacle is getting the UX design of a superapp right for the audience, and also having consistency of the miniapps published to the superapp. Different user personas prefer to interact differently with miniapps — for example, some prefer single, task-focused miniapps versus others preferring everything at their fingertips. Inconsistent UX patterns in a superapp could negatively affect adoption and retention.
- Data sharing could be complex, including simple user authentication, such as single sign-on (SSO), and tracking user preferences or app usage history.

User Recommendations

- Educate partners on the innovations and business value a superapp strategy can drive to improve or consolidate mobile apps.
- Ensure that there is a sound business model and organizational structure to support the distributed development ecosystem for miniapps.
- Secure executive sponsorship by preparing the partnership strategy and financial case for funding as a digital business initiative.
- Identify core features in your superapp (e.g., commerce, communications or collaboration) that will drive a critical mass of adopters and create interest on the part of developers to serve those users
- Offer an easy developer experience and convenient developer tools (e.g., APIs, design guidelines, software development kits [SDKs] and frameworks) for partners to build, test, register and submit miniapps for potential monetization.
- Define security and data protection needs by establishing governance reinforced with common platform implementation to satisfy security and data protection constraints.

Sample Vendors

Alipay; DingTalk GeneXus; Ionic; KOBIL; LINE; Microsoft; PayPay; Paytm; Slack; WeChat

Gartner Recommended Reading

Quick Answer: What Is a Superapp?

Quick Answer: How Does a Superapp Benefit the Digital Employee Experience?

How Banks Can Take On Super-Apps

Top Strategic Technology Trends for 2023: Superapps

Natural Language Generation

Analysis By: Bern Elliot

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Emerging

Definition:

Natural language generation (NLG) solutions automatically convert structured and unstructured data into text-based narratives. This is achieved either through rule-based methods, which have been in use for over 15 years, or the one based on recent large language model (LLM) and generative AI methods. Both approaches have strengths and weaknesses; however, they can also be combined into hybrid solutions.

Why This Is Important

NLG solutions improve understanding and operational efficiencies by making it easier to generate content or appraise, via summary or extraction, large or complex material and data. Recent advances in generative AI have enabled significantly more fluid and creative language generation. However, those methods may also introduce erroneous content, an unacceptable risk in many use cases. Leading solutions combine rule-based and generative-AI-based approaches, enabling selectable control over which method is used.

Business Impact

NLG supports multiple productivity-enhancing use cases by augmenting human editors and writers. It can increase the speed at which textual information can be produced and shared, reducing cost and time to market for new content on multiple channels. It also allows applications to communicate with users via conversational UIs in a more fluid and natural manner, such as by supporting interpretation of complex information like analytic reports. Generative AI functionality has expanded the scope, variability and creativity of what can be generated.

Drivers

The most common uses cases for NLG driving adoption fall into several categories:

- **Enhance understanding of business analytics:** For instance, integrating NLG functionality with existing analytics and business intelligence (BI) and data science initiatives.
- **Article-type short summaries:** For instance, writing summaries or analysis of business data, financial data, wealth management information, personalized marketing copy or sports — perhaps in conjunction with abstractive text summarization technology.
- **Conversation responses:** For instance, writing personalized communications to customers via email or text.
- **Easing data access:** For instance, writing short, prose-based product descriptions as per database product information. These might then be posted as a reply to website information requests.
- **Generating variants of outbound messaging and marketing copy:** The last four years have seen growth in the number of short-form NLG specialist vendors.

Emerging, complex use cases include:

- **The combination of NLG with automated pattern/insight detection and self-service data preparation:** This can drive the user experience of next-generation augmented analytics platforms. Users have varying degrees of analytics skills to correctly interpret and act on statistically significant relationships in visualization. This use case could also expand the benefits of advanced analytics to a wider audience of business users, as well as make existing analysts and data scientists more efficient.

- **Tighter integration with BI workflows and experiences:** Context-based narration will reinforce mobile BI use cases, where a lack of screen space is a major impediment to information consumption. It will also expand the use of conversational analytics that combine natural language query (NLQ), chatbots and NLG via virtual personal assistants.
- **Complementing conversational experiences:** Conversational solutions, including virtual assistants, will be able to use NLG methods to enable more complex and natural-sounding interactions.

Obstacles

- The rule-based NLG solutions are mature but are limited in the range of language and complexity of content types that they can generate. However, their output is deterministic and accurate, which is required for many applications, and hence, their use cannot be eliminated.
- Generative-AI-based NLG solutions are emerging, with best practices for their architecture and use still being defined. Additionally, the potential introduction of inaccurate content makes them unsuitable for many use cases. While generation can be “grounded” or based on a narrow set of information, it only reduces, and cannot completely eliminate, the likelihood of errors.
- Hybrid approaches, while promising, are new and may be more complex to use as they involve two different underlying techniques.
- Generative AI approaches require a foundation model which is difficult to develop. Many will rely on existing foundation models, including Generative Pre-trained Transformer (GPT). Usage may incur significant expenses.

User Recommendations

- Be aware of a solution's maturity, particularly in terms of its ability to deliver hybrid functionality.
- Be aware of the platform data integration and preparation requirements, the platform's self-learning capabilities, and the upfront set-up and configuration required.
- Define the languages that need to be supported, the extent of narration, the degree of story automation and control supported, and the accuracy requirements of the findings and narration.
- Investigate and understand potential drawbacks relating to multilingual user scenarios, as NLG requires specific libraries for each language in use. Additionally, industry-specific use cases need to be considered carefully with respect to jargon, tone and specialized ontologies.
- Identify how NLG could be attractive to organizations wishing to make their analytics, BI solutions and other classes of visual information accessible to visually impaired audiences (for instance, to comply with the U.S. Americans with Disabilities Act and similar mandates in other countries).

Sample Vendors

Arria NLG; AX Semantics; Marlabs; neuroflash; OpenAI; Retresco; Salesforce (Narrative Science); ThoughtSpot; Yseop

Gartner Recommended Reading

ChatGPT Research Highlights

Magic Quadrant for Enterprise Conversational AI Platforms

Magic Quadrant for Cloud AI Developer Services

Magic Quadrant for Analytics and Business Intelligence Platforms

Sliding into the Trough

Data Literacy

Analysis By: Alan D. Duncan, Donna Medeiros, Sally Parker

Benefit Rating: Transformational

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

Data literacy is the ability to read, write and communicate data in context, with an understanding of the data sources and constructs, analytical methods and techniques applied. Data-literate individuals have the ability to identify, understand, interpret and act upon data within business context and influence the resulting business value or outcomes.

Why This Is Important

Data and analytics (D&A) are pervasive in all aspects of businesses, communities and our personal lives. Thus, data literacy is foundational to the digital economy and society. It helps stakeholders:

- Draw a directlink between D&A and desired outcomes
- Unlock knowledge workers' business acumen
- Explain how to identify, access, integrate and manage datasets
- Draw insights relevant to specific use cases
- Describe advanced analytics techniques and enable AI
- Reduce risk through improved decision making

Business Impact

To become data-driven and equipped to use data and analytics to their competitive advantage, enterprises require explicit and lasting organizational change. Chief data and analytics officers (CDAOs) need to promote and orchestrate “leadership moments” where they act as role models, exemplifying new cultural traits at critical points. To be successful, they will need to guide the workforce by addressing both data literacy and data-driven culture.

Drivers

- The continued growth in digital transformation is amplifying a focus on D&A best practices. Employee data literacy is becoming increasingly recognized as an important factor in an organization’s overall digital dexterity.
- The role of the D&A function has evolved. It is now at the core of an organization’s business model and digital platforms, and with everyone being an information worker, the footprint of business use of data and analytics is broader than ever before.
- Effective D&A strategies require an increased focus on change management. Higher-performing CDAOs prioritize their emphasis, energy and effort on change management requirements, including data literacy.
- Defining what data-driven behaviors are expected — using a “from/to/because” approach — is central to employee development plans. It ensures that creators, consumers and intermediaries have the necessary D&A skills, knowledge and competencies.
- Data literacy is not a one-off project. CDAOs need to take immediate action to create and sustain data literacy through assessment of maturity, awareness, and education. Quick wins build momentum, but lasting and meaningful change takes time because it requires people to learn new skills and behave in new ways. (For example, there is a hunger for this type of skills development within Gen Z, especially in order to future-proof their careers.)

Obstacles

- Lack of common data literacy models/frameworks/standards and terminology.
- Varying interpretations of the term “data literacy” in terms of training, curriculum and understanding, ranging from enhanced data visualization skills to fostering business curiosity about data.
- Failure to measure contribution of data to business outcomes.

- A sporadic and inconsistent approach to training and certification.
- Not recognizing that data use is a behavioral change or change management initiative.
- Lack of talent and poor data literacy within the current workforce.
- Lack of initiatives to address cultural and data literacy challenges within strategies and programs.
- Overall adoption will still take years, due to the complexity of upskilling entire workforces.
- Data literacy is treated as a checkbox activity, especially when delegated to more junior (and unempowered) resources.
- Lack of a designated leader accountable for the development and execution of the program, roadmap and communication plan.

User Recommendations

- Make the business case for data literacy by identifying stakeholder outcomes and linking these to underlying learning needs.
- Designate a leader who will be accountable for developing and executing the roadmap.
- Foster data literacy during D&A requirements gathering by bringing data and business experts together around the problem to be solved.
- Call out examples of “good” and “bad” data literacy to promote desired behaviors.
- Nurture data literacy by rewarding stakeholders who recognize this as a factor for success and sharing their stories.
- Partner with HR and business leaders to incorporate data literacy learning outcomes into job descriptions, career paths and employee value proposition.
- Use data literacy assessments to evaluate current skill levels and desire to participate.
- Go beyond vendor product training to focus on people’s role- and industry-related D&A skills. Improve learning effectiveness by using a mix of training delivery methods (classroom, online, community, on the job).

Sample Vendors

Avado; The Center of Applied Data Science (CADS); Coursera; The Data Lodge; Data To The People; Pluralsight; Skillsoft; Udacity; Udemy

Gartner Recommended Reading

How CDAOs Must Lead Data Literacy and Data-Driven Culture

Address Both 'Skill' and 'Will' to Deliver Data-Driven Business Change

Drive Business Outcomes by Measuring the Value of Data Literacy

Tackle Data Literacy Head-On to Avoid Data and Analytics Program Failure

Partner With Data Literacy Providers to Accelerate the Time to Value for Data-Driven Enterprises

Influencer Network

Analysis By: Tom Cipolla

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Influencer networks (INs) are purpose-driven champion communities established to advise on topics defined by the network's sponsor. Influencer networks are a powerful change management and employee experience strategy. Influencers relate to their peers more personally, enabling them to coach and transfer knowledge on technologies and best practices. INs are used to introduce new technologies, drive employee adoption and provide vital feedback to IT. They can also be used for other initiatives.

Why This Is Important

Changing employee attitudes and behaviors is difficult. While 54% of the workforce are proficient with digital technology required for work purposes, nearly 25% of the workforce are novices or developing knowledge. Peer relationships are a more compelling mechanism to support change than internal communications and management direction. INs are powerful at championing new ways of working, driving early and/or sustained technology adoption, and overcoming objections and workforce inertia.

Business Impact

Business impact and value of INs can vary:

- Effective INs support talent needs through opportunities for personal growth, professional networking and career enhancement.
- Technology-centric INs advance digital transformation and digital dexterity goals as employees grow proficient.
- Business-centric INs can catalyze support for work progress that can benefit customers.
- Cultural-driven INs (that is, HR-sponsored employee resource groups) can improve how employees align with the organizational mission and values.

Drivers

- Most organizations recognize that change is difficult. Peer advocates and influencers that act as coaches, mentors and subject matter experts can provoke a turning point in the adoption of new tools, new ways of working or other activities.
- Participation in influencer networks can help with retaining talent, sharing expertise and community building. Senior staff who have reached a certain plateau may enjoy expanding their skills with new challenges as a network member. New hires may leap at the chance to help, learn and build their professional reputation.
- INs unify the spontaneous and unstructured conversations that workers have among themselves to help each other. INs offer formalized contacts in social roles to provide that assistance.
- INs create a dynamic, exchange-driven community between employees sharing knowledge or opportunity, which benefits the organization.
- INs offer organizations a way to seek out, highlight and reward individuals with soft skills — such as empathy and persuasion — as high performers.
- INs provide employees with an appetite for learning, the ability to connect techniques and technologies with use cases, and agility and resilience. Further, INs give employees an opportunity to differentiate themselves professionally.
- IN members provide invaluable feedback to sponsors and stakeholders. What otherwise might be considered gossip and folklore, can be represented as gaps in change effort. Such insight can lead to adjustments in whatever goal the IN has as its objective.
- INs are experiencing a revival, ignited by hybrid work and digital workplace efforts, as IT groups seek to improve digital employee experience and address digital dexterity needs.

Obstacles

- When companies need to find employees to support change management efforts, they often turn to the same talent pool: high performers and high-potential employees. However, these employees do not always have the necessary soft skills.
- Organizations unfamiliar with forms of community building and community management may be slow or reluctant to introduce the concept, since it will affect their traditional practices.
- Measuring impact is difficult in any type of community endeavor. Business units may not see obvious value from their staff's participation and may be reluctant to approve participation unless they can see a near-term outcome.
- INs require motivated, empowered and skilled members. Organizations may not be well-equipped to recruit and gain the necessary resources to make an influencer network a cultural reality.
- INs focused on personal needs — such as DE&I, well-being and mindfulness — may be met with employee resistance or apathy due to concerns over motivation and effectiveness.

User Recommendations

- Analyze purpose, scope and IN member requirements before approval and launch. INs are a type of community but the experience is fluid, focused on networking and exchange of insight or information.
- INs thrive best with a community manager who establishes roles, guidance, succession planning and practices.
- Seek informal, self-formed IN communities that are not yet recognized. They can provide evidence for a business case.
- Recruit, empower and evaluate influencers that have the ambition and ability to meet IN goals and ensure they have manager backing. Track participant efforts to assess the value to leadership.
- Start small and grow INs over time using an iterative process. Include a communications plan to ensure that INs are known and champions are easily identifiable.
- Establish a measurement framework to gauge IN effectiveness and success. Include feedback from champions into training, knowledge bases and resources.
- Social recognition and gamification tactics may help influencers succeed.

Gartner Recommended Reading

How to Build and Manage a Digital Workplace Influencers Network

Employee Enablement Is Key to Digital Workplace Services Leaders' Survival

Quick Answer: How Can I Empower Ambitious Employees to Grow Digital Skills?

Promote Learning Programs Using Employee Champions

Case Study: Change Management Influence Maps (Toyota)

Internal Virtual Events

Analysis By: Adam Preset

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

Internal virtual events bring large groups of employees together online for short periods of time for defined purposes. Organizers mix technology, content and format to engage workers in experiences ranging from few-to-many presentations to interactive activities. Internal conferences and virtual strategy offsites are typical examples. Planning and production workstreams operate in parallel to execute complex events. Hybrid events add virtual, remote experiences to face-to-face events.

Why This Is Important

Enterprises rely on events to foster shared culture and social cohesion. A variety of event types are required to support employee engagement. Virtual events enable teams to engage attendees, execute dynamic content delivery, manage event logistics and integrate with other technologies to deliver world-class experiences for attendees.

Business Impact

Hybrid work, return-to-work initiatives, recovery from COVID-19, and the need to build and rebuild culture are key concerns for business leaders. Hype accelerated when enterprises were forced to shift to virtual delivery models and quickly began to expand into hybrid models, when in-person events returned. As enterprises look to the future, hybrid event strategies — which mix in-person and virtual event models — will grow. Simple solutions that scale to every event type will be in demand.

Drivers

- The global health pandemic resulted in the mass cancellation of in-person gatherings, which forced enterprises to accelerate digital transformation and rethink the entire event experience, resulting in a rapid shift to virtual events.
- Audience reach of virtual events increased compared with in-person events, as the barriers of travel budgets and schedules became prominent.
- The cost-effectiveness of virtual events enabled enterprises that had not hosted their own events to expand into this engagement channel.
- Gartner clients have expressed interest in hybrid delivery models that enable the streaming of in-person content in internal in-person events to virtual attendees. Hybrid is evolving as an event strategy that requires in-person events and separates virtual events supported in a single platform in which users have real-time access to all event data in a single solution.

Obstacles

- Workers are exhausted by virtual fatigue, so more demanding and time-consuming event experiences must have extraordinary value to entice attendance.
- Vendors in multiple markets are touting capabilities that enable internal virtual events, which makes the solution space difficult to navigate. Established meeting solutions have broadened their offerings to encroach on the virtual event specialists.
- As in-person events return, employers will need to determine whether a point solution to deliver virtual events is appropriate. As the market evolves, enterprises should expect growth in all-in-one solutions that can deliver every event model: virtual, in-person and hybrid.
- Depending on enterprise needs, hybrid event models vary, and vendors are immature, especially in solutions to integrate in-person and remote audiences.
- Integrations and ecosystems are still developing in this market, affecting the ability of enterprises to measure attendance, as well as engagement.

User Recommendations

- Define objectives and determine whether an existing meeting solution, enterprise video or webinar tool will meet the needs of one, some or all internal virtual events.
- Embrace new types of internal events with new audiences to extend the reach of virtual. For example, beyond your all-hands or strategy off-site, convene new employee onboarding and sales kickoffs events, with specific communities of interest or for employee demographic groups that you might not otherwise have considered.
- Use virtual event specialist vendors with turnkey offerings when needs exceed the capabilities of incumbents in your application portfolio.
- Develop a clear understanding of plans to ensure that short-term goals and expectations are met. Expect rapid product roadmap evolution and vendor consolidation in the market.
- Develop the IT skill set to manage and support virtual events, as attendee expectations increase. Seek professional services to supplement existing internal capabilities.

Sample Vendors

Cisco; Hopin; Kaltura; Microsoft; Notified; Zoom

Gartner Recommended Reading

Can a Single Vendor Handle All Aspects of a Large Virtual Event?

Market Guide for Meeting Solutions

Market Guide for Enterprise Video Content Management

Virtual Sales Kickoff Events: Best Practices for Technology Companies

Market Guide for Event Technology Platforms

Workplace Experience Apps

Analysis By: Tori Paulman, Janel Everly, Sohail Majumdar

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Workplace experience (WEX) apps support positive employee office experiences by simplifying visit planning, reserving shared and personal spaces, and identifying available amenities. They are used to explore and reserve workspaces, navigate the workplace, find colleagues, and plan the best days to attend the workplace. WEX apps enrich the hybrid work experience by integrating with digitalized physical objects, and utilizing enterprise social graphs and artificial intelligence (AI).

Why This Is Important

Delivering hybrid work at scale demands a balanced approach to space planning, a shift from location-centric to human-centric culture and investment in workplace technology. Efforts to inspire or direct employees to return on-site are driving dramatic adoption of workspace usage monitoring and real estate portfolio optimization technologies. Employee experience improvement is a priority so that employees make better use of, and feel satisfied with, their face-to-face time.

Business Impact

WEX apps should be adopted to improve:

- The working relationship between IT leaders, real estate and HR.
- Earning the commute by delivering experiences that motivate employees to visit the office. Sixty-five percent of corporate real estate leaders state that employee workplace experience is their no. 1 priority.
- Meaningful and intentional use of the office by providing capabilities that help employees and managers coordinate. Seventy-seven percent of workers want to be a part of planning how hybrid work is orchestrated.

Drivers

- Ninety-six percent of HR leaders say that their organizations have adopted or will adopt hybrid work. The diversity of approaches and challenges to implement hybrid have accelerated innovation, and mergers and acquisitions (M&As) in the workplace experience app markets.
- According to Gartner's 2022 Digital Worker Survey, 77% of digital workers want to have their hybrid work schedule planned with them.
- Improving the employee workplace experience is the No. 1 priority for 67% of corporate real estate leaders, who are working with the digital workplace team to optimize the hybrid experience.
- Seventy-five percent of corporate real estate leaders expect to use an app to manage shared seating, room scheduling and desk booking. Buyers now want holistic workplace experiences via intentional visit planning, wayfinding, and automating via virtual assistants.
- Employees want a hospitable experience at the office, control over their proximity to colleagues, information about the number of people in the office, and personalization of their environment (air quality, etc.).
- Artificial intelligence (AI) and machine learning (ML) are being used to automate employee interactions, and provide actionable insights to workplace leaders for rightsizing portfolios.
- WEX apps must integrate with "things" like smart badges, customizable environmental controls (HVAC), digital signage, furniture, lockers, mobile devices and wearables to improve employee experience. They assist employees to check into desks, call an elevator or adjust temperature/lighting.
- WEX apps deliver insights into the number of employees and visitors who plan to occupy the office and integrate those insights with location sensors to monitor real-time occupancy. These capabilities provide facility leaders with critical cost avoidance and sustainability levers to adjust lighting, HVAC and shared services personnel in underutilized spaces.

Obstacles

- It's hard to acquire a one-stop-shop product for all functional needs because the needs of the hybrid workplaces across industries, regions and business units are so diverse.
- Leaders responsible for vendor assessment and capability mapping must navigate a competitive market, in which a significant number of vendor acquisitions, rapid feature evolution, and new entrants have reduced differentiation.
- Cost can be a barrier to entry due to pricing models for SaaS licenses and implementation costs for WEX apps, which vary widely and are often not budgeted for.
- Employee privacy can present a challenge to the goals of WEX apps to support an open and collaborative hybrid WEX.
- Leaders in siloed IT or real estate teams may pursue an app strategy that is redundant or duplicative.
- WEX apps offer the most value when integrated with enterprise systems (e.g., IWMS, security, network and human capital management [HCM] tech) that can significantly increase cost and labor investment.

User Recommendations

In its second year on the Hype Cycle, WEX apps have begun their descent into the Trough of Disillusionment, due to market penetration and continued challenges in supporting hybrid work.

- Navigate the WEX market by ranking the application capabilities needed to support your hybrid workplace strategy.
- Focus digital workplace strategies toward smart workspace trends by understanding vendor acquisition plans and feature roadmaps, and align those strategies with your future of work strategy.
- Gain stakeholder buy-in and reduce duplication of effort by creating a working group of IT, real estate, business and HR leaders, and employee champions to assess WEX apps.
- Avoid overprioritizing core capabilities by focusing on emerging ones, such as the ability to support employee coordination and virtual assistants.

- Organizations invested in Microsoft 365 should integrate with Microsoft by identifying their needs like open API, bidirectional calendar integration, Microsoft Teams apps and the ability to use Microsoft Graph.

Sample Vendors

Appspace; eFM; Envoy; Eptura; FlamencoTech; NFS Technology; Robin Powered; ServiceNow; Smarten Spaces; Tango

Gartner Recommended Reading

Market Guide for Workplace Experience Applications

Tool: Vendor Selection for Workplace Experience Applications

Demand to Support Hybrid Employee Experience Is Driving a Transformation of the Workplace Markets

Digital Adoption Platforms

Analysis By: Melissa Hilbert

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

A digital adoption platform (DAP) overlays applications (e.g., CRM, HCM, ERP, legacy and external) with in-application guided learning, simulations, nudging and analytics to drive adoption and engagement. DAPs improve adoption and usage supporting organizations' digital transformation objectives. They provide consistent user experiences that help users complete work efficiently. A DAP also offers analytics driving actionable insights to improve experience and streamlines work, improving ROI.

Why This Is Important

DAPs improve user productivity and efficiency, reducing digital friction and increasing user engagement and employee retention. Key employee use cases appear in sales, HR, ERP and digital workplace, but this technology applies to all functional areas in an organization. For external use cases where your company sells software, consider embedding a DAP to improve customer experience and loyalty. Use cases include onboarding, technology adoption and use, change management and process efficiency.

Business Impact

DAPs provide high value for organizations looking to improve adoption of applications for employees and customer experience. The ROI of DAP can be measured by:

- Reducing employee onboarding and training costs
- Speeding new-hire time to productivity
- Eliminating change management related training
- Reducing support tickets
- Improving user engagement, proficiency and efficiency
- Minimal setup and low administrative overhead
- Usage analytics and insights enabling continuous improvement
- Improved CSAT scores

Drivers

Digital adoption platforms are relevant for any organization in any vertical. The most prominent application employee use cases to date include where sales force automation (SFA), HR, ERP, procurement or digital workplace solutions are used.

- The solutions in the market have evolved to include platform capabilities, such as the use of partner ecosystems.
- The need for cross-application guidance and analytics is critical to digital transformation and improved employee experience.
- DAPs also address the need for multiple device types such as mobile, desktop, hybrid, web and on-premises hosted applications.

- Additionally, they are relevant for organizations selling software where user adoption and usage are critical to customer value realization, renewals and expansion.
- DAPs drive actionable insights to improve the user experience and maximize ROI from application investments.

Organizations should seek this technology if they are facing the following challenges:

- There is poor adoption of existing applications or high churn or growth of employees.
- Tasks are complex within an application.
- Tasks are performed infrequently but have high organizational impact.
- Business processes are changing frequently and knowledge management is difficult.
- An application changes frequently.
- Customers' end users using your software have low engagement where adoption is closely correlated to renewal or growth.

Obstacles

- On-premises applications behind firewalls are more difficult for some vendors to connect to and will be more costly to deploy while also losing some analytics.
- Mobile application support is weak from many vendors; some do not offer it at all.
- Language translation for content varies greatly among vendors.
- Some vendors utilize a per-application (including varying pricing for application complexity) and per-user pricing model, which can increase costs when deploying at the functional or enterprise level.
- Some vendors do not support cross-application guidance and analytics.
- Governance and new DAP roles for guidance, content creation and maintenance are required, as well as a partnership between product, customer success and IT teams.

User Recommendations

- Create a plan by functional area to incorporate DAP by prioritizing high-impact applications such as CRM, ERP, HCM or client-facing applications across the entire tech stack or product portfolio.
- Evaluate all applications for an employee's work hub by documenting all applications used to get work done by an employee.
- Ensure analytics are deep at both a macro (aggregate) and a micro (workflow) level and can cross applications for a single workflow.
- Investigate multilanguage capabilities for application and content support.
- Design a governance plan by including new DAP roles or reallocation of learning and development (L&D) or subject matter expert (SME) roles to support content and a rollout across the organization.

Sample Vendors

AppLearn; Apty; Knowmore; myMeta; Pendo; SAP; tts; Userlane; WalkMe; Whatfix

Gartner Recommended Reading

Market Guide for Digital Adoption Platforms

Toolkit: Job Descriptions for the Digital Workplace

Tool: Guide to Selecting Digital Adoption Platform Vendors

Create an Enablement Continuum to Advance Digital Skills Outside of IT

Fusion Teams

Analysis By: Jason Wong

Benefit Rating: Transformational

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

A fusion team is a multidisciplinary team that blends technology or analytics and business domain expertise, and shares accountability for business and technology outcomes. Instead of organizing work by functions or technologies, fusion teams are typically organized by the cross-cutting business capabilities, business outcomes or customer outcomes they support.

Why This Is Important

More software development will be done outside of IT as business users become more digitally dexterous. Business units building digital business capabilities want full control of all the people critical to that business, and closer collaboration between business and IT professionals.

Business Impact

The ongoing democratization of digital delivery is an effort to increase the realized value of digital initiatives, and drive speed and agility. This involves placing the design, delivery and management of digital capabilities where that value is created: with the people and teams closest to the customer, products or business operations. In this context, “democratization” speaks to making the creation and management of information and technology accessible to everyone.

Drivers

- According to the 2022 Gartner Digital Worker Survey, 48% of non-IT workers customize or build tools from technology provided by IT or from tools they acquire on their own. This is in line with Gartner’s prior surveys showing that, on average, 41% of employees are business technologists.
- Development of digital products for use by external customers drives fusion teams.
- Business units need control of all the resources for delivering a product, including control of the professional software engineering teams.
- Mixed teams of business people and software engineers allow for tight collaboration on the details of a product, which often leads to more effective delivery and outcomes.
- Making software development an integral part of product development allows software engineers to inject innovative ideas for the product.

Obstacles

- Organizations that do not orchestrate the democratization of digital delivery may end up with misaligned or duplicative initiatives and capabilities; inconsistent customer experiences; inefficiencies; and compliance, privacy or security issues.
- Business leaders often find themselves unprepared to take on technology leadership responsibilities because they may have limited visibility into what this means for their own roles and their ways of working.
- Business leaders outside IT may not have adequate experiences, skills and competencies to lead their own fusion teams.

User Recommendations

- Update your division-of-labor practices for application governance. IT and business should share responsibility for portfolio strategy, roadmap planning, vendor product release planning and application project/sprint delivery.
- Encourage acceptance of fusion teams that do technology work outside of IT — the business units may need to have full control of the resources to deliver their product or service.
- Ensure that the CIO and other business leaders work together to build agile and effective governance frameworks for the work that the fusion teams do. With control comes responsibility.
- Focus on the human side of managing digital business risk and foster “digital judgment” in fusion team leaders. Digital judgment is the set of beliefs, mindsets and behaviors that lead to sound risk management among frontline technology decision makers throughout the enterprise.

Gartner Recommended Reading

Quick Answer: How Can Digital Workplace Leaders Support Business Technologists?

Quick Answer: What Types of Fusion Teams Do Business Technologists Lead?

Video: What Are Fusion Teams and Why Do CIOs Need Them?

Video: What CIOs Need to Know About Governing Business Technologist-Led Fusion Teams

Business-Led Cloud Enterprise Application Portfolios Produce Higher Business Value

Workstyle Analytics

Analysis By: Lane Severson, Helen Poitevin, Matt Cain, David Pidsley

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Workstyle analytics (WSA) is a technology category that derives insights from employees' digital footprints and data. These footprints combined with this data offer insights as to how digital work gets done, and they help organizations improve personal and team effectiveness, application and device proficiencies, while processing performance within the constraints of responsible data use.

Why This Is Important

Most organizations do not collect data on or are unable to effectively measure the impact of their investments in digital workplace technology. With WSA, digital workplace leaders can justify the additional investment required to scale new technologies and improve personal and team effectiveness, often using behavioral science. Gartner predicts that, by 2026, artificial intelligence (AI)-enabled WSA will be essential to delivering a modern digital employee experience.

Business Impact

WSA capabilities include the collection, analysis and reporting of data, coupled with next-best actions. WSA provides insights into how employee workstyles, digital tools, processes and skills affect business effectiveness. This is essential to driving technology utilization and adoption, as well as identifying productivity inhibitors. WSA capabilities are provided by multiple technology solution markets, including productivity monitoring tools, digital adoption platforms and workplace analytics.

Drivers

- Continued investment in digital workplace technologies requires IT leaders to provide insights on the impact of investment and ROI.
- Digital transformation requires visibility into the technologies that employees depend on, and how well they can use technology to improve work and productivity.
- Budget and cost pressures are driving organizations to get more from their strategic technology investments. This includes reducing the use (and cost) of nonstrategic technology and driving greater adoption of strategic technologies.
- Remote work has changed managers' ability to promote collaborative behaviors and patterns, as they could in the office. The patterns themselves have also changed to be less time-bound, requiring leaders to adjust accordingly.
- Organizations are also looking for workplace experience data to improve the return to the office by helping those struggling with remote work and for insights into potential employee engagement and well-being issues.
- IT leaders are looking for data to baseline and measure the improvement of the stability, availability and performance of the devices and systems they deliver, especially as changes are made.
- Research shows that establishing hybrid work policies and norms is critical to attracting and retaining talent. WSA tools can help discover patterns of how workers interact using digital tools. This visibility is critical to have, while defining the policies and norms.

Obstacles

- WSA capabilities often span several departments in larger organizations, which complicates sourcing processes.
- There is limited data literacy in the management population. Many people leaders are unable to describe the metrics they'd want to use to identify signs of well-being or productivity.
- Unionized workers or legal/regulatory limitations on data collection due to privacy concerns can be obstacles.
- Workers often fear employers will misuse data for employee surveillance.
- The cost and complexity of aggregating data and insights across multiple WSA tools and multiple worker segments, and the difficulty in discerning the difference between correlation and causation can be obstacles.
- Paying too much attention to experience scores and benchmarking inside analytics tools can misclassify efforts, due to algorithms that lack context or sophistication.
- There can be a delta between what organizations want from WSA and what can actually be done with the data collected.

User Recommendations

WSA has passed the Peak of Inflated Expectations as more organizations use WSA to:

- Ensure policy and legal compliance by partnering with HR and legal. Make sure that assumptions and conclusions are reviewed by analytics professionals.
- Avoid tool sprawl by reviewing existing capabilities in the current portfolio of services that have elements of WSA and understand vendor direction before buying new.
- Minimize risk by training managers on appropriate use before granting access and ensure that employees understand the intent and use of WSA.
- Avoid irrelevant comparisons to other companies by using tool-provided experience scores to baseline and measure your progress.
- Ensure that WSA can drive specific business outcomes, such as promoting worker digital dexterity, and WSA can be adapted to a wide variety of personas and use cases.

Sample Vendors

ActivTrak; Humanyze; Microsoft; Prodoscore; Scalable; Temporall; WalkMe; Worklytics; WhatFix; Userlane

Gartner Recommended Reading

Innovation Insight: Workstyle Analytics

Getting Value From Measuring Employee Experience, Productivity and Well-Being

Employee Monitoring and Privacy Laws: What Organizations Can Do?

Quick Answer: How to Communicate Employee Monitoring to Your Workforce as a Tech CEO

How to Derive Value From Employee Productivity Monitoring Technologies

Market Guide for DEX Tools

Predicts 2023: Build the Digital Day of Tomorrow

Collaborative Work Management

Analysis By: Nikos Drakos

Benefit Rating: High

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

Definition:

Collaborative work management (CWM) tools provide task-driven workspaces to enable business users to plan, coordinate and automate their work. They combine task, project, workflow and automation capabilities, with discussions, content publishing, reporting, analytics and dashboards.

Why This Is Important

CWM empowers business users to plan, coordinate, manage and optimize common repeatable work activities and processes. CWM fills a gap between free-form collaboration and business/custom applications. CWM tools play a role in accelerating business-led democratized delivery, which is a key ingredient of digital transformation.

Business Impact

CWM improves activity coordination in a transparent and agile manner. It empowers business users to plan, execute, coordinate, optimize, and increasingly, automate day-to-day work. It makes work visible for all stakeholders and ensures delivery within timelines, budgets or resources.

Drivers

- **Remote and hybrid work.** There is a rise in interest in CWM, consistent with the increase in remote and hybrid work. In-person meetings and conversational channels lack focus and context, and are not enough to provide clarity and alignment. CWM tools are a natural complement to workstream collaboration, visual collaboration tools and meeting solutions.
- **Rising customer demand for a variety of work use cases.** Buyers are recognizing the relevance of CWM and related modeling tools such as collaborative workflow applications in supporting work processes that are collaborative by nature but may not justify purchasing or building new applications. CWM tools empower business users to plan, execute and automate work in scenarios that include everyday projects, case tracking, service operations, product management, strategic operations, goal tracking and work scheduling.
- **Interest from vendors in adjacent markets.** Vendors are entering this market from adjacent markets. These include project management, workstream collaboration, work hub/cloud office suites, employee communications, frontline worker applications, low-code development tools and business applications. Vendors are recognizing an opportunity to position their products as solutions that appeal to a much broader user base.
- **Demand generation tactics.** Vendors are trying to gain market share with freemium products that target business users and small teams directly. They are also trying to tap into departmental budgets with prebuilt work templates such as for marketing work management, objectives and key results (OKR), or intake management. One consequence of this use-case-specific vendor push is that many organizations end up purchasing more than one product, each deployed in a narrow business domain.

Obstacles

- **No enterprise role for steering large-scale deployments successfully.** CWM solutions are often introduced by end users or via small departmental deployments. There is a need for a leadership role to guide broader use that is aligned with business goals, along with guidelines and practices.
- **Lack of experience with governance at scale.** Business users are effectively using CWM tools to build applications for modeling or automating work. This has implications for roles and responsibilities in quality control, data management, release management, maintenance and long-term support.
- **Culture attitudes and skills readiness.** Some business teams/groups are not accustomed to working transparently or do not welcome more autonomy.
- **Vendor and product risk.** Some vendors are relatively small in a market that is changing rapidly where large platform vendors have yet to enter the market. Buyers face a higher vendor and product risk than in more mature markets.

User Recommendations

- Identify and prioritize relevant use cases by focusing on business-led projects and specific business operations, and by identifying stakeholders, participants, work patterns and business context to ensure business alignment.
- Audit current use of CWM tools to find pockets of tactical use and to understand business relevance and impact. Begin to rationalize choices and iterate by testing products and analyzing vendor risk and employee readiness with targeted deployments to ensure that use-case-specific needs are addressed.
- As usage increases, prepare for the long haul by establishing roles, support structures and governance principles to ensure consistency, quality and best practice diffusion across different work activities.

Sample Vendors

Adobe; Airtable; Asana; ClickUp; monday.com; Smartsheet; Wrike

Gartner Recommended Reading

Market Guide for Collaborative Work Management

Quick Answer: How Can the Digital Workplace Drive More Visibility Into How Work Gets Done?

Forecast Analysis: Social and Collaboration Software in the Workplace, Worldwide

Quick Answer: How Can We Use Microsoft 365 to Support Collaborative Work Management?

Quick Answer: What Collaboration Skills Are Necessary for New Ways of Working?

Hyperautomation

Analysis By: Frances Karamouzis, Keith Guttridge, Laurie Shotton, Saikat Ray

Benefit Rating: Transformational

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Definition:

Business-driven hyperautomation is a disciplined approach that organizations use to rapidly identify, vet, and automate as many business and IT processes as possible. Hyperautomation involves the orchestrated use of multiple technologies, tools or platforms to achieve business results. These include, but are not limited to, AI, machine learning, event-driven software architecture, robotic process automation (RPA), iPaaS, packaged software and process/task automation tools.

Why This Is Important

The primary reason that hyperautomation is critical is the unrelenting demand for accelerated growth through business model innovation or disruption, coupled with the underlying foundation of operational excellence across processes and functions. This is important as organizations continue to focus on business outcomes such as higher quality, more resilient processes, and higher usage due to employee- and customer-centric experiences, among others.

Business Impact

The most important business impacts are aligned to business outcomes such as cost optimization, growth, business agility or innovation. Hyperautomation initiatives are fluid enough to align to one or all of these outcomes. Examples of results may be better (higher quality, more resilient) business or IT processes, speed (time to market, cycle time reduction and quicker adoption) or intelligent (data-driven) decision making at scale.

Drivers

- The biggest driver of hyperautomation is funding from business units (as opposed to the IT budget). These business units continue to hire and fund initiatives driven by fusion teams and business technologists.
- The continued unabated spending on hyperautomation initiatives is forecast to exceed $1 trillion in 2023. This includes spending on products (software, platforms and tools) coupled with services spending on consulting, system integration and managed services.
- Additionally, there have been five successive years of capital investment of $1 billion or more in vendors that can be attributed to the various technology categories that enable hyperautomation initiatives.
- The increased investment has fueled the growth of offerings with expanded breadth and depth within the vast vendor landscape (both organic growth and through acquisitions).

Obstacles

- **Lack of measurement of quantifiable value:** Only a few organizations (estimated at less than 20%) have mastered the measurement of hyperautomation initiatives.
- **Lack of planning for total cost of ownership (TCO) or governance**: The explosion of funded hyperautomation initiatives, coupled with the need for speed, often leaves unaddressed the all-important planning for post-production-managed operations and governance structures.
- **"Siloed" approach:** The ubiquity of hyperautomation has led to an incredible volume and velocity of adoption across functions. Unfortunately, the concurrent nature across business functions has been executed via "siloed" or diffuse purchases of technology tools, solutions and platforms.
- **Technology confusion and overspend:** There is no single vendor or technology that will enable hyperautomation initiatives. Highly fragmented and overlapping technology markets have resulted in complex architectures, overspending and lack of enterprise orchestration.

User Recommendations

- Define shared ownership and metrics. Focus on regular intervals for measurement and updates. The leading organizations in the world ensure this involves finance to facilitate public reporting of success.
- Maximize the likelihood of successful hyperautomation initiatives by architecting and planning multiple concurrent initiatives. Demand holistic mapping of collective initiatives, rather than siloes within specific functions.
- Recognize that the technology is not trivial as there is no single vendor or technology that will enable hyperautomation initiative. Focus on modularity and discoverability in the design. Take an API-first approach.
- Ensure appropriate investment in vendor management and risk competencies due to the volume of services and technologies involved.
- Establish and curate an adaptive governance structure with the goal of managing risk, and driving operational resiliency and agility while optimizing TCO.

Sample Vendors

Automation Anywhere; Boomi; Celonis; Microsoft; OutSystems; SnapLogic

Gartner Recommended Reading

The Gartner 2023 Predictions: Hyperautomation (Inclusive of AI, RPA & Low Code)

The Executive Guide to Maximizing Hyperautomation

Future of Work Trends: Hyperautomation Growth Initiatives Delivered by High-Performance Fusion Teams

Citizen Data Science

Analysis By: Peter Krensky, Rita Sallam, Carlie Idoine, Shubhangi Vashisth, Frances Karamouzis

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Citizen data science is the collective set of capabilities applied to deliver analytic insights where the personnel are not the experts and their role or job function may not be within the data and analytics (D&A) discipline. Citizen data scientist is a persona rather than a title or role within an organization.

Why This Is Important

- The collective personnel (citizen data scientists) delivering these insights add to the impact of the D&A discipline on the organization through the creation and delivery of insights.
- The functional knowledge of citizen data scientists adds a dimension of efficiency, efficacy and depth to the solutions and experience. Citizen data scientists often unlock new insights beyond the use of basic descriptive and diagnostic capabilities.
- Citizen data scientists serve to reduce the talent gap caused by the shortage and high cost of data scientists.

Business Impact

The business impact can range from a synergistic force multiplier effect to governance challenges. The most powerful and impactful business benefits come when citizen data scientists are actively recruited to fusion teams, are provided tools, and perform specific phases of the analytics life cycle (such as feature generation and selection, and algorithm selection) to best leverage their expertise. Ultimately, this puts the power of the tooling in the hands of those who know best how to apply it and align to making business decisions. The challenges arise when the citizen data scientists are reaching beyond their expertise and the appropriate guardrails are not in place.

Drivers

The most significant drivers of citizen data science include:

- **Talent gap —** The sheer volume of personnel needed continues to outstrip demand. Citizen data scientists help fill a portion of that gap. Historically, building data science and machine learning (DSML) models required expert data scientists, who are difficult and expensive to hire and retain. Citizen data science helps overcome such limitations.

- **Generative AI excitement and possibilities** — The popularity of ChatGPT and the dawning of the generative AI era has had a profound effect on citizen data science. The full user spectrum from experts to beginners is experimenting with novel approaches and techniques for low-code/no-code data science. Data preparation exploration and model development will be dramatically accelerated and democratized, contributing to a rewritten art of the possible for citizen data science.

- **Functional knowledge** — Citizen data scientists' primary knowledge base is an in-depth understanding of the business domain. It is the combination of functional knowledge, data science skills and technology that drive results.

- **Vendor offerings** — Vendors have recognized this additional population as a target-rich environment for their offerings. As such, many vendor offerings now commonly include tools and features designed specifically for usage by citizen data scientists.

- **Augmented analytics capabilities** — These include automated, streamlined data access and data engineering; augmented user insight through automated data visualization and exploration; modeling and pattern detection including feature engineering, model selection and validation; automated deployment and operationalization; and capabilities to support collaboration and sharing.

Obstacles

- Upskilling in advanced DSML techniques and approaches is important to derive value from citizen data science. Classroom learning provides a foundation but must be supported by on-the-job learning and experimentation.
- Tools with augmented analytics capabilities and additional processes to manage creation and sharing of models will be required to support citizen data science.
- There is still a need to (statistically) validate results of citizen data science by expert data scientists.
- Expert data scientists often resist or underestimate the effectiveness of citizen data science approaches.
- Citizen data science is often deemed to be just a preliminary, elementary step and not a fully functional DSML approach.
- Citizen data science leveraged in silos with no oversight or collaboration among experts and others with a vested interest in DSML success could lead to duplication of data engineering and analytic effort, lack of operationalization, and limited visibility and standards.

User Recommendations

- **Success starts with leadership** — Educate business leaders and decision makers about the potential impact of a broader range and larger pool of delivery capability. Work with leadership to scan opportunities for citizen data science to complement existing analytics and expert data science initiatives across the data science life cycle.
- **Inviting and inclusive environment** — Create communities of practice, and provide training and tools to make an inviting and supportive environment for all to explore the value of the citizen data scientist persona. This involves defining the citizen data scientist as a formal persona. Define its “fit” relative to other roles, and identify those who fit the citizen data scientist profile.
- **Expert data scientist value** — Acknowledge that you still need specialist data scientists to validate and operationalize models, findings and applications.

- **Tools and technologies** — Provision augmented analytics tools (including but not limited to augmented data science and machine learning tools), platforms and processes to support and encourage collaboration between business users, application developers and data science teams. Track the capabilities (technology) and roadmaps of existing business intelligence (BI) and data science platforms and emerging startups for support of augmented features.

Sample Vendors

Aible; Alteryx; Dataiku; DataRobot; H2O.ai; Microsoft; Qlik; SAS; Tellius

Gartner Recommended Reading

Build a Comprehensive Ecosystem for Citizen Data Scientists to Drive Impactful Analytics

Maximize the Value of Your Data Science Efforts by Empowering Citizen Data Scientists

Best Practices to Enable Effective Citizen Data Science

Knowledge Graphs

Analysis By: Afraz Jaffri

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

Definition:

Knowledge graphs are machine-readable representations of the physical and digital worlds. They include entities (people, companies, digital assets) and their relationships, which adhere to a graph data model — a network of nodes (vertices) and links (edges/arcs).

Why This Is Important

Knowledge graphs capture information about the world in an intuitive way yet are still able to represent complex relationships. Knowledge graphs act as the backbone of a number of products, including search, smart assistants and recommendation engines. Knowledge graphs support collaboration and sharing, exploration and discovery, and the extraction of insights through analysis. Generative AI models can be combined with knowledge graphs to add trusted and verified facts to their outputs.

Business Impact

Knowledge graphs can drive business impact in a variety of different settings, including:

- Digital workplace (e.g., collaboration, sharing and search)
- Automation (e.g., ingestion of data from content to robotic process automation)
- Machine learning (e.g., augmenting training data)
- Investigative analysis (e.g., law enforcement, cybersecurity or financial transactions)
- Digital commerce (e.g., product information management and recommendations)
- Data management (e.g., metadata management, data cataloging and data fabric)

Drivers

- The need to complement AI/ML methods that detect only patterns in data (such as the current generation of foundation models) with the explicit knowledge, rules and semantics provided by knowledge graphs.
- Increasing awareness of the use of knowledge graphs in consumer products and services, such as smart devices and voice assistants, chatbots, search engines, recommendation engines, and route planning.
- The emerging landscape of Web3 applications and the need for data access across trust networks, leading to the creation of decentralized knowledge graphs to build immutable and queryable data structures.
- Improvements in graph DBMS technology that can handle the storage and manipulation of graph data structures at scale. These include PaaS offerings that take away the complexity of provisioning and optimizing hardware and infrastructure.
- The desire to make better use of unstructured data held in documents, correspondence, images and videos, using standardized metadata that can be related and managed.
- The need to manage the increasing number of data silos where data is often duplicated, and where meaning, usage and consumption patterns are not well-defined.
- The use of graph algorithms and machine learning to identify influencers, customer segments, fraudulent activity and critical bottlenecks in complex networks.

Obstacles

- Awareness of knowledge graph use cases is increasing, but business value and relevance are difficult to capture in the early implementation stages.
- Moving knowledge graph models from prototype to production requires engineering and system integration expertise. Methods to maintain knowledge graphs as they scale — to ensure reliable performance, handle duplication and preserve data quality — remain immature.
- The graph DBMS market is fragmented along three properties: type of data model (RDF or property), implementation architecture (native or multimodal) and optimal workload (operational or analytical). This fragmentation continues to cause confusion and hesitation among adopters.
- Organizations want to enable the ingestion, validation and sharing of ontologies and data relating to entities (such as geography, people, events). However, making internal data interoperable with external knowledge graphs is a challenge.
- In-house expertise, especially among SMEs, is lacking, and identifying third-party providers is difficult. Often, expertise resides with vendors of graph technologies.

User Recommendations

- **Create a working group of knowledge graph practitioners and sponsors** by assessing the skills of D&A leaders and practitioners and business domain experts. Highlight the obstacles to dependable and efficient data delivery for analytics and AI, and articulate how knowledge graphs can remove them.
- **Run a pilot to identify use cases that need custom-made knowledge graphs.** The pilot should deliver not only tangible value for the business, but also learning and development for D&A staff.
- **Create a minimum viable subset that can capture the information of a business domain to decrease time to value.** Assess the data, both structured and unstructured, needed to feed a knowledge graph, and follow Agile development principles.
- **Utilize vendor and service provider expertise** to validate use cases, educate stakeholders and provide an initial knowledge graph implementation.
- **Include knowledge graphs within the scope of D&A governance and management.** To avoid perpetuating data silos, investigate and establish ways for multiple knowledge graphs to interoperate and extend toward a data fabric.

Sample Vendors

Cambridge Semantics; Diffbot; eccenca; Neo4j; Ontotext; Stardog; TigerGraph; TopQuadrant; Trace Labs

Gartner Recommended Reading

How to Build Knowledge Graphs That Enable AI-Driven Enterprise Applications

3 Ways to Enhance AI With Graph Analytics and Machine Learning

Working With Graph Data Stores

How Large Language Models and Knowledge Graphs Can Transform Enterprise Search

Workstream Collaboration

Analysis By: Mike Gotta

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Definition:

Workstream collaboration (WSC) tools create a persistent, chat-based workspace, divided into channels. Tools integrate direct and group messaging, along with meeting capabilities, file sharing, alerts, activity streams, tasks, bots, search and other plug-ins. They also come with APIs for customized applications.

Why This Is Important

WSC combines channel-based chat with task, meetings, content and application plug-in capabilities, making it a foundation for work hubs and modern teamwork. WSC is broadly deployed to improve productivity, providing means for organizations to broadly leverage generative AI, large language models, and Generative AI (ChatGPT). Advanced use for process-driven, operational or external use cases are emerging as a solution pattern called “collaborative workflow automation.” WSC tools inadequately support frontline workers today.

Business Impact

WSC is a core technology for digital workplace work hubs, often integrated with a variety of apps including visual collaboration and collaborative work management. By reducing digital friction, teams can work more productively to reduce cycle times. WCS tools acts as a policy control point for security, compliance, and overall governance. WCS can be used for a variety of work related to project, service and support, sales, and marketing activities. WSC tools are also used as chat-based “water coolers” to help team unity.

Drivers

- The shift to hybrid working and requirements for effective teamwork when workers are dispersed makes WSC tools a focal point for integration of other tools, such as visual collaboration, into a digital workplace work hub.
- WSC tools form the core for work governance efforts, because they provide a centralized experience for organizations to satisfy communication, information-sharing and work management needs, while enabling IT to centralize policy, security and compliance controls.
- WSC is becoming the launch point for new classes of collaboration experiences that are tightly coupled with teamwork. Examples include visual collaboration apps and collaborative workflow automation (CWA).
- WSC vendors are delivering generative AI/ChatGPT capabilities into their products. AI will help employees summarize chat streams, find information, auto-create posts and discover hidden expertise and experts.
- WSC expectations increasingly include requirements for more-complex work scenarios beyond everyday productivity. Desires for WSC to better support low-code no-code features and the ability to compose business components into the team experience are beginning to emerge as organizations explore CWA use cases.

Obstacles

- WSC tools are primarily designed for everyday productivity. However, some WSC vendors are shifting to address process, operational and frontline scenarios. If organizations deploy multiple tools without clear business value, the result may be increased costs and IT management complexity.
- Vendors are not collaborating on message interoperability. The use of multiple tools can create “chat silos” and lead to tool sprawl. Third-party vendors use public APIs to exchange messages between tools and can raise risk concerns.
- Frontline workers have not adopted WSC tools to the same extent as office workers.
- Employees struggle to socialize in WCS tools. “Water cooler” chat channels may not be easily discovered or sustained, making it difficult for staff to informally network with peers they work with.
- Low-code and no-code development in WSC are still emerging in terms of ease of use and output capabilities. Proprietary approaches can increase lock-in to the platform.

User Recommendations

- Assume incumbent suite vendors (Microsoft or Google) address everyday productivity needs for WSC use. Remain open to adding WSC tools for process-driven, role-based and operational business scenarios based on business use case and value. Consider frontline workers’ needs as being “stretch goals” for WSC vendors.
- Prioritize internal communications, use of influencer networks, analytics, training, and best practice communities to help employees effectively use WCS tools.
- As team managers define the structure for how teams collaborate using WCS, make sure there is a high priority placed on intentional collaboration practices and etiquettes. This includes tactics to reduce “noise.” Generative AI will require additional governance and peer learning for effective use.
- Assess emergence of new capabilities related to superapps, CWA, generative AI, and low-code no-code thoroughly since new technologies, development practices, work hubs, and mobile experiences can present change management and risk issues.

Sample Vendors

Alibaba Group; Coolfire Solutions; Mattermost; Microsoft; Rocket.Chat; Salesforce (Slack); Symphony

Gartner Recommended Reading

Innovation Insight for Collaborative Workflow Automation

Forecast Analysis: Social and Collaboration Software in the Workplace, Worldwide

Quick Answer: How Will AI in Microsoft 365 Copilot Impact the Workplace?

Quick Answer: How Can Digital Workplace Promote Employee Strong and Weak Ties?

Quick Answer: How Does a Superapp Benefit the Digital Employee Experience?

OKR Applications

Analysis By: Lane Severson

Benefit Rating: Moderate

Market Penetration: 1% to 5% of target audience

Maturity: Adolescent

Definition:

Objectives and key results (OKRs) is a flexible goal-setting framework used to convert organizational objectives and priorities into a concrete and measurable operational results model for setting and managing strategic goals. OKR applications refer to purpose-built software products and, increasingly, embedded components in other applications that have been developed for planning, instrumenting, monitoring and updating OKRs.

Why This Is Important

Dispersed teams, hybrid work and asynchronous work are all driving a revival of interest in the OKR method. OKR applications and components can be useful to improve the model's usability, effectiveness and scalability. Without appropriate tooling, OKRs can be a laborious method to utilize.

Business Impact

By deploying OKR applications, organizations are able to:

- Expand the scale and complexity of their objectives, without compromising on important methodological aspects such as alignment and transparency, or risking pitfalls such as stakeholder pushback and employee inertia.
- Save on the expenses of developing internal tools or customizing general-purpose tools that an in-house approach to achieving an adequate level of tooling would require.

Drivers

- Hybrid work is causing friction in prioritization and alignment of efforts, as many managers' everyday "safety nets" of physically colocated work disappear. OKRs, especially when enabled with modern tooling such as collaborative work management applications, can help.
- Following the maturation of agile methods and workflows in development functions, organizations are trying to find ways to increase agility in strategy. OKRs are viewed as one of the most promising techniques to do so.
- Digital transformation and product centricity in historically nontechnological industries are shifting attention to best practices that have proven successful in the technology sector. OKRs are one such idea that is migrating from tech to traditional enterprise.

Obstacles

- OKR applications depend on a top-down, executive-driven alignment of goals. Enterprise alignment on goals and objectives can be difficult to achieve in real-world scenarios and often, OKR initiatives are only deployed departmentally. Turnover in executive personnel or re-orgs can interrupt progress that is made at departmental levels.
- The OKR method is largely unstandardized, implemented through different and often contradictory approaches. OKR applications struggle to accommodate this methodological fragmentation within their feature sets.
- Most organizations do not use goals as systematically as what the OKR method requires. This makes large deployments dependent on change management, which acts as a barrier for the applications.
- Given the digital workplace's increasing tooling, many leaders have doubts about adding another point solution, especially if some of the existing tools deliver similar capabilities. For example, collaborative work management is one such horizontal alternative.

User Recommendations

Organizations planning to deploy OKRs for the first time, or looking for ways to retool an existing deployment, should:

- Ensure that OKRs (and their overheads) are needed by evaluating how well the existing goal-setting method delivers strategic focus and alignment.
- Map the tooling options by evaluating three to five OKR application vendors or components available in collaborative work management (CWM) tools in terms of features, implementation support and customer references.
- Explore synergies within existing tools by assessing how well general-purpose alternatives, such as CWM and low-code platforms, could deliver the needed use cases.
- Prepare for the OKR deployment or expansion by having key staff trained on the method, hiring an OKR coach and discussing use of OKRs with the organization's established service partners.
- Clarify the model's methodological aspects by identifying what process elements are unclear, reconciling them among key staff and documenting the agreed approach.

Sample Vendors

Microsoft Viva Goals; Profit.co; Quantive; WorkBoard

Entering the Plateau

Citizen Developers

Analysis By: Jason Wong

Benefit Rating: High

Market Penetration: More than 50% of target audience

Maturity: Mature mainstream

Definition:

Citizen developers are employees not in the IT organization who create or extend technology capabilities. They use low-code, no-code and generative AI development tools and runtime environments sanctioned by corporate IT or the business units. A citizen developer is a subsegment of business technologists. However, it is not a title, role or professional developer in the business unit, but rather a persona taken on by an employee.

Why This Is Important

Defining and embracing citizen development is essential to the maturing digital workplace strategy. The changing ways of work have accelerated the need for greater business agility and putting better tools in the hands of employees so they can more rapidly solve their problems with new digital capabilities. According to the 2022 Gartner Digital Worker Survey, 48% of non-IT workers customize or build tools from technology provided by IT or from tools they acquire on their own (see What Workers Want: Top 10 Insights From the Digital Worker Experience Survey).

Business Impact

The long-term strategic impact of citizen development is enabling self-service business innovation within business units and fostering fusion teams that blend business and technology expertise. Citizen developers are often aided by IT in some aspects of co-creation or technical support. Citizen development communities of practice and hackathons have proven to help promote and enhance digital dexterity across the enterprise.

Drivers

- The workforce is changing to being more tech savvy. On average, 69% of the respondents in the 2022 Gartner Digital Worker Survey stated improving their personal digital skills to be important for business success.

- Employees have easier access to more tools than ever before, and it's only increasing. Citizen developers feel more empowered by powerful low-code development tools and SaaS-based no-code tools that specifically cater to them. Many business application vendors now provide robust low-code and no-code development capabilities, making it easier for citizen developers to develop their own solutions — even ones that once required professional development skills, such as building mobile apps or using AI automation services like chatbots.
- The nature of work involves using more technologies. Citizen developers may also take on other citizen technologist personas depending on their skills, ambition and scope of work. Gartner often sees citizen data scientist, citizen integrator and citizen automator personas in the digital workplace. Over time, some of these citizen developers have become part of fusion teams that drive business and IT collaboration and development.

Obstacles

- Citizen development is not shadow IT. IT's resistance to recognizing business technologists' work and embracing citizen development results in missed opportunities to drive toward business and IT alignment.
- IT leaders also often fear losing control on account of increasing citizen development activities, making their teams less relevant or burdening IT with unmaintainable apps. However, the risks of citizen development are typically outweighed by the benefits. Risks to the enterprise can be better managed by directly addressing inadequate tooling and disorganized support for a citizen development community, which are key factors leading to poor outcomes and risky apps.
- IT leaders often don't understand the levels of ambition that exist in their organization and don't have a plan to support those ambitions. Citizen development is on a digital dexterity continuum that progresses from digital citizen to digital side hustle to business technologist.

User Recommendations

- Engage tech-savvy business users more actively to enlist and enable them to become citizen developers. Ignoring or attempting to prevent citizen development often carries more risks and limits enterprise innovation.
- Mitigate risks by working with business unit leaders and citizen developers to establish trust; clarify ownership and accountability expectations; and define safe activity zones.

- Enable self-governing citizen development practices by fostering a community of practice (CoP) across business units and with IT.
- Improve outcomes for citizen-developed apps by joint (business and IT) selection of the right tools and enabling technologies.

Sample Vendors

Airtable; Creatio; Kissflow; Microsoft; Project Management Institute (PMI); Quixy

Gartner Recommended Reading

Quick Answer: What Types of Fusion Teams Do Business Technologists Lead?

Quick Answer: How Can Digital Workplace Leaders Support Business Technologists?

What Are the Digital Dexterity Skills Necessary to Support New Ways of Working?

Case Study: Kick-Starting a Low-Code/No-Code Community of Practice (Heathrow Airport)

Appendixes

See the previous Hype Cycle: Hype Cycle for Digital Workplace Applications, 2022

Hype Cycle Phases, Benefit Ratings and Maturity Levels

Table 2: Hype Cycle Phases

(Enlarged table in Appendix)

Phase	Definition
Innovation Trigger	A breakthrough, public demonstration, product launch or other event generates significant media and industry interest.
Peak of Inflated Expectations	During this phase of overenthusiasm and unrealistic projections, a flurry of well-publicized activity by technology leaders results in some successes, but more failures, as the innovation is pushed to its limits. The only enterprises making money are conference organizers and content publishers.
Trough of Disillusionment	Because the innovation does not live up to its overinflated expectations, it rapidly becomes unfashionable. Media interest wanes, except for a few cautionary tales.
Slope of Enlightenment	Focused experimentation and solid hard work by an increasingly diverse range of organizations lead to a true understanding of the innovation's applicability, risks and benefits. Commercial off-the-shelf methodologies and tools ease the development process.
Plateau of Productivity	The real-world benefits of the innovation are demonstrated and accepted. Tools and methodologies are increasingly stable as they enter their second and third generations. Growing numbers of organizations feel comfortable with the reduced level of risk; the rapid growth phase of adoption begins. Approximately 20% of the technology's target audience has adopted or is adopting the technology as it enters this phase.
Years to Mainstream Adoption	The time required for the innovation to reach the Plateau of Productivity.

Source: Gartner (August 2023)

Table 3: Benefit Ratings

Benefit Rating ↓	*Definition* ↓
Transformational	Enables new ways of doing business across industries that will result in major shifts in industry dynamics
High	Enables new ways of performing horizontal or vertical processes that will result in significantly increased revenue or cost savings for an enterprise
Moderate	Provides incremental improvements to established processes that will result in increased revenue or cost savings for an enterprise
Low	Slightly improves processes (for example, improved user experience) that will be difficult to translate into increased revenue or cost savings

Source: Gartner (August 2023)

Table 4: Maturity Levels

(Enlarged table in Appendix)

Maturity Levels	Status	Products/Vendors
Embryonic	In labs	None
Emerging	Commercialization by vendors Pilots and deployments by industry leaders	First generation High price Much customization
Adolescent	Maturing technology capabilities and process understanding Uptake beyond early adopters	Second generation Less customization
Early mainstream	Proven technology Vendors, technology and adoption rapidly evolving	Third generation More out-of-box methodologies
Mature mainstream	Robust technology Not much evolution in vendors or technology	Several dominant vendors
Legacy	Not appropriate for new developments Cost of migration constraints replacement	Maintenance revenue focus
Obsolete	Rarely used	Used/resale market only

Source: Gartner (August 2023)

Evidence

[1] **2022 Gartner Workforce Change Fatigue Survey.** This survey was conducted to understand the levels of change fatigue in employees and the manager's role in mitigating it. The research was conducted online from 28 February 2022 through 16 March 2022 among 3,548 respondents from various geographies, industries and functions. The survey was designed and developed by Gartner's HR Practice research team.

[2] **2022 Gartner Digital Worker Survey.** This survey sought to understand workers' technological and workplace experience and sentiments. The research was conducted online from September through November 2022 among 4,861 respondents from the U.S. (n = 1,564), China (n = 1,167), the U.K. (n = 1,072) and India (n = 1,058). Participants were screened for full-time employment in organizations with 100 or more employees and were required to use digital technology for work purposes. Ages ranged from 18 through 74 years old, with quotas and weighting applied for age, gender, region and income, so that results are representative of working country populations. We defined "digital technology" as including any combination of technological devices (such as laptops, smartphones and tablets), applications and web services that people use for communication, information or productivity.

Disclaimer: The results of these surveys do not represent global findings or the market as a whole, but reflect the sentiments of the respondents and companies surveyed.

Document Revision History

Hype Cycle for Digital Workplace Applications, 2022 - 1 August 2022

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Hype Cycle for the Digital Workplace, 2018 - 18 July 2018

Hype Cycle for the Digital Workplace, 2017 - 26 July 2017

Hype Cycle for the Digital Workplace, 2016 - 6 July 2016

Hype Cycle for Digital Workplace, 2015 - 22 July 2015

Hype Cycle for Digital Workplace, 2014 - 29 July 2014

Recommended by the Authors

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Understanding Gartner's Hype Cycles

Tool: Create Your Own Hype Cycle With Gartner's Hype Cycle Builder

Quick Answer: How Will AI in Microsoft 365 Copilot Impact the Workplace?

Quick Answer: How Should Organizations Prepare for the Addition of Generative AI to the Microsoft Stack?

Transform the Digital Employee Experience with an Evolving Digital Workplace

Digital Workplace Maturity Assessment Tool

What Workers Want: Top 10 Insights From the Digital Worker Experience Survey

Digital Workplace Applications Primer for 2023

Toolkit: Digital Workplace Application Fitness Assessment

Innovation Insight: Workstyle Analytics

Table 1: Priority Matrix for Digital Workplace Applications, 2023

Benefit ↓	*Years to Mainstream Adoption*			
	Less Than 2 Years ↓	***2 - 5 Years*** ↓	***5 - 10 Years*** ↓	***More Than 10 Years*** ↓
Transformational	Digital Employee Experience Hyperautomation	Business Technologists Citizen Data Science Collaborative Workflow Automation Data Literacy Digital Side Hustle Everyday AI Fusion Teams Generative AI Workplace Experience Apps	Internal Talent Marketplaces	
High	Citizen Developers Digital Work Hubs Employee Communications Applications Visual Collaboration Applications Workstream Collaboration	Agile Learning Collaborative Work Management Digital Adoption Platforms Influencer Network Knowledge Graphs Natural Language Generation No-Code Tools Workstyle Analytics	Collaborative Content Workspaces Frontline Worker EXTech Guided Attention Immersive Meetings Superapps Team Unity	Workforce Nudgetech

Benefit	*Years to Mainstream Adoption*			
↓	***Less Than 2 Years*** ↓	***2 - 5 Years*** ↓	***5 - 10 Years*** ↓	***More Than 10 Years*** ↓
Moderate		Appointment Scheduling Software Collaboration Equity Internal Virtual Events OKR Applications	Digital Well-Being	Collaborative Support Hub
Low			Virtual Co-working Space	

Source: Gartner (August 2023)

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