ARTIFICIAL INTELLIGENCE FOR REMOTE WORKFORCE MANAGEMENT

IEDE Program 2023
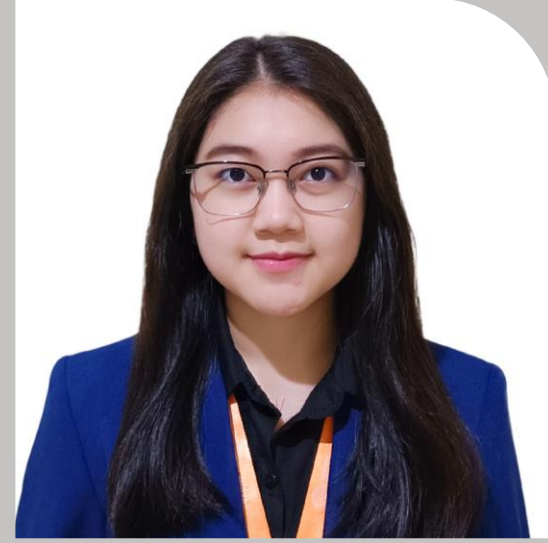
Project Question

How can we advance on Algorithmic Management as a Tool for Augmented AI Systems on Remote Working?

IEDE Program 2023

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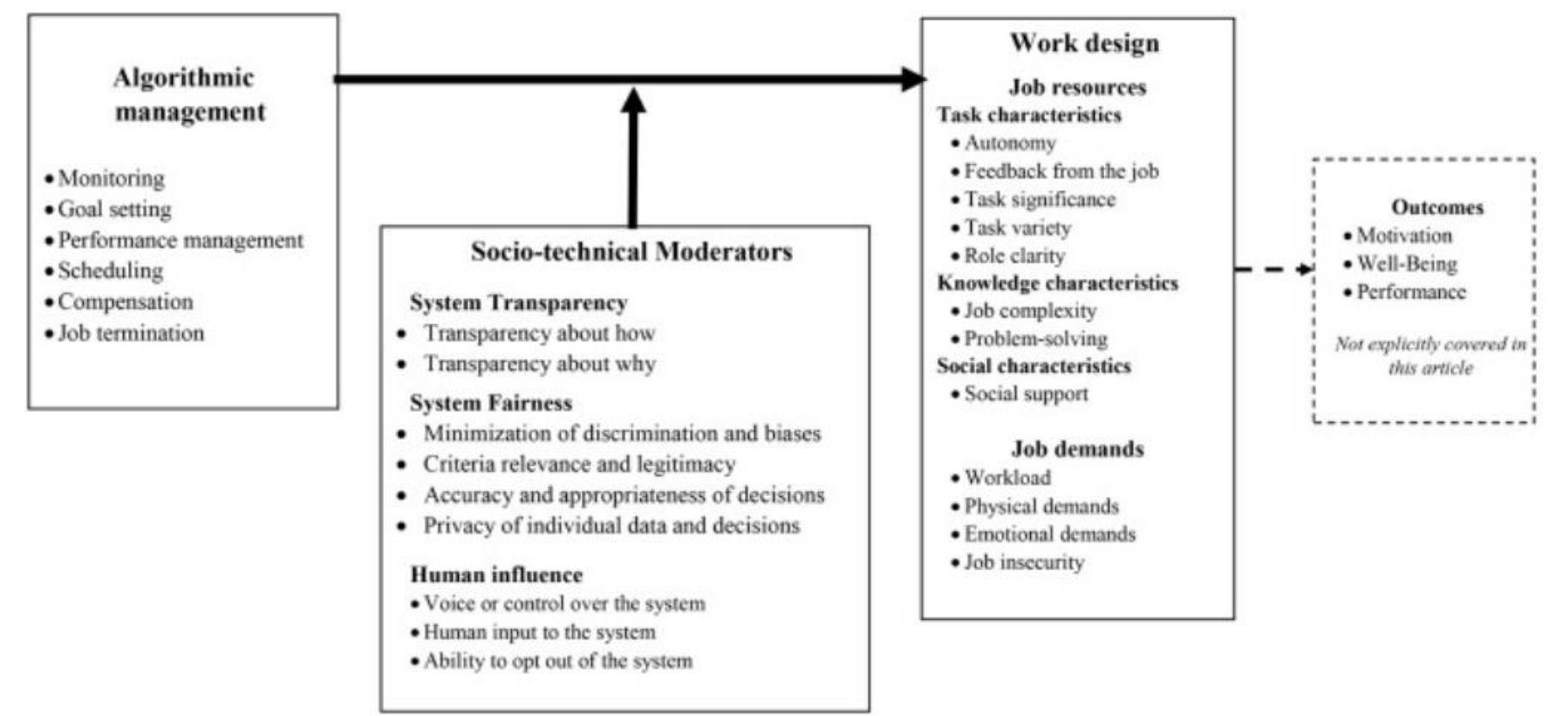|	TEAM MEMBER	INTRODUCTION	LITERATURE REVIEWS	CHALLENGES	OPPORTUNITIES	EMPIRICAL ANALYSIS AND DISCUSSION	SOLUTIONS	CONCLUSION AND RECOMMENDATIONS	FINISHING, EDITING PPT AND PAPER, PLAGIARISM CHECK
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RELATIONSHIP BETWEEN AI & ALGORITHMS

Algorithms

Algorithmic management: range of technological tools to organize work conditions and manage remote workforces

Artificial Intelligence

AI: machine ability to replicate or enhance human intellect, including reasoning and learning from experience
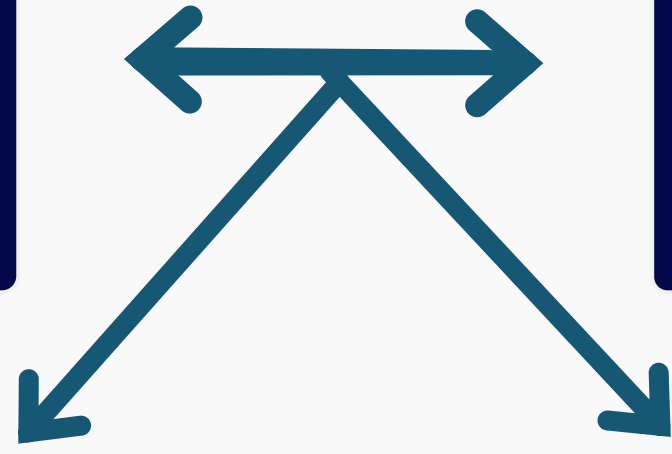
(+) Enhance performance, productivity, decision-making, optimize workflows, analyze data,

(-) Bias, employees feels job insecurity and disempowerment

Algorithmic management
- Monitoring
- Goal setting
- Performance management
- Scheduling
- Compensation
- Job termination

Socio-technical Moderators

System Transparency
- Transparency about how
- Transparency about why

System Fairness
- Minimization of discrimination and biases
- Criteria relevance and legitimacy
- Accuracy and appropriateness of decisions
- Privacy of individual data and decisions

Human influence
- Voice or control over the system
- Human input to the system
- Ability to opt out of the system

Work design

Job resources
Task characteristics
- Autonomy
- Feedback from the job
- Task significance
- Task variety
- Role clarity

Knowledge characteristics
- Job complexity
- Problem-solving

Social characteristics
- Social support

Job demands
- Workload
- Physical demands
- Emotional demands
- Job insecurity

Outcomes
- Motivation
- Well-Being
- Performance

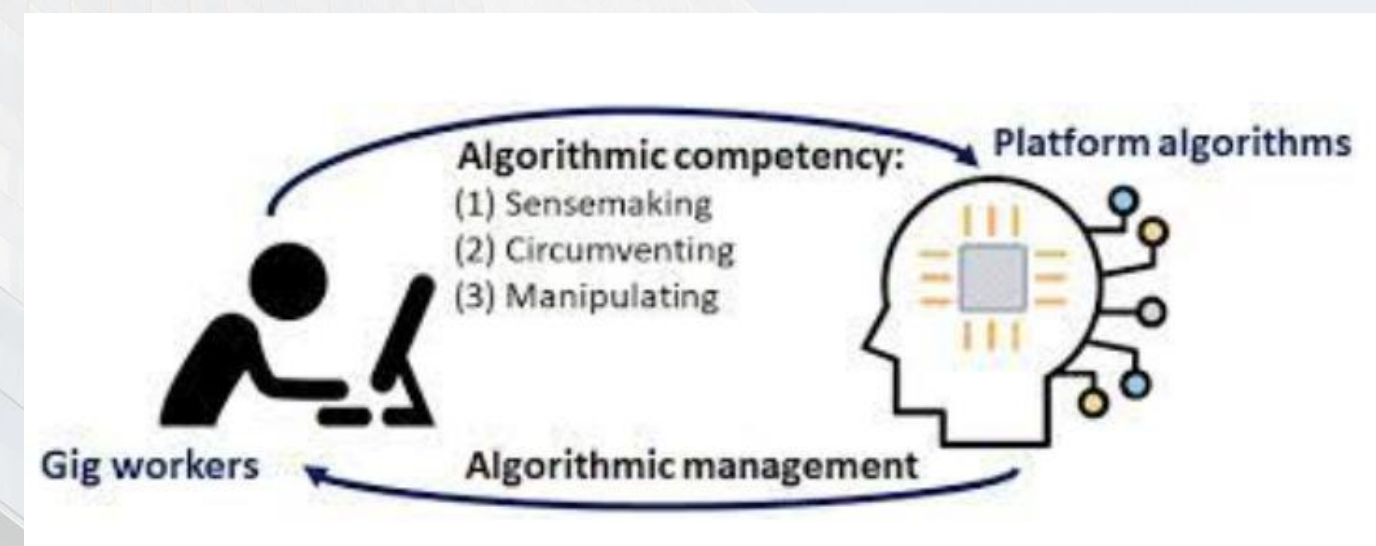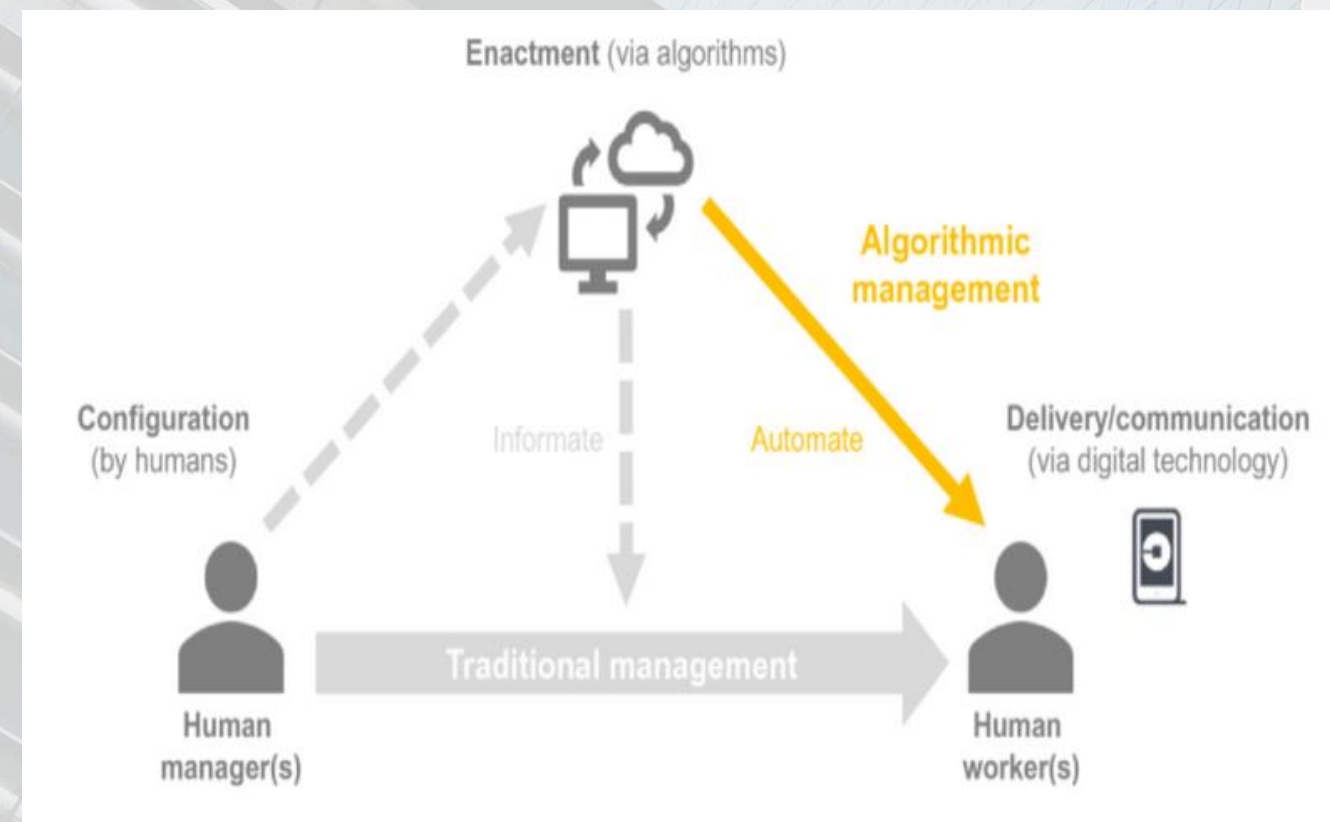*Not explicitly covered in this article*

ALGORITHMIC MANAGEMENT CHALLENGES

Communication Challenges

Communication is the greatest challenge within the algorithmic management systems for remote working
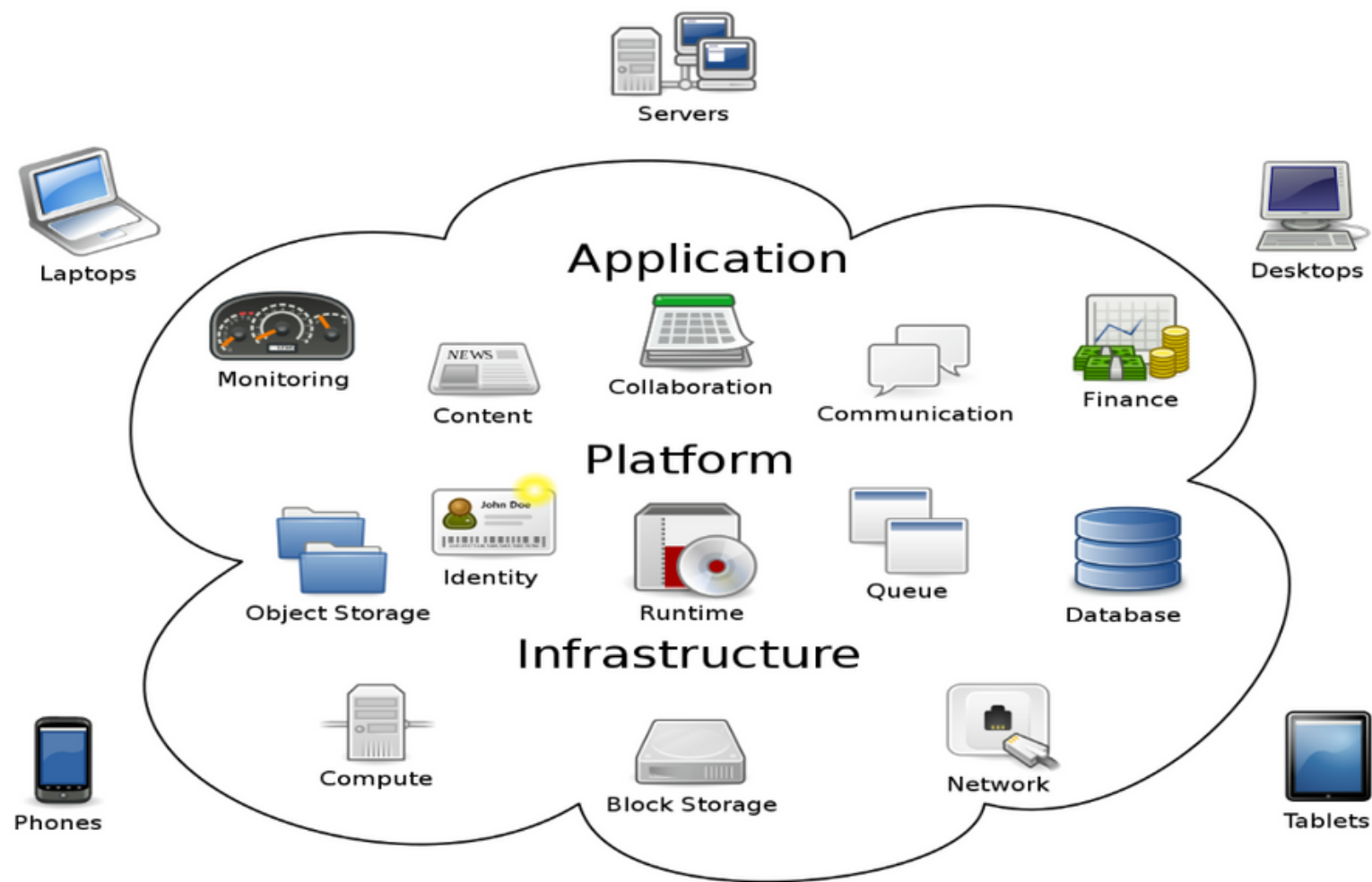
Workers Schedule

Algorithm system does not incorporate workers' personal schedule, passion, aspiration.

ALGORITHMIC MANAGEMENT CHALLENGES

Grid Computing

Surveillance Challenges

In most scenarios, employees use personal internet networks that is connected to other personal applications and gadgets, e.g. SIRI, TVs, which result in more unethical surveillance on employees.
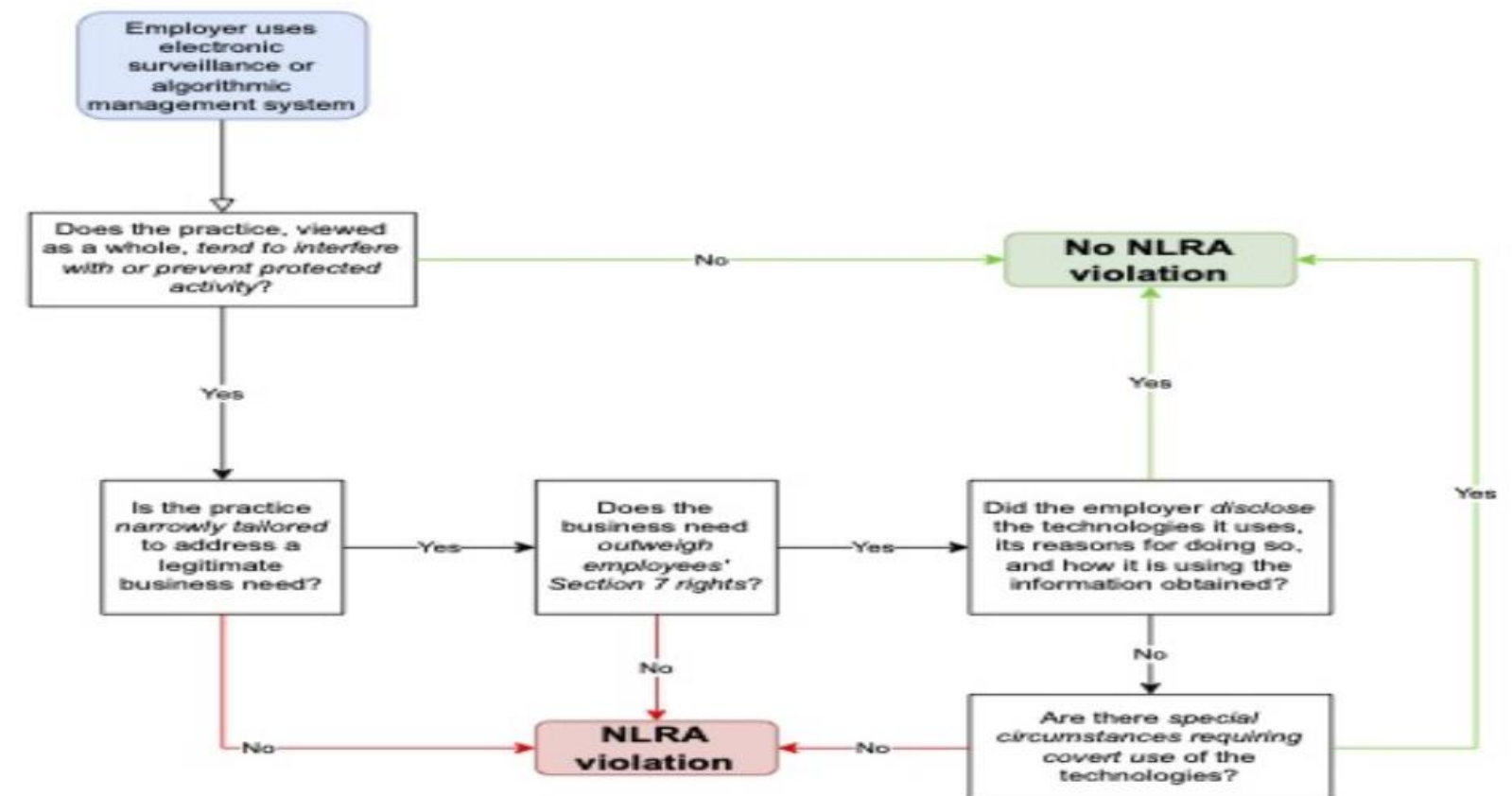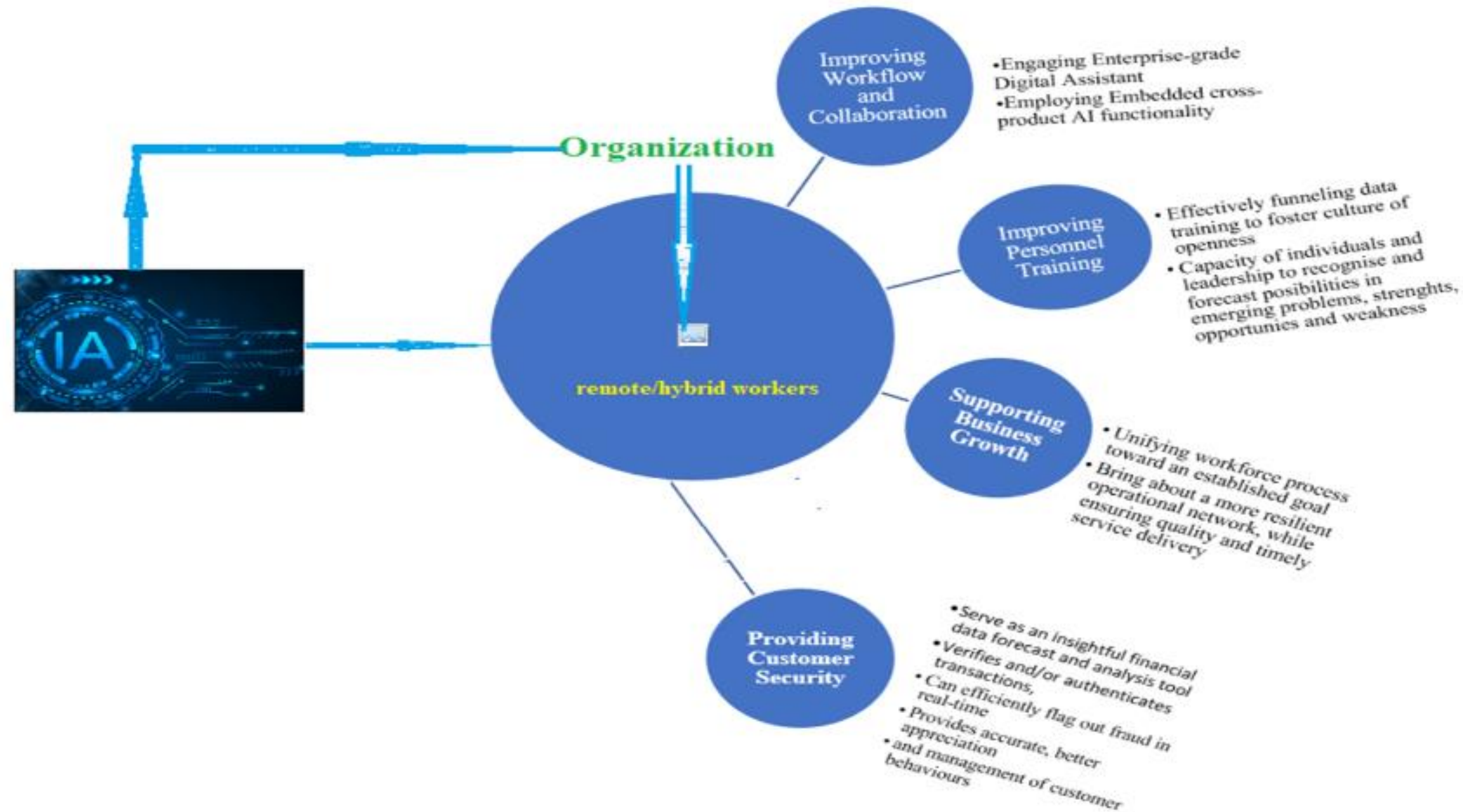
ALGORITHMIC MANAGEMENT OPPORTUNITIES

Figure : Using Algorithm Management in AI systems-based economy in the Context of Facilitating Remote and/or Hybrid Workforce

Before COVID

29%

of FS companies had at least 60% of their workforce working from home at least once a week.

After COVID

69%

of FS companies expect to have 60% of their workforce working from home at least once a week going forward.

Source: PwC's US Remote Work Survey June 25, 2020; FS employer base of 50

What People Think About the Practice of Employers Monitoring Remote Workers

☑ **TRUELIST**

21%
Agree with an employer's right to track activity, but it makes them uncomfortable

5%
Agree 100% with the practice

11%
Disagree 100% with the practice

58%
Blocking certain content and apps is fine, but they find other monitoring intrusive

5%
Unsure about it

Source: NashNews

REMOTE WORK BENEFITS

Benefit	%
Work-Life Balance	75%
Less Stress	57%
Less Absences	56%
Better Morale	54%
Less Sick Days	50%

% of Employees Who Agree

3 Key Artificial Intelligence Statistics You Should Know

FinancesOnline — REVIEWS FOR BUSINESS

1 Which processes rely heavily on AI?

Source: Statista

Global AI ranked by revenue of use cases:

Use case	Revenue
vehicular detection and avoidance	$8.9 BILLION
static image recognition	$7.6 BILLION
processing of patient data	$7.2 BILLION
algorithmic trading strategy	$6.4 BILLION
localization and mapping	$6.0 BILLION
predictive maintenance	$5.7 BILLION
cybersecurity and threat prevention	$5.4 BILLION
paperwork to digital data conversion	$5.4 BILLION
intelligent HR systems	$5.3 BILLION
medical image analysis	$5.1 BILLION

2 How do organizations and leaders perceive AI?

Sources: MemSQL, Accenture, narrativesscience.com, cmo.com, pwc.com

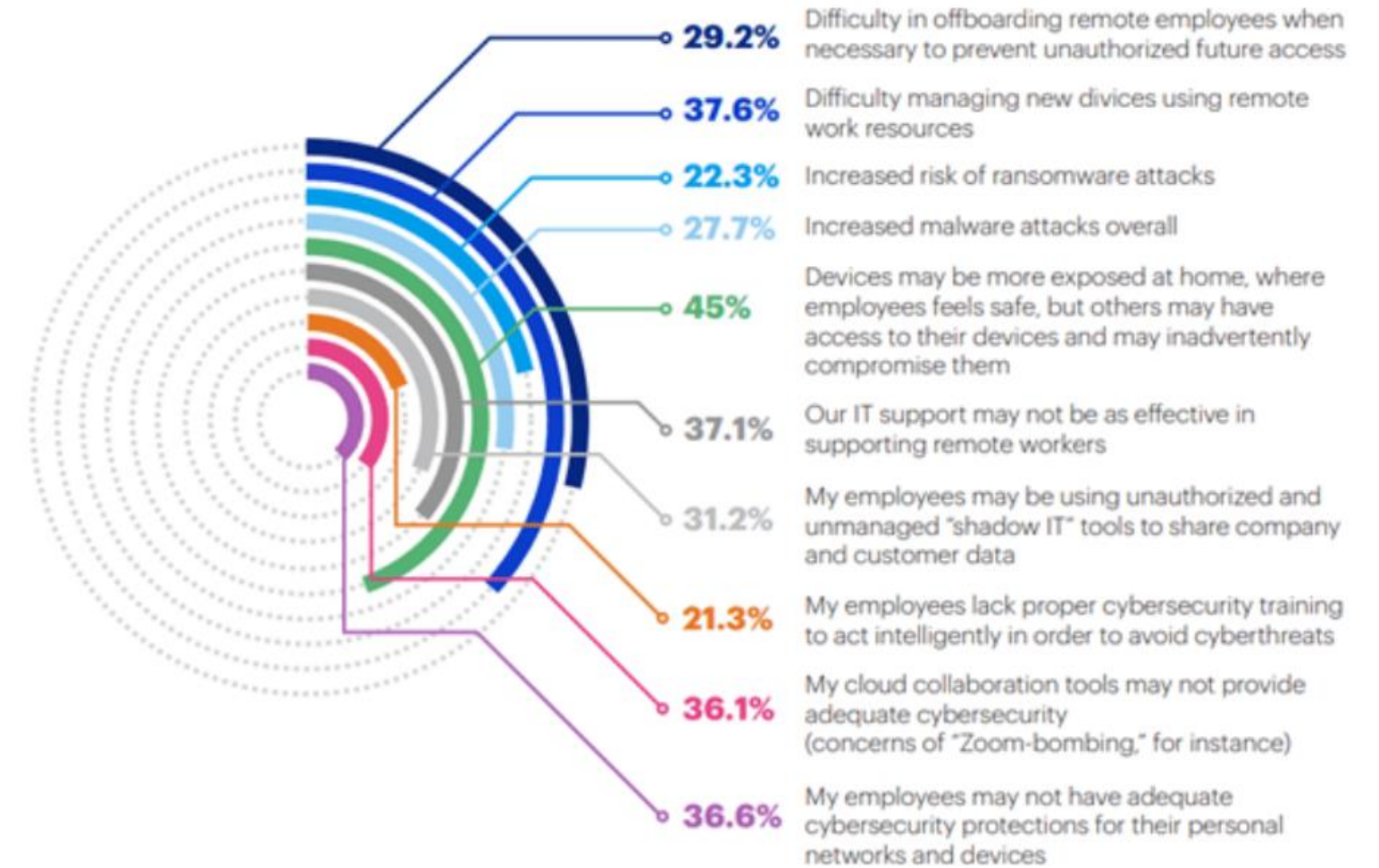| Statement	Percentage
AI and machine learning are game-changers	71%
AI is useful singling out opportunities using data	61%
AI and machine learning are their most significant initiative	61%
AI tools have boosted productivity	54%
have defined AI strategy	47%
projected increase in labor productivity from AI use	40%
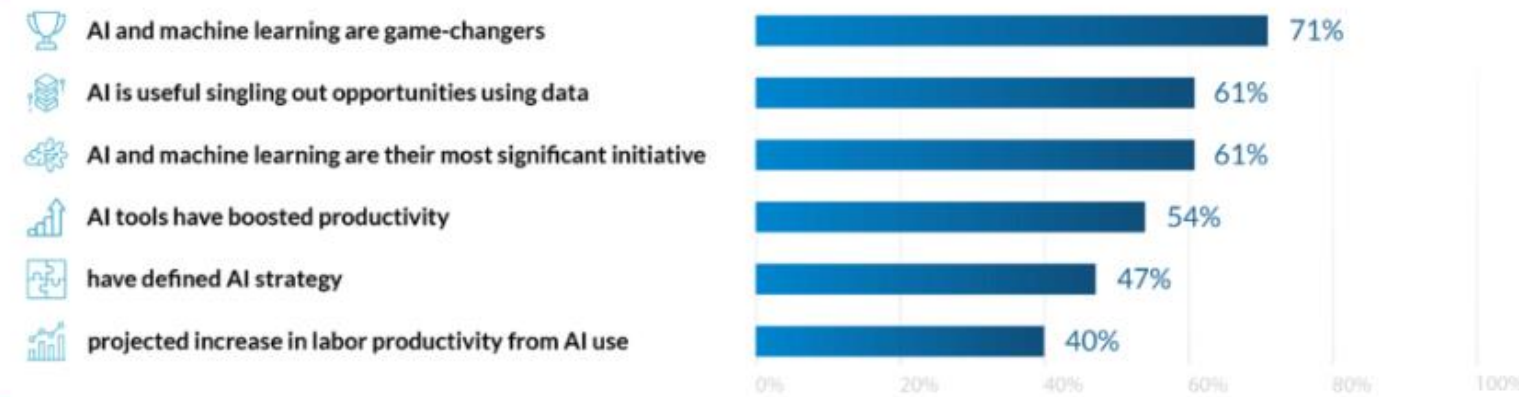
3 What are the top benefits of AI adoption?

Source: The Economist, Forbes, pwc.com, hbr.org

- **79%** makes work easier and more efficient
- **75%** allows them to move to new ventures
- **72%** foolproofs their business for the future
- **59%** improves use of big data in their organizations

What are your biggest cybersecurity concerns with remote work?

- **29.2%** Difficulty in offboarding remote employees when necessary to prevent unauthorized future access
- **37.6%** Difficulty managing new divices using remote work resources
- **22.3%** Increased risk of ransomware attacks
- **27.7%** Increased malware attacks overall
- **45%** Devices may be more exposed at home, where employees feels safe, but others may have access to their devices and may inadvertently compromise them
- **37.1%** Our IT support may not be as effective in supporting remote workers
- **31.2%** My employees may be using unauthorized and unmanaged "shadow IT" tools to share company and customer data
- **21.3%** My employees lack proper cybersecurity training to act intelligently in order to avoid cyberthreats
- **36.1%** My cloud collaboration tools may not provide adequate cybersecurity (concerns of "Zoom-bombing," for instance)
- **36.6%** My employees may not have adequate cybersecurity protections for their personal networks and devices

Organizational Shift Towards Algorithmic Management Tools to Engage Remote Workers

Digital economy, algorithmic management as a tool in the context of AI systems–based, data and information are considered more relevant regarding sustainable operations in a socio–technical ecosystem

Remote workers' horizontal communication within the working platforms should be paramount. Engage dynamic and diverse remote and/or hybrid workers/contractors through the application of algorithmic socio-technical management tools for effective communication and scheduling

REMOTE OR HYBRID WORKFORCE COMMUNICATION IMPLEMENTATION STRATEGIES

Synchronous Communication
(vidoe-conferencing, text/chat, audio calls)

- Collaborative meetings
- Brainstorm sessions
- Performance reviews
- 1:1 check-in meetings
- Team building activities or other socializing

Asynchronous Communication
(email, dashbaord, and message boards)

- Company or team announcements
- High-level planning discussions
- To create documentation
- One-directional feedback

Collaboration among remote teams is made possible by a blend of synchronous communication (real-time, involving multiple entities, where there is prompt feedback, almost the same as a live conversation) and asynchronous communication (non-real-time, isolated and discontinuous) processes and applications

Less formal ──────────────── More formal

Chat/IM
Quick issues
1:1 needs
Light conversation

Voice Call
Impromptu conversations

Video Call
Group brainstorm session
Project development
Regularly scheduled meeting

Email
Announcements
Written feedback
Documentation
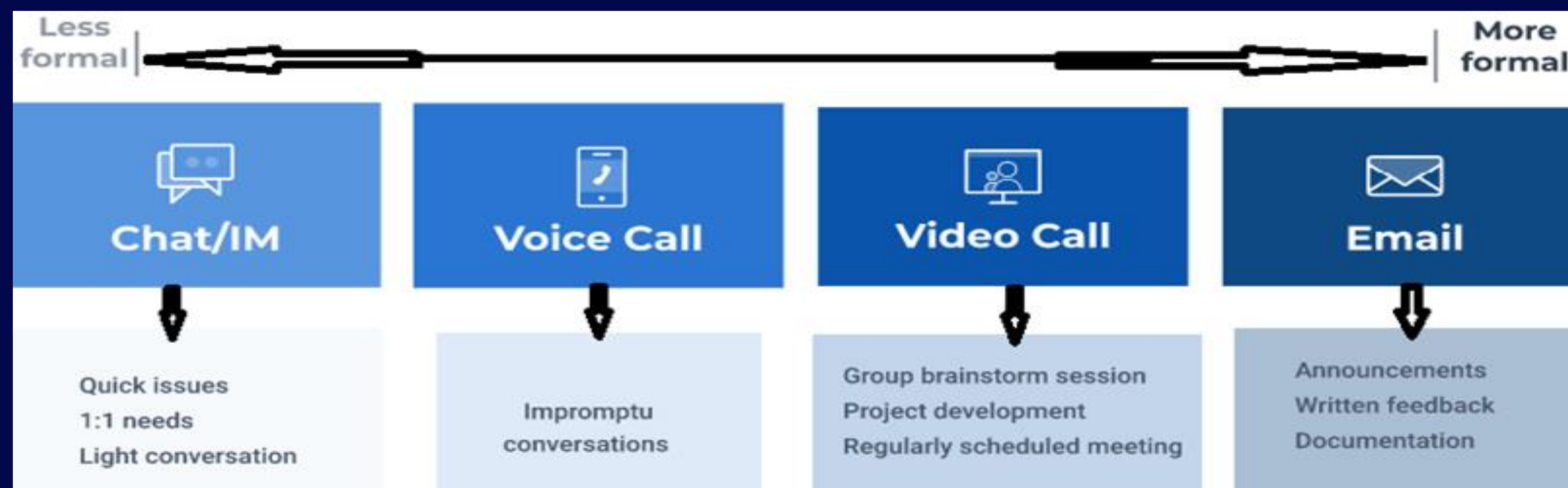
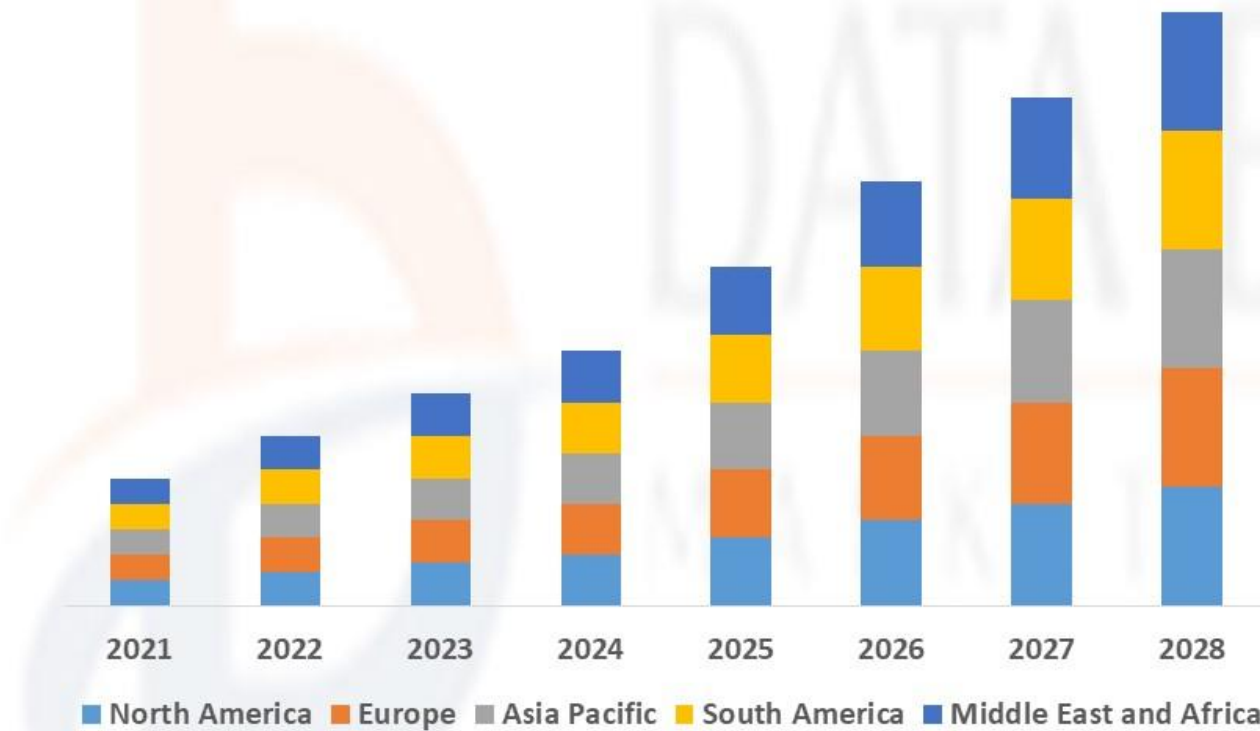# GO TO MARKET SOLUTION

COMMUNICATION: Horizontal communication, Augmented Intelligence, feedback,

SCHEDULING: Worker Personal Time, Ability to transfer duties to fellow employees, Personal Program,

Global Customer Communication Management Software Market is Expected to Account for USD XX Million by 2028

Global Customer Communication Management Software Market, By Regions, 2021 to 2028

2021

2028

DATA BRIDGE MARKET RESEARCH

■ North America ■ Europe ■ Asia Pacific ■ South America ■ Middle East and Africa

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DATA BRIDGE

Global Appointment Scheduling Software Market, Forecast 2022-2032

9.7% Global Market Value CAGR (2022 – 2032)	US$ 393.4 Million Global Addressable Market Value, 2022	9.5% Historical Market Value CAGR (2017 – 2021)	83.1% Cloud Based Deployment Market Value Share, 2022

Market Split by Region, 2022

North America
Europe
South Asia
East Asia
Latin America
Middle East & Africa

Market Split by Vertical, 2022

Corporate
Healthcare
Education
Beauty & Wellness
Retail
Others

Source: Fact.MR

Fact.MR
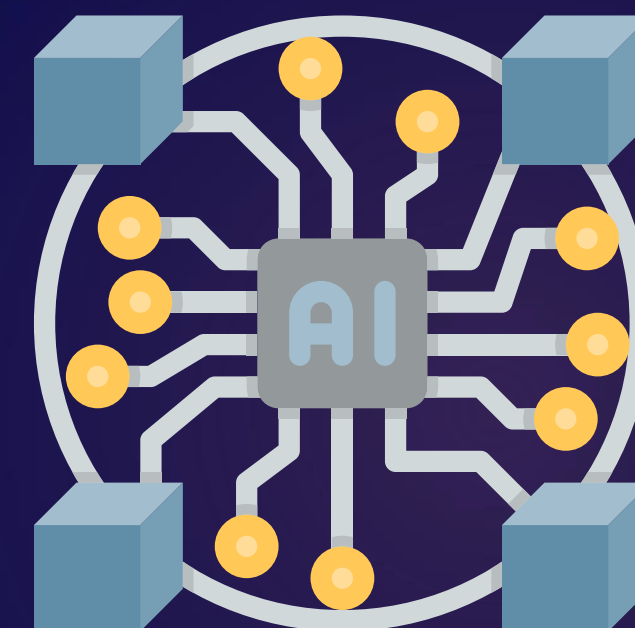
THE REMOTE WORKING EFFECT ON JOBS

01 COMPUTER TECHNOLOGY

02 HEALTH

03 AGRICULTURE

04 EDUCATION

05 BUSINESS ENTERPRISE

RECOMMENDATION

AI growth in becoming exponential in business processes and the potential in remote working are only starting to be innovated in Digital economy.

Research and development of mechanisms to manage small teams of remote workers as the workers' movement to the gig economy will help create a close neat team for gig working and short-term projects

Development and adoption of hybrid working culture in the technological age to better exploit the fourth industrial revolution potentials

Access to system source codes to scale more context-based processes within the AI-powered platform systems; in order to address most of the ad-hog remote worker challenges and exploit the immediate and foreseeable future opportunities

Step 1: Forming a migration curation team

Outcome: curation team line-up

Step 2: Organize workspace

Outcome: employees have all the hardware/software, and other items to work remotely

Step 3: Setting channels for communication

Outcome: communication terms and applications are chosen, Time-frames, and preferred communications channels are documented.

Step 4: Providing access to corporate resources

Outcome: employees have a secure access to all the corporate system and

Step 5: Documenting remote processes

Outcome: frameworks for remote work and reporting are defined, and

Step 6: Fine-tuning remote processes

Outcome: outlined processes are checked on practice, and optimized