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From AI Assistants to AI Teammates: A Systematic Review of Human–AI Collaboration in Product Strategy and Innovation Management

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Abstract

Generative and Agentic AI (GenAI & Agentic AI) are changing the nature of how AI is used in the organization from a supportive role to a more active partner and teammate. This systematic review investigates the impact of collaboration between humans and AI on product strategy and innovation management and focuses specifically on the shift from AI assistants to increasingly independent AI teammates. This review brings together the research in the field of market and customer intelligence, opportunity identification, strategic prioritization, product road mapping, ideation, new product development, experimentation, new product innovation evaluation, and implementation, supported by AI. It also explores the organizational and behavioral aspects that impact successful human–AI teaming, such as task distribution, the complementarity of human and AI intelligence, calibration of trust, explainability, communication, autonomy of AI, human oversight, accountability, and creativity. The review suggests that when used alongside human expertise, AI can enhance analysis, decision making, speed up the process of innovation, generate ideas and support organizations in learning. The rise in AI autonomy brings a host of potential issues on the table – hallucination, algorithmic bias, overreliance, privacy, IP rights, security, loss of expertise, and agentic behavior are just a few. The review thus proposes a comprehensive Human–AI Teammate Framework that connects human and AI competencies, tasks and organizations, collaboration processes, AI autonomy and decision authority, team results, and governance. The framework emphasizes that product professionals are becoming increasingly important as the AI orchestrators who are coordinating human skills and more autonomous AI systems. Lastly, the review highlights the research gap in relation to Agentic AI, decision authority, calibration of trust, creativity, governance and cross-industry and cross-cultural implementation.

Keywords: Human–AI Collaboration; AI Teammates; AI Assistants; Generative AI; Agentic AI; Product Strategy; Innovation Management; New Product Development; Human–AI Teaming; AI Autonomy

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I. Introduction

Artificial Intelligence (AI) has grown from a set of rules and automation to high-end and complex systems, which can learn, create content, reason and communicate with human language [1]. The initial applications of AI were mainly repetitive and routine jobs that were carried out under close human supervision, enhancing the efficiency

of the organization, but where the role of the human employee remained critical for interpretation, decision making and judgment. The advent of machine learning and deep learning pushed these capabilities further into the realm of prediction, classification, pattern recognition and data-driven decision support. Recently, generative AI has made it possible for systems to generate text, images, code, analyses, and other knowledge-rich products, through flexible, iterative interaction [2].

Agentic AI is another development in this evolution. Agentic systems could take the place of traditional systems that merely follow instructions and automatically perform tasks and functions, and in addition could plan tasks, use digital tools, retrieve information, execute multiple-step workflows, and initiate actions towards predefined goals [3]. As AI becomes more autonomous and proactive, it's no longer just a productivity tool but also a key player in organizational tasks. In product strategy and innovation management, this is especially true for people that regularly study the market, comprehend customer requirements, spot chances, brainstorm concepts, rank initiatives, create items, test them, and alter strategies.

AI can aid in these tasks by analyzing vast quantities of market and customer data, detecting market trends and needs, developing strategies, and assisting decision-making. The potential of Generative AI for ideation and concept development can be further extended by generating ideas, testing assumptions, and exploring alternative solutions [4]. AI use is still not necessarily a human–AI collaboration. There can be a continuum between the following: AI tool, AI assistant, AI collaborator, and AI teammate. As AI moves along this spectrum, AI's autonomy, initiative, interaction, and participation in making decisions increase [5].

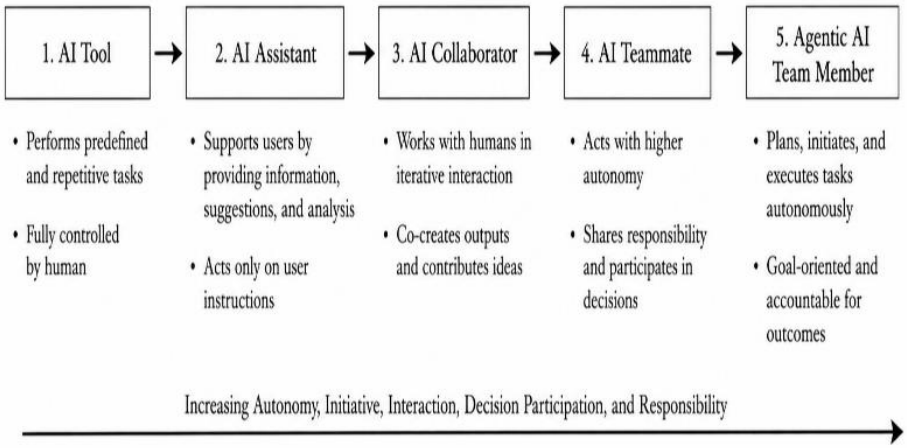

Fig. 1. Evolution from AI Tool to AI Teammate

The progression brings about key issues about task allocation, trust, explainability, accountability, and human oversight. While the research on AI is growing, knowledge of the subject is scattered among the areas of artificial intelligence, product management, innovation management, human–AI interaction, and organizational decision-making [6]. There is, however, little research that combines these approaches to understand how AI systems that become increasingly autonomous will be able to interact with humans as teammates in product and innovation processes, specifically in terms of the distribution of decision-making authority and responsibility.

Thus, this systematic review will focus on the shift from AI assistant to AI teammate and compile research on the human–AI combination in product strategy and innovation management. It reviews application processes like market intelligence, opportunity identification, ideation, product development, prioritization, experimentation and innovation decision making, and mechanisms of collaboration like complementary intelligence, trust calibration, communication, autonomy, accountability and human oversight. The review ultimately results in a conceptual understanding of the changing dynamics of work, authority and responsibility, creativity and decision making between humans and increasingly autonomous AI systems.

II. Systematic Review Methodology

a. Review Design and Research Protocol

The current study uses an SLR approach to identify, review and synthesize existing research about human–AI collaboration in product strategy and innovation management. Given the fast growth of literature in various fields related to AI assistants, AI collaborators, AI teammates, generative AI, and agentic AI, a systematic review was chosen. The pertinent research is spread out over the fields of information systems, management, innovation, computer science, human–computer interaction, and organizational research. A formal review process thus allows common themes, new research trends and gaps to be identified, and helps minimize the risk of using studies that have been selected in a biased way [7]. The review is carried out in a transparent manner, starting from identification, screening, eligibility assessment, data extraction, thematic analysis and synthesis.

B. Database Selection and Search Strategy

In conducting the research of literature, both management and technology-oriented studies were sought. The major academic databases taken into consideration in the search approach are: Scopus, Web of Science, ScienceDirect, IEEE Xplore and ACM Digital Library [8]. These databases cover a wide range of peer-reviewed research literature on management, information systems, artificial intelligence, innovation and human–computer interaction.

The search process used keywords which were related to both the technological and the organizational aspects of the research. Key terms covered were AI assistant, AI teammate, AI collaborator, human–AI collaboration, human–AI teaming, generative AI, agentic AI, AI agents, AI autonomy, product strategy, product management, innovation management, new product development, ideation, and AI decision making. Boolean combinations of these terms were used to identify studies that explored the relationship between AI capabilities and product/innovation activities. Reference lists of relevant studies were also reviewed to look for other studies not identified by the keyword searches in the databases that might be relevant.

C. Inclusion and Exclusion Criteria

The studies were chosen based on agreed inclusion and exclusion criteria. The review was mainly based on the peer-reviewed academic publications in English, published during the period of the review. When these articles discussed collaboration, decision making, product strategy, innovation, or organizational work in the context of AI support, they were included in the selection of journal articles, conference papers, conceptual studies, empirical research, and relevant review articles.

Studies were considered if they explored the interactions between human and AI in a meaningful way, or organizational implications of collaborating with AI. Work that was only interested in the development of technical models, without reference to Human interaction, organizational decision making, product management and/or innovation, was omitted. Records were also duplicated, irrelevant publications eliminated, inaccessible studies, non-English publications and studies outside the scope of the research were also eliminated. The criteria were used to ensure uniformity in the screening process.

D. Study Screening and Selection

1) Identification

The identification stage comprised of the search of selected databases with the set of keywords. Before detailed screening, retrieved records were compiled into a single document and any duplicate documents were eliminated.

2) Screening

Relevant studies to the research objectives were identified during screening by reviewing the titles and abstracts. At this stage, publications which were clearly focused on topics other than technical or organizational were excluded.

3) Eligibility

Some potentially relevant studies were evaluated in more depth to determine eligibility based on the inclusion criteria. An extra focus was placed on the research focusing on human–AI interaction, AI-supported product or innovation activities, AI autonomy, decision-making, collaboration or organizational outcomes.

*4) **Final Included Studies***

After screening and eligibility, the studies which fulfilled the predetermined criteria were put together in a cohesive body of evidence that was used for thematic analysis. To achieve transparency and reproducibility in the selection process, the involvement was structured in line with the PRISMA approach [9].

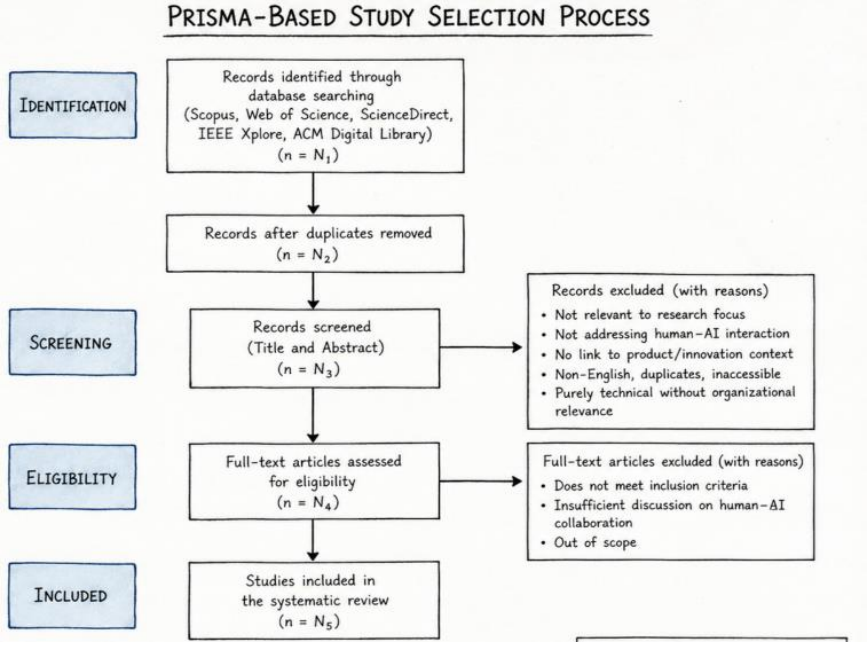

Fig. 2.PRISMA-Based Study Selection Process.

*E. **Data Extraction and Coding***

The information in the selected studies was organized using a structured framework for data extraction. The characteristics that were extracted were the publication information, type of AI, research context, product or innovation activity, roles of the human and the AI, level of AI autonomy, decision authority, trust, explain ability, human oversight, collaboration mechanisms, benefits, risks and reported outcomes. The coding of these characteristics allowed for comparisons of studies and helped identify patterns.

*F. **Thematic Analysis and Synthesis***

The extracted evidence was not only a descriptive bibliography but rather was synthesized thematically. Themes were created on the evolution of AI roles, applications for product strategy, innovation activities, and dimensions of human–AI teaming, outcomes, risks, decision making authority, organizational transformation, and governance. Inter-relationships between these themes were then explored to understand how the autonomy of AI impacts on interactions and management [10].

TABLE I. SYSTEMATIC REVIEW PROTOCOL AND STUDY SELECTION CRITERIA.

Element	Review specification
Databases	Scopus, Web of Science, ScienceDirect, IEEE Xplore, ACM Digital Library
Search terms	AI teammate, AI assistant, human–AI collaboration, generative AI, agentic AI, product strategy, innovation management
Publication period	Defined review period
Language	English

Publication type	Peer-reviewed journals and conferences; relevant conceptual and review studies
Inclusion	Relevant human–AI collaboration, product, innovation, or organizational research
Exclusion	Duplicates, irrelevant studies, non-English work, purely technical studies without organizational relevance
Screening	Identification, duplicate removal, title/abstract screening, eligibility assessment
Data extraction	AI type, roles, autonomy, decision authority, collaboration, outcomes, risks
Synthesis	Thematic analysis and conceptual integration
Final sample	Studies meeting all predefined eligibility criteria

III. From AI Assistants to AI Teammates: Conceptual Foundations

The capabilities of artificial intelligence are continuing to evolve, transforming the relationship between humans and AI. In the past, there were several AI-based organizational applications, most of which concentrated on automation, prediction, and decision support, where humans still make the final decisions and set the goals [11]. The scope of this role has been extended over time by the advent of generative and agentic AI technologies to include interaction, collaboration and, increasingly, autonomous engagement in organizational activities. This evolution is especially relevant for product strategy and innovation management, which involves continuous information processing, creativity, judgment, experimentation and coordination. In this regard, the shift from AI tool to AI teammate can be considered a step toward increasing autonomy, initiative, interaction, participation in decision-making and responsibility. In this sense, the change from an AI tool to an AI teammate is more of a progression of autonomy, initiative, interaction, participation in decision-making and responsibility [12].

A. AI as a Tool

The initial view of AI in an organization is as a tool to do a specific analysis or operation. With all these types of systems, the operation is based on a set of inputs, rules, models or objectives. This configuration involves humans setting up the task, supplying the necessary information, interpreting the outputs, and making decisions [13]. While AI can enhance efficiency and analytical capabilities, it is not a tool for setting goals and defining priorities in organizations. The interaction is then one that's transactional, with AI being a tool that's used by human users.

B. AI as an assistant

AI can be an assistant when it helps the person to perform an activity that is knowledge intensive. Today's AI assistants can retrieve and structure information, give suggestions, summarize documents, create content, analyses data and aid in routine decision making. Generative AI has greatly increased these abilities by enabling users to engage with systems using natural language and to adjust results in an iterative manner. Though there's more flexibility, humans are still the ones making most of the decisions. Assistant is a person who acts on the orders of human beings and does not take initiative in achieving the goals of the organization. Accordingly, there is a strong human accountability and strategic authority [14].

C. AI as a collaborator

The collaborator concept is a step towards more interactive and iterative work than one way assistance. This setup involves a collaborative effort between humans and AI, with each contributing in the process of generating ideas, evaluating them, providing feedback, and refining them. AI offers suggestions, insights, analysis, pattern recognition, questioning and feedback, while humans bring in industry expertise, context, originality, and judgment. Collaboration is, thus, not a form of delegation, but reciprocal interaction. The quality of outcomes will rely on the effectiveness of the complementarity between human capabilities and AI capabilities and the critical assessment of the contribution of AI.

D. AI as a Teammate

When the AI becomes a more active partner in accomplishing shared goals and has a clear and identifiable function in a larger human–AI work system, then the AI can be conceptualized as a teammate. A teammate can actively participate, keep track of the work task, organize activities, and work more independently in a specific scope [15].

1) Shared Goals

When it involves human–AI teaming, it is crucial to have the same goals, whether it is creating a product, finding an innovation opportunity, enhancing customer experience, or pursuing strategic goals. Coordinate human and AI activities, using shared goals.

2) Role Differentiation

Great teams need diverse skills and talents. Humans can offer strategic judgment, creativity, ethical reasoning, and context knowledge; AI can carry out analysis, generation, monitoring, prediction and other computational activities. There is clarity of roles, which means there is no duplication and no uncertainty.

3) Reciprocal Interaction

Team relationships are a dynamic process. Human decision-making can drive AI actions, and AI actions can drive human decision-making, whether through outputs or corrections to previous actions and changing objectives. Such back-and-forth interaction is what sets teaming apart from traditional automation.

4) Increasing AI Autonomy

One of the key features of AI team members is growing independence. AI can evolve from providing suggestions to performing tasks, running experiments, organizing tasks, and performing authorized actions. Providing more autonomy can improve efficiency but also raises more demands on supervision, granting limits and accountability.

E. AI Assistant–Collaborator–Teammate Continuum

The change from one to the other should not be considered as a period of strict technological classification. Instead, it is a spectrum of participation in which AI can be a part of the tasks, depending on the task and context of the organization. The autonomy, initial action, interaction, decision involvement, and responsibility are increasing as AI goes from being a tool to being an assistant, collaborator, teammate and agentic team member.

The key point of this central shift is not one of AI capabilities advancing to more complex tasks. The central shift isn't as much about AI getting better at more complicated things. Instead, the interaction between humans and AI shifts from human execution to more co-existence of human and AI and, in some cases, a form of delegation. This evolution has a direct impact on product management, the process of innovation, the organizational structure and the organization's governance [16].

F. Characteristics human–AI teaming

There are multiple dimensions that are interrelated in human–AI teaming. There, roles and responsibilities need to be well defined to identify what humans and AI have to offer. Second, successful teams need complementary skills not just duplication of human and machine skills. Thirdly, goal-sharing and communication channels can lead to coordination. Fourth, trust needs to be adjusted based on actual reliability of AI and the risk of the task. Explainability will help in the proper assessment of AI outputs and transparency will help ensure that autonomy is not pushed to extreme levels, with human oversight maintaining a reasonable balance. Lastly, the more AI recommends actions, the more it becomes crucial to hold it accountable [17].

TABLE II. AI ASSISTANT VS. AI COLLABORATOR VS. AI TEAMMATE.

Dimension	AI Assistant	AI Collaborator	AI Teammate
Role	Supports human tasks	Participates in joint work	Performs an active team role
Autonomy	Low	Moderate	Moderate–High

Initiative	Mainly reactive	Limited proactive contribution	Increasingly proactive
Interaction	Instruction–response	Iterative	Reciprocal and continuous
Decision authority	Human	Shared evaluation	Potentially delegated
Accountability	Primarily human	Shared responsibility	Requires explicit allocation
Goal alignment	Human-defined	Jointly pursued	Shared organizational objectives

Overall, it's a transformation from task support to collaborative agency, from assistant to teammate. The meaning behind this shift is much more than just about what AI can do about the distribution of tasks, authority, responsibility, and control between humans and machines. This conceptual underpinning is the starting point for analyzing the use of outcomes from challenges and governance needs for the interaction of humans and AI in product strategy and innovation management.

IV. Human–AI Collaboration Across Product Strategy and Innovation

Human–AI collaboration is becoming a driving force behind shaping product strategy and innovation management, as it harnesses the analytical strengths of AI and complements them with human expertise, context, creativity, and strategic insight. AI is not intended to replace product and innovation specialists, but to complement the continuous information gathering and alternative idea generation, opportunity evaluation and decision adaptation process. However, the form of collaboration depends on the nature of the collaboration task, which ranges from complexity, uncertainty, risk, and degree of autonomy [18].

A. Human–AI Collaboration in Product Strategy

1) Market and Customer Intelligence

AI can handle massive amounts of customer reviews, survey feedback, social-media chatter, behavior data, and more indicators from the market to help product teams. By analyzing customer preferences, sentiment, complaints, and emerging needs faster than traditional manual methods, generative and analytical AI can provide deeper insights that drive meaningful changes in products and services. Generative and analytical AI can uncover recurring preferences, patterns in sentiment, complaints, and new customer needs faster than manual analysis, enabling more meaningful changes to products and services. All these findings remain to be understood in the context of the business and the customers, and what strategic value they may have [19].

2) Market and competitor analysis

AI can be used to monitor the market, competition, technology, and new market opportunities all day long. Can integrate multiple information sources and detect change(s) that need to be addressed by strategy. Human product professionals add context to the AI-generated insights, evaluate the accuracy of the AI-generated insights, and make decisions about how new products may influence the product positioning and company goals.

3) Opportunity Identification

AI and human collaboration can enhance opportunity identification with the power of AI pattern recognition and customer and market understanding. AI can identify unmet needs, trends and relationships in large volumes of data, and humans can consider feasibility, strategic suitability, timing and potential value. This is a co-creative process that allows AI to increase the opportunity space, and for humans to decide which opportunities should be pursued.

4) Product vision and product strategy.

AI can aid in the development of product vision and strategy by creating multiple positioning scenarios, determining where to position the product, weighing strategic options and analyzing market data. But product vision calls for purpose within the organization, empathy with the customer, moral correctness, and strategic thinking over the long haul. Thus, AI should be best used to provide alternatives and evidence, and humans as strategic direction and product-market fit.

*5) **Prioritize the strategies and allocate resources.***

The AI can help the product teams prioritize features, consider portfolio options, calculate the potential for benefits and risks, and see how resources are connected. AI can speed up the process of comparing the different scenarios and make prioritization more systematic. However, resource allocation is an organizational process with constraints and value judgments which may not be captured in existing data [20]. Human decision makers must, therefore, corroborate AI recommendations and factors in strategic priorities and qualitative information.

*6) **AI-Supported Product Road mapping***

AI can help create the roadmap by structuring initiatives, identifying dependencies, creating various timelines and modelling potential scenarios. AI can also help with quick adaptation to the roads as market demands and customer feedback evolve. The product manager continues to be accountable to the organization for making roadmap decisions that are consistent with organizational strategy and stakeholder expectations, technical viability and customer value.[20]

Fig. 3. Human–AI Collaboration Across the Product Strategy

AI is not just limited to specific analytical roles but is a part of the product strategy cycle as shown in Figure 3. This is a cycle that is iterative: AI gives information, patterns, alternatives and predictions, and humans interpret and make sensitive context decisions.

TABLE III. APPLICATIONS OF AI ACROSS PRODUCT STRATEGY ACTIVITIES.

Activity	AI contribution	Human contribution	Collaboration mode	Outcome
Market intelligence	Data analysis and sentiment detection	Contextual interpretation	Joint	Customer insights

Opportunity identification	Pattern and trend detection	Feasibility assessment	Joint	New opportunities
Strategy formation	Scenario generation	Strategic judgment	Joint	Strategic alternatives
Prioritization	Ranking and prediction	Value and risk judgment	Joint	Better priorities
Road mapping	Dependency and scenario analysis	Strategic alignment	Joint	Adaptive roadmap

B. Human–AI Collaboration in Innovation Management

1) Innovation Opportunity Discovery

AI can identify technology, customer and market trends that indicate potential innovations. It can look at a wide range of information to help organizations consider opportunities they wouldn't have otherwise when looking at information from individual employees [22].

2) AI-Supported Idea Generation

The more ideas and alternatives produced during innovation processes the better. Innovation processes - the more, the better! Generative AI can help brainstorm ideas, variations, combinations and other solutions that can then be judged for relevance and feasibility by humans [23].

a) Individual Ideation:

On the individual innovator level, AI can be a brainstorming partner, providing alternative ideas and approaches, breaking ideational barriers and helping with incremental changes.

b) Team Ideation:

AI can help within teams to combine various ideas, encourage discussion and come up with other options. This can enhance the width of collective exploration if AI output is critically considered instead of taken as is.

c) Creativity and Novelty

AI can help generate a wide range of ideas by synthesizing concepts from different fields but can over-emphasize the more common pattern that AI may have found, leading to a potential emphasis on similarity. Human creativity and critical selection are thus still required to maintain meaningful novelty. This course is designed to explore the various dimensions of AI in the context of New Product Development (NPD)

3) AI in New Product Development (NPD).

AI can contribute to the NPD process in different ways such as supporting concept development, design, and development activities [20].

a) Concept Development

Customer needs, market intelligence, and other sources can be used to spark new product concepts and product specifications, which can then be evaluated quickly by the development team with the assistance of AI.

b) Product Design

Generative systems can assist with the design exploration to develop configuration and interface alternatives, prototypes and design variations. Human design is still relevant in the aspects of aesthetics, usability, feasibility and contextual appropriateness.

c) Development Support

Documentation, coding, testing, simulation, requirements analysis and other development work can be assisted by AI to decrease the burden and speed up iteration.

4) Product Experimentation

AI can assist in hypothesis generation, experiment design, A/B testing, simulation and quick iterations. Can relate experimental feedback; can identify patterns and use them to inform decisions. There are experiments with significant customer or financial repercussions, ethical or

reputational considerations, or where the experiment involves human oversight is required.

5) Evaluation of innovations and their uptake

AI can help with the screening of ideas, business cases, market forecasting, and portfolio comparison. But relying solely on history to select innovations is not a viable choice as there may not be precedents for truly new innovations. The strategic fit, uncertainty and long-term potential, therefore, will be assessed by human beings.

6) Innovations Implementation and scaling

AI can assist in the implementation process with various tasks, such as planning for the launch, monitoring performance, analyzing customer feedback, and facilitating ongoing improvements. Additionally, the more autonomous systems can make their own adjustments, depending on their predetermined goals and permissions.

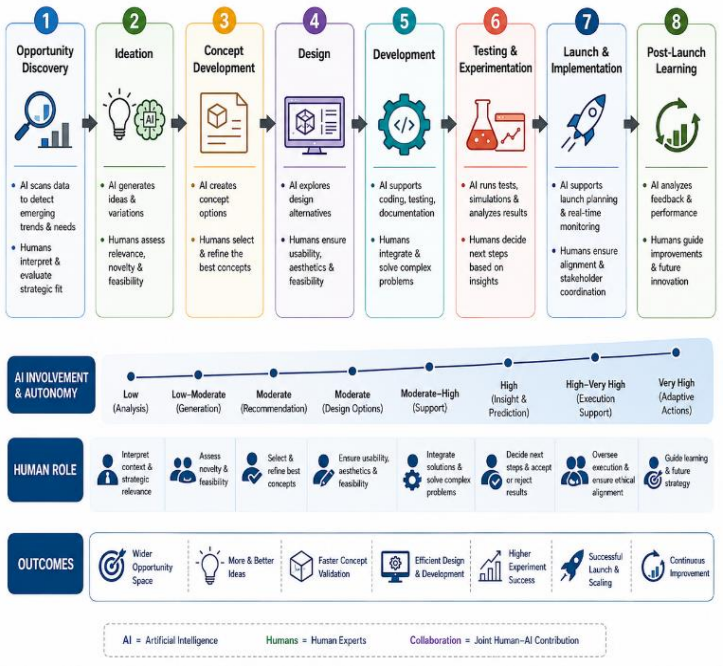

Fig. 4. Human–AI Collaboration Across the Innovation Lifecycle.

Figure 4 points out that the involvement of AI can amplify throughout the innovation values chain, but increased autonomy does not mean that humans aren't required to govern. But to manage innovation effectively, AI must be paired with human creativity, judgment, accountability and strategic control, which is achieved by maintaining a dynamic balance between the two.

Taking the holistic view, product strategy and innovation are increasingly human–AI systems in which AI acts as an enabler by analyzing, generating, predicting and executing, while humans remain at the helm to give strategic direction, contextual interpretation, creative vision, ethical judgments and accountability.

V. Dimensions, Outcomes, and Challenges of Human–AI Teaming

There are other questions that go beyond AI capability to effective human-AI teaming: How is working between AI and humans organized? How is authority distributed between humans and AI? How do humans communicate with AI? How is responsibility distributed between humans and AI? The shift from AI assistance to AI teaming can have significant performance gains but also poses challenges in terms of reliability, reliance, accountability, creativity and autonomous action.

TABLE IV. HUMAN–AI ROLES ACROSS INNOVATION MANAGEMENT ACTIVITIES.

Activity	Human role	AI role	Joint role	Autonomy	Benefits	Risks
opportunity discovery	Interpret signals	Detect patterns	Explore opportunities	Medium	Wider search	Data bias
Ideation	Evaluate ideas	Generate alternatives	Co-create	Medium	Creativity	Homogenization
Design	Creative judgment	Generate designs	Refine concepts	Medium	Rapid iteration	Inappropriate outputs
Development	Supervise	Automate support tasks	Solve problems	Medium–High	Efficiency	Errors
Experimentation	Define objectives	Analyze/test	Learn and adapt	High	Speed	Poor decisions
Implementation	Govern outcomes	Monitor/adjust	Continuous improvement	High	Adaptability	Unintended actions

V. Dimensions of Effective Human–AI Collaboration

Task Allocation and Division of Labor

There are typically three types of tasks in human–AI teams: human-centric, AI-centric, and human–AI joint. While AI excels at data analysis, pattern recognition, repetitive tasks, and rapid decision-making, humans are still crucial for making decisions that are ambiguous, ethical, strategic, and context dependent. The allocation of effective work should therefore correspond to the complexity of the task and the actors' relative capacities, while considering the risk [24].

2) Complementary Intelligence

AI and Human skills can be complementary. Both humans and AI bring their own strengths and abilities to the table, with humans providing creativity, experience, contextual knowledge, intuition, and strategic thinking, and AI offering computational power, scalability, speed, and pattern recognition. It's collaboration to the fullest when these are integrated together, not when AI becomes a replacement for human knowledge.

3) Trust and Trust Calibration

The extent to which users trust the AI outputs dictate how adequate they are using the output. Too much trust can result in automation bias and uncritical acceptance, whereas too little trust can hinder organizations from reaping the benefits of effective systems. Trust should be thus proportioned to the proven performance of the AI, uncertainty and task needs.

4) Explainability and Transparency

Explainability helps users comprehend how the AI is making its recommendations and determine their suitability. Clear processes also enhance the ability to track information's role in deciding and who took responsibility for the action taken.

5) AI Autonomy and Initiative

AI can go from recommendations through to proactive actions, and even to autonomous actions. Autonomy will lead to more efficiency, but also more possible consequences of mistakes. Permissions, monitoring and escalation procedures are therefore very critical.

*6) **Human Oversight and Control***

Oversight can be human-in-the-loop, human-on-the-loop or human-out-the-loop oversight. The right model to choose is dependent on the risk, reversibility and consequences of AI actions. Most high impact decisions are likely to involve more human involvement.

*7) **Accountability and Responsibility***

The responsibility for AI assisted decisions gets increasingly complicated as AI gets more autonomous. It is essential that organizations have a clear delineation of who is authorized to make decisions about actions resulting from AI, who is responsible for keeping track of the results, who is responsible for the failures, and who is responsible for the results [25].

*8) **Creativity and Co-Creation***

AI can aid in creative exploration by generating ideas and different solutions. But using the same AI patterns repeatedly can lead to idea convergence. Originality is essential and human evaluation and creative direction play an important role.

*9) **Communication and Coordination***

Clear goals, prompts, feedback, contextual knowledge and coordinating are all essential for effective teaming. When several AI systems or agents are involved in workflows that depend on each other, such requirements can be crucial.

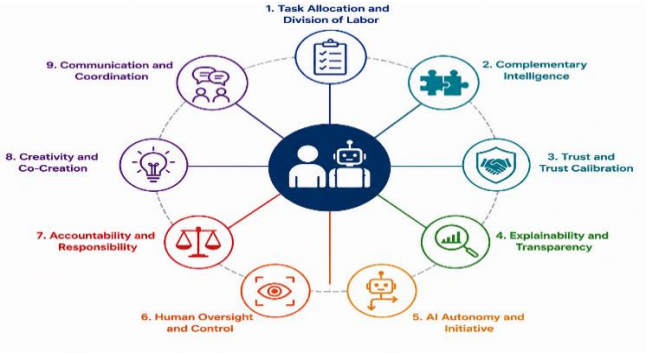

Fig. 5. Dimensions of Effective Human–AI Teaming.

As Figure 5 illustrates, effective teaming emerges from the interaction of these dimensions rather than from AI capability alone.

TABLE V. CRITICAL DIMENSIONS OF HUMAN–AI COLLABORATION.

Dimension	Human contribution	AI contribution	Key requirement
Task allocation	Judgment	Automation	Appropriate division
Complementarity	Context and creativity	Analysis and scale	Capability matching
Trust	Critical evaluation	Reliable outputs	Calibration
Explainability	Interpretation	Traceable reasoning	Transparency
Autonomy	Oversight	Initiative	Control boundaries
Accountability	Responsibility	Execution support	Clear attribution
Creativity	Direction	Idea generation	Human evaluation
Communication	Goals and feedback	Responses	Shared understanding

*B. **Benefits and Performance Outcomes***

Productivity and Efficiency

AI can eliminate repetitive analytical, administrative tasks and free up time for product and innovation professionals for more value-added tasks.

*2) **Decision Quality***

When outputs are critically evaluated, AI can present extra evidence, recognize patterns, and make comparisons – this can enhance decision quality.

*3) **Innovation Speed***

Rapid generation and automation can help to reduce the ideation, development, experimentation, and feedback cycles.

*4) **Create ideas and recognize the value of creativity.***

AI can expand the range of possibilities for individuals and teams, helping them venture beyond their first thought.

*5) **Organizational Learning***

Experiments, customers, and markets can be analyzed with AI on an ongoing basis, identifying and capturing knowledge and reusing it.

*6) **Product and Market Outcomes***

Better customer awareness, prioritization, experimentation, and adaptation can help enhance product decisions and responsiveness to the market.

TABLE VI. BENEFITS AND PERFORMANCE OUTCOMES OF HUMAN–AI COLLABORATION.

Outcome	Mechanism	Potential result
Productivity	Automation	Greater efficiency
Decision quality	Analytical support	Better-informed decisions
Innovation speed	Rapid generation/testing	Faster cycles
Creativity	Alternative generation	Greater idea diversity
Learning	Continuous analysis	Knowledge development
Market outcomes	Customer and market insights	Improved responsiveness

*C. **Risks, Challenges, and Failure Modes***

*1) **Algorithmic Bias and Data Limitations***

Your recommendations can derive from biased, incomplete and dated data.

*2) **Hallucination and Reliability***

The output of Generative AI may not be accurate or supported; it may need to be verified by humans.

*3) **Automation Bias and Overreliance.***

The users might not critically evaluate AI's recommendations.

*4) **Underthrust and Resistance***

If the experiences are negative or there is a lack of understanding, then the employees may refuse to use the helpful AI features.

*5) **A loss of human expertise.***

Over-automation can limit the development of domain expertise by professionals.

*6) **Creativity and Homogenization Risks***

Relying on AI-generated patterns can decrease originality and foster uniformity.

*7) **Privacy and Intellectual Property***

This could lead to worries about customer privacy, proprietary information, and the ownership of the generated content being used by AI.

*8) **Security and Strategic Risks.***

AI systems could also create new vulnerabilities, especially if linked to organizational data and operations.

*9) **Employee resistance to change and skill deficits are addressed.***

Adopting AI demands AI literacy, training, re-designed workflow and organizational acceptance.

*10) **MISSING: AI Agent Failure and Unintended Actions***

If objectives, permissions, and/or context are poorly specified, then autonomous agents can generate unexpected results. Effective monitoring and escalation systems are therefore crucial.

TABLE VII. RISKS AND MITIGATION STRATEGIES FOR HUMAN–AI TEAMING.

Risk	Potential consequence	Mitigation
Bias/data limitations	Poor decisions	Data validation
Hallucination	Misinformation	Human verification
Overreliance	Uncritical decisions	Trust calibration
Expertise loss	Skill erosion	Human involvement
Privacy/IP	Information exposure	Access controls
Security	Strategic harm	Monitoring
Agent failure	Unintended actions	Permissions and escalation

Human-AI teaming is a balance between AI efficiency and autonomy and human judgment, human oversight, accountability, and organization protection. These dimensions are even more relevant in the context of sustainable product strategy and innovation management due to the increasing capabilities and autonomy of AI.

VI. Decision Authority, Organizational Transformation, and Managerial Implications

As AI becomes more prevalent in product and innovation initiatives, it is altering decision-making processes and the parties involved in decision-making. With the development of AI from transmission to action, it's time for organizations to rethink decision-making, human oversight, professional roles, and organizational structures [26].

A. Evolution of Human–AI Decision-Making

1) Traditional Human-Centric Decision-Making

Traditional decisions require humans to set objectives, consider alternatives and make decisions, and the AI application will mostly supply information or analytical assistance. Consequently, there is still a high degree of human authority and accountability in decision making.

2) AI-Augmented Decision-Making

AI-augmented decision making is the practice of using AI to analyze information and make recommendations, but ultimately making the decision is a task for the individual. This model can help expand and accelerate analysis without altering the responsibility of the organization.

3) Shared Human–AI Decision-Making

Shared decision-making involves a continuous process of interaction and negotiation between humans and AI to assess the alternatives. AI offers predictions, scenarios, and recommendations; humans interpret, make ethical decisions, and set priorities.

4) AI-Initiated and Agentic Decision-Making

Agentic AI can autonomously detect opportunities, trigger experiments, suggest moves or perform predefined tasks. This is a departure from when AI followed human commands, to when AI acts within a set of goals and permissions.

5) Redistribution of Decision Authority

The shift from human decision-making to AI decision-making indicates a gradual distribution of decision-making power. The more autonomy AI has, the more clearly defined boundaries need to be set between authorization, monitoring, escalation and accountability as illustrated in Figure 6.

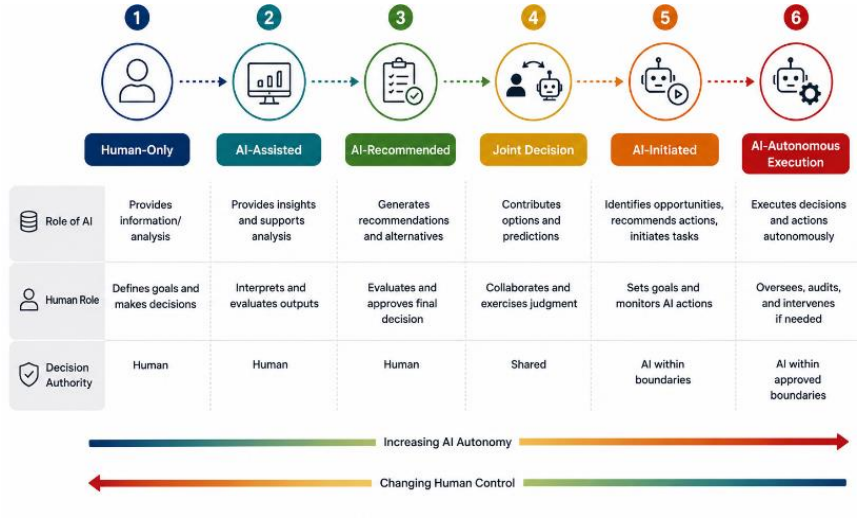

Fig. 6. Continuum of Human–AI Decision Authority.

B. Human Oversight Models

1) Human-in-the-Loop

Humans look at or approve AI outputs before consequential actions take place. This model is suitable for decisions where there is a high risk or when the decision is irreversible [27].

2) Human-on-the-Loop

AI runs more independently and humans manage and intervene when needed. This allows for efficiency and retains control of supervision.

3) Human-out-of-the-Loop

AI works autonomously, operating autonomously within a set of boundaries. This can be very efficient if adequately protected but needs a good protection system and established operational boundaries.

TABLE VIII. HUMAN OVERSIGHT MODELS IN AI-ENABLED PRODUCT DECISIONS.

Model	AI role	Human role	Control level
Human-in-the-loop	Recommends	Approves	High
Human-on-the-loop	Acts within limits	Monitors/intervenes	Medium
Human-out-of-the-loop	Executes autonomously	Governance	Low

C. Transformation of the Product Manager Role

1) From Information Consumer to AI Orchestrator

Product managers are evolving from data collection and processing to coordinating the AI systems that analyses markets, customers, competitors and product performance [28]. Focus on the overall strategy, skills, and tactics for task execution. Consider the overall strategy, skills and tactics of task execution.

With AI handling repetitive tasks, product managers can focus more on strategic decision-making, customer insights, prioritization, and ethical considerations, which are areas beyond the scope of automation.AI can handle repetitive tasks, freeing up time for product managers to engage in strategic decision-making, customer insights, prioritization, and ethical considerations, aspects that do not lend themselves to automation.

D. New Competencies for Product Professionals

The new wave of product professionals must be AI literate, Data literate, Prompt, Critical evaluative and strategic thinking and AI governance. Such skills can help practitioners leverage AI well but be mindful of its boundaries.

E. Organizations Redesign for human-AI teams.

Organizations might have to change workflows and team configurations to accommodate working with humans and AI. AI agents can be woven into research, design, development, and marketing and decision support processes, forming hybrid teams where roles are shared between humans and AI.

F. Managing AI Teammates

There are explicit roles, performance monitoring, feedback, escalation, and evaluation processes that must be established for managing AI teammates. Unlike traditional software, there may be a need for ongoing monitoring and fine-tuning of increasingly autonomous AI systems.

G. Implications for Innovation Leadership.

AI-powered experimentation and agility will need to be weighed against human judgment, accountability and governance in the context of innovation leaders. The product manager is becoming more of a conduit to link people, AI systems, organizational resources, and strategic goals.

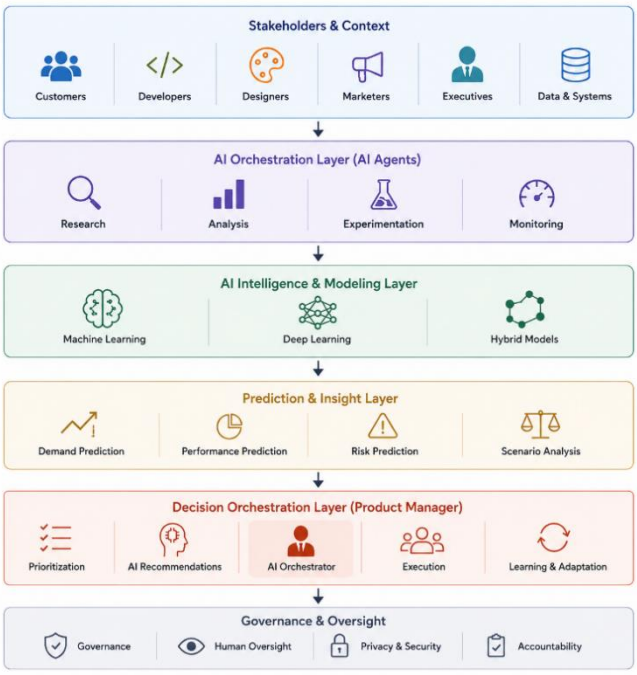

Fig. 7. The Emerging Role of the AI-Orchestrating Product Manager.

VII. Governance, Integrative Framework, and Future Research Agenda

There are governance considerations to be attended to, beyond the potential gains of making AI tools work together, when machine autonomy is increased. To enable effective human–AI teaming, boundaries need to be defined regarding accountability, transparency, privacy, decision authority, and human control. Concurrently, the literature reviewed shows relevant theory and research gaps related to the question of how humans and increasingly autonomous AI systems should work together. This section thus combines governance needs with the envisioned conceptual framework and agenda for future research.

1. Governance and Responsible human-AI collaboration.

There should be principles for the development, deployment, monitoring, and evaluation of AI systems in product and innovation processes defined in AI governance. Governance is not simply a compliance issue, but it is a part of the day-to-day decision-making

process and product development. Depending on the level of autonomy that AI has, organizations should establish guidelines for acceptable uses, decision thresholds, levels of risk, and who is responsible for the decision [29].

As AI transitions from making recommendations to making decisions and acting, when it comes to accountability, it grows more and more significant. It is essential that the organizations have a clear designation of who is responsible for AI assisted decisions, performance of the systems, and the consequences arising from these decisions. The level of AI independence should align with the risk of the task: If the task has a high impact or is irreversible, it might need human oversight, but if the task has a low impact and is reversible, it may be more suitable for AI to take more independent action.

In addition, transparency and auditability are paramount to responsible human-AI collaboration. Documentation and traceability, system logging and audit trail can enable the organizations to trace back when issues arise and understand how AI is helping to inform their decision making. Fairness, human welfare, unintended consequences and societal impacts must also be considered when considering ethical innovation. AI-generated recommendations may lead to ethical or strategic choices, making human judgment crucial, especially in such instances.

Other governance issues involve data privacy, intellectual property, and security, as AI systems could be handling sensitive information related to customers, the organization and proprietary data. However, autonomous AI agents need to be given more protection, such as having explicit permission boundaries, escalation protocols for when the AI gets it wrong or when it encounters something risky, monitoring and keeping records of what it does.

TABLE IX. GOVERNANCE REQUIREMENTS FOR AI TEAMMATES.

Requirement	Purpose
Transparency	Understand AI decisions
Accountability	Assign responsibility
Oversight	Maintain human control
Privacy	Protect sensitive data
Security	Reduce system vulnerabilities
Auditability	Trace AI actions
Autonomy limits	Control agent behavior
Escalation	Manage uncertainty and risk

B. Integrative Human–AI Teammate Framework

This study synthesizes the literature reviewed and suggests an Integrated Human–AI Teammate **Framework** for innovations and product strategy. The framework covers the interplay of human and AI capabilities, characteristics of the tasks, and organizational context, as they affect human–AI collaboration and the results.

The framework starts with four key inputs: human expertise, AI capabilities, task characteristics and organizational context. Such inputs affect collaboration processes like ‘task allocation, communication, coordination’, trust, explainability' etc. This then influences the autonomy and authority of AI, from assisting in decision making or recommending actions to co-deciding tasks, the AI is the first to act or the AI can make decisions [30].

This human–AI team has an impact on outcomes such as productivity, decision quality, creativity, innovation performance, strategic agility, and organizational learning. The framework is also governed and managed by humans, ensuring that AI autonomy aligns with the goals of the organization, ethical considerations, and accountability mechanisms.

C. Research gaps and future research agenda

The synthesis points to some avenues for future research. From a theoretical standpoint, there is a lack of integration between human–AI teaming and existing theories in product management, innovation management, organizational behavior, and team performance. In practice, the number of longitudinal and real-world studies that can shed light on the impact of AI teammates in the long term, on the role of employees, and on decision-making processes is still very small.

One specific category of research is 'agentic AI', which could be a major category for an AI Agent. Further research is needed on AI initiative, delegation between several agents, coordination between agents, autonomy in decision making, failure of the system and human control. Elucidation of further product and innovation decisions that should stay within human control and under what circumstances it is safe to delegate the authority to AI is also needed.

One of the other critical gaps is in the area of trust calibration. Further studies are needed to explore the conditions under which professionals should trust, validate or question AI-generated content based on the reliability of the AI system, the level of difficulty of the task and the associated risk. Likewise, the impact of generative AI on creativity in the long-term is an area of further research, as it may have impacts on originality, variety of ideas and homogenization of innovation.

Research and literature on governance need to be shifted from general principles to organizational models for autonomous AI agents' accountability, transparency, monitoring and permission management, and escalation. Lastly, cross-industry and cross-cultural research is required to understand the effect of organizational culture, regulation or laws, industry characteristics, and various forms of work on human–AI teaming.

TABLE X. FUTURE RESEARCH AGENDA.

Research area	Current gap	Research focus	Potential methodology
Theory	Limited integration	Human–AI teaming theory	Conceptual studies
Empirical evidence	Few longitudinal studies	Long-term outcomes	Case/field studies
Agentic AI	Limited evidence	Autonomy and failure	Experiments
Decision authority	Unclear boundaries	Human vs. AI control	Surveys/experiments
Trust	Calibration challenges	Appropriate reliance	Behavioral studies
Creativity	Long-term uncertainty	Originality and convergence	Experimental studies
Governance	Limited practical models	Responsible AI teaming	Case studies
Context	Cross-context differences	Industry and culture	Comparative research

In summary, the integrated analysis points to an approach that considers the potential outcomes of human-AI collaboration not solely based on the capabilities of the AI systems themselves. More focus is needed on the interplay between AI capabilities and human expertise, organizational structures, tasks, decision authority and governance. The proposed framework offers a basis for exploring these relationships and sets responsible human–AI teaming as a key emerging field of study in product strategy and innovation management.

VIII. Conclusion

This systematic review illustrates how the use of artificial intelligence for the development of product strategy and innovation management shifts from a traditional tool and assistant to a co-worker, a team member and, in part, an autonomous agent. AI can improve market and customer intelligence, opportunity identification, ideation, new product development, experimentation, evaluation and continuous learning across product strategy and innovation activities. But the value of AI is not just about the technology, the review says. When AI tools are used alongside human skills, experience, context, creativity, and strategy, it yields the best results.

The review also reveals that there are multiple interacting aspects that determine the nature of human–AI collaboration, such as task allocation, complementary intelligence, trust calibration, explainability, communication, autonomy, human oversight, and responsibility. As AI systems get the ability to start recommendations, experiments, and actions, the decision-making process can move from a human-only decision-making to shared and, in some cases, AI-initiated decision processes. Along with this transition comes the potential of improved efficiency, innovation velocity, decision support, and organizational learning, as well as risks of algorithmic bias, hallucination, automation bias, privacy, intellectual property, security, expertise loss, and autonomous actions that are not intended.

The Integrated Human–AI Teammate Framework, establishing a link between human and AI capabilities and task characteristics, organizational context, collaboration mechanisms, AI autonomy, decision authority, team outcomes, and governance, is one of the key outputs of this review. The framework highlights the need for a delicate balance of autonomy and control by AI and humans to achieve successful human–AI teaming. It also calls attention to the evolving nature of the product professional, who is becoming more of an AI orchestrator, tasked with managing and coordinating AI systems, human teams, organizational resources, and strategic goals in place.

An organization, therefore, must see AI adoption as more of a transformation than a mere implementation from a managerial standpoint. AI literacy, data interpretation, critical evaluation, strategic judgment, prompting, and AI governance are the new skills needed by product and innovation professionals. Meanwhile, there must be clarity around accountability, transparency, privacy, monitoring, permission boundaries, and escalation policies to deal with autonomous AI agents when they are part of work processes, both operational and strategic in nature.

In general, the shift from AI assistants to AI teammates marks a significant shift in the way work, intelligence, decision-making power and responsibility are distributed between people and machines. The future of product strategy and innovation management is therefore not going to rely on humans or AI working alone, but on how well they can be complemented and designed as effective, responsible, and complementary human-AI teams. Future research ought to go beyond assessing the performance of AI alone and explore the lasting effectiveness and sustainability of human-AI collaboration, considering the various factors of autonomy, trust, creativity, governance, organizational setting, and decision-making power.

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