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Examining the Impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour: An Empirical Study

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Abstract:

There was much apprehension about AI being introduced into employee management. But today, AI is revolutionizing workforce management and many organisations now are leveraging AI systems to allocate tasks, monitor productivity, create goals, and even facilitate decision-making that was traditionally done by humans. The tools are intended to give quicker and more reliable management, but they also bring up issues of employee-wide job freedom. This paper explores the impact of AI-based management practices on employee autonomy and innovative work behaviour, which is the ability of individuals to come up with, share and implement new ideas. It presents the idea that, based on recent studies, AI can either enhance or hinder innovation, depending on its application. AI can stimulate creativity by freeing up time for people to think creatively, rather than being trapped in repetitive tasks. At the same time, if it is used to monitor and direct people, it can lead to a reduction in the feeling of control, which in turn will reduce innovation. 201 employees were surveyed to explore the factors showing AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour. The study also measured the impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour. It is found that there is significant impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour.

Keywords: algorithmic management, artificial intelligence, employee autonomy, innovative work behaviour, work design

Introduction

In the past ten years, AI has transitioned from the outskirts of business to its core. It's not just for analysing data and automating back-office tasks anymore. AI systems have been used to determine, in many organisations, what work employees are expected to do, how they are judged on their work, when they do it, and in some instances, how much they are rewarded. An app routes orders to a delivery rider, a call centre agent receives coaching from an AI assistant on the fly, and a member of the office staff could get their work graded before a manager even reads it. What was previously a job for a supervisor is more a software job these days.

Human Resource Management has been among the fields most wanting to implement such tools, in hiring, evaluation and workforce planning, as explored by Tambe, Cappelli and Yakubovich (2019). They also state that though much less straightforward than other business queries, decisions regarding people can still be tricky for machines, particularly because the information necessary for the decision is often restricted and because the result of the decision is not always easy to fairly measure. Kellogg, Valentine and Christin (2020) have a more critical approach. They believe that algorithms provide organisations with new, more covert means to manage, assess and punish employees, creating an environment where control is negotiated and renegotiated at all times in the workplace.

Meanwhile, there is increasing research that AI can make work better. In a larger study of customer support agents, Brynjolfsson, Li and Raymond (2025) concluded that a generative AI assistant positively impacted productivity,

particularly for newer and less experienced employees. As such tools proliferate, Budhwar et al. (2023) suggest that the bigger picture questions for organisations are not about technology, but about people and how exactly to structure their work, which skills will be important and who is going to make decisions based on AI assistance.

The said tension is expressed in these two views. It's a paradox between automation — wherein machines take the place of manpower, and augmentation — wherein machines and manpower work together, says Raisch and Krakowski (2021). In their opinion, it is not feasible for organisations to select one over the other as the two are interrelated. In the field of management, it is a question that arises. Does AI make the job easier for the manager, or does it offer more freedom for the employee to rely on their own judgment, or less? It isn't likely to be the same in every workplace. This question is important because of the need of organisations for people. Companies rely on their staff to detect issues, offer solutions and experiment with current and future approaches. This innovative work behaviour is called as Research activity. Unlike routine tasks, it is not something that can be ordered or scheduled; it relies on people feeling trusted and empowered to act on their own ideas. It has a tendency to take root when people feel they have some control over the way they do their work, and employee autonomy is at its very core, which is why it is a key focus of this paper. But by removing control with AI, it can subtly undermine the very behaviours organisations want to foster. It would be possible for it to do just that, if given more space. The present paper thus focuses on the implications of AI-enabled management practices on employee autonomy and innovative work behaviour.

Literature Review

Bankins et al. (2024) has reviewed a significant amount of research around AI in organisations. The authors point out that it is a controversial topic. Some studies in the review highlight the potential of AI to improve work productivity and efficiency, while others emphasize the negative impacts of AI on workers. In the review, they find commonalities in a number of areas, including working with AI, attitudes towards AI, and how AI is leveraged to manage online work. The review reveals that the management by AI isn't a monolithic entity. It can be useful and effective as a colleague or as a strict disciplinarian, and that will depend on how it's implemented.

Gig platforms have been the focus of the most intensive study of the controlling side of the AI. In an attempt to get a glimpse into the lives of Uber drivers, Möhlmann et al. (2021) interviewed them. They discovered that platforms employ algorithms in two manners: one for pairing drivers with customers, and two to supervise and guide the way that functions are carried out. The most tension felt by drivers was around the manner of carrying out trips, pay and whether they actually were part of the organisation. Some did so by attempting to outwit the system, others to find the missing element of community the platform lacked. The study indicates that when employees are not flexible in their approach, and AI assumes the role of manager, they don't just conform. They're standing back and what they're doing is what they're doing to the system instead of what they're doing to the work. This was also discovered by Wood et al. (2019), but with a twist. They found that many workers in Southeast Asia and Sub-Saharan Africa were truly free, able to select their hours and the work they do. Nevertheless, their access to work was determined and regulated by the rating and ranking systems, which forced them to work long hours, sleep less and be alone. The worker might feel as though he or she is free, but not in fact. It is the felt autonomy that is at the heart of the present topic, since it is the felt kind which is likely to influence whether people take risks and try new ideas.

When AI doesn't seem to be a limitation at all, why does it diminish this feeling of freedom? One answer comes from Gal, Jensen and Stein's (2020) study on people analytics, which is the utilization of employee data to inform management decisions. They say that these systems tend to function in ways that people are blind to and unaware of, and can subtly influence the actions of workers to be more like this or that. This inhibits employees' ability to think for themselves and develop their job over time. Interestingly, the authors are not recommending that these tools be discontinued. They recommend that people think of AI as a fallible tool, and re-engineer the roles with it, meaning there is a problem with how AI is being used, but not with AI itself.

Parent-Rocheleau and Parker (2022) elaborate on this concept with an examination of algorithms as a new type of job designer. They demonstrate that algorithms are doing a lot of what traditionally has been managed by humans, such as monitoring, setting targets, managing performance, scheduling, determining salary and even

terminating jobs. All of them may work to either increase or decrease the resources that employees use, and autonomy is one of them. The authors state that algorithms are more likely to foster autonomy if they are transparent and considered fair and open to human input. At a broader level, Parker and Grote (2022) argue this. They advise against believing that technology shapes the nature of jobs, and say that the decision-making process surrounding the technological introduction of organisations is more important than ever. Consultations on the use of AI in the workplace should now focus on how it can be integrated into the workforce, rather than whether it is good or bad for it, according to the two papers.

Self-determination theory (SDT) explains the importance of autonomy in motivation. Gagné et al. (2022) suggest that the needs of people are most satisfied when they have a sense of autonomy, a sense of competence and a sense of connection with others, in the context of new technology. In their opinion, one of the most obvious instances in which the needs can be supported or violated is in the area of algorithmic management. Employees who are monitored and controlled at every turn are not likely to be motivated to innovate but to hit targets, a poor base for innovation.

There is a growing number of studies focused directly on the relationship between AI and innovation. The manner in which AI transformed their work assignments and the knowledge they needed for their jobs was related to their innovativeness at work, according to the employees surveyed by Verma and Singh (2022) in a high-tech workplace. This relationship, however, was contingent on the fear among employees of being displaced by AI. It means there is a valuable opportunity for AI to enrich the freedom it provides if employees feel confident to use it. Liang et al. (2022) came to a similar conclusion in a different way. They studied the effects of having employees who are aware of AI in the workplace and found that there were two opposing effects. It increased the intrinsic motivation of employees, which made them try to offer new services to customers, however it also made them emotionally exhausted, compromising their performance. The impact of the two effects was determined by how much employees thought and planned about the future. According to the study, conducted in conjunction with Verma and Singh, the same AI can be a blessing for some workers and a bane for others.

An AI system was used in a field experiment at a telemarketing firm to manage the initial part of every sales call and only transfer customers who were interested to human ones. This resulted in more complex and challenging conversations for the employees and many did more to create new and innovative selling techniques. But it was the more accomplished agents who benefited the most. The more challenging conversations were more difficult for less experienced agents, and they were not as successful in their development. Increasing the space for thinking is not sufficient by itself, as individuals must have the skills and confidence to take advantage of the space (Jia et al., 2024).

On the big picture, these studies agree. In an environment where AI is relied upon for close supervision and appraisal of workers, such as on gig platforms, greater dependency and closer monitoring can increase employees' sense of resistance to the system, which hinders productivity. By eliminating repetitive tasks and giving people more decisions to make, it can create room for new ideas as long as the employees feel safe and competent. There are also areas for further investigation. The vast majority of studies on control has been conducted in platform organisations, and most studies on support have been conducted in service and technology organisations, with few exceptions, so the two have not been studied together in the same organisation. Many studies only capture a single moment in time and autonomy is often assumed to be the connection between AI and innovation, but is rarely measured directly. These are gaps that an empirical research on management, autonomy and innovative work behavior using AI would fill.

Objective

1. To explore the factors showing AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour.
2. To measure the impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour.

Methodology

201 employees were surveyed to explore the factors showing AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour. The study also measured the impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour. "Random sampling method" and "Exploratory Factor Analysis" followed by "Multiple Regression Analysis" are used.

Findings

Male are 51.2 and rest 48.8% are females. 29.4% among them are below 27 years of age, 39.3% are between 27-37 years and rest 31.3% are above 37 years of age. 24.9% of them are graduate, 39.3% are postgraduate and rest 35.8% are having professional degree. 25.9% of the respondents are having the work experience of less than 4 years, 34.8% are working from 4-8 years, and rest 39.3% are working from more than 8 years.

"Table 1 General Details of Respondents"

"Variables"	**"Respondents"**	**"Percentage"**
Gender		
Male	103	51.2
Female	98	48.8
Total	**201**	**100**
Age (years)		
Below 27	59	29.4
27-37	79	39.3
Above 37	63	31.3
Total	**201**	**100**
Educational qualification		
Graduate	50	24.9
Postgraduate	79	39.3
Professional Degree	72	35.8
Total	**201**	**100**
Work experience		
Less than 4 years	52	25.9
4-8 years	70	34.8
More than 8 years	79	39.3
Total	**201**	**100**

"Exploratory Factor Analysis"

"Table 2 KMO and Bartlett's Test"

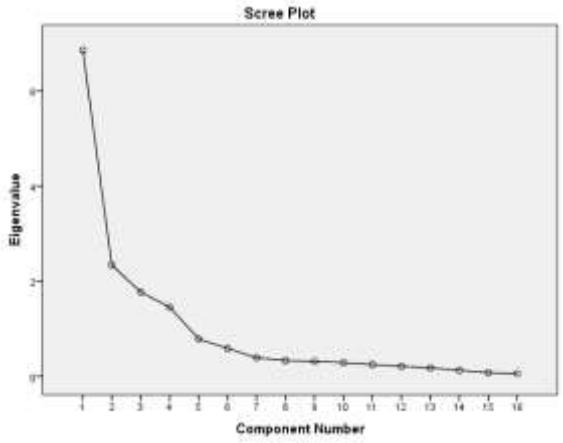
"Kaiser-Meyer-Olkin Measure of Sampling Adequacy"		.862
"Bartlett's Test of Sphericity"	"Approx. Chi-Square"	2658.375
	"df"	120
	"Sig."	.000

"KMO value" is 0.862 and the "Barlett's Test of Sphericity" is significant.

"Table 3 Total Variance Explained"

"Component"	"Initial Eigen values"			"Rotation Sums of Squared Loadings"		
	"Total"	"% of Variance"	"Cumulative %"	"Total"	"% of Variance"	"Cumulative %"
1	6.857	42.858	42.858	3.743	23.396	23.396
2	2.337	14.609	57.467	3.255	20.346	43.741
3	1.772	11.072	68.540	2.723	17.021	60.762
4	1.452	9.074	77.613	2.696	16.851	77.613
5	.785	4.909	82.522			
6	.586	3.660	86.182			
7	.389	2.432	88.614			
8	.330	2.064	90.678			
9	.314	1.962	92.640			
10	.287	1.793	94.433			
11	.244	1.528	95.961			
12	.210	1.311	97.271			
13	.176	1.099	98.370			
14	.127	.794	99.165			
15	.075	.469	99.633			
16	.059	.367	100.000			

In a "principal component analysis", 16 variables were grouped into 4 factors with 23.396%, 20.346%, 17.021% and 16.851% variance respectively and total variance is 77.613%.



"Figure 1 Scree plot of Eigen Values"

Figure 1 shows the "Eigenvalues" derived from the "Total Variance Explained" table, indicating an elbow point at 4 components.

"Table 4 Rotated Component Matrix"

	"Statements"	"Factor Loading"	"Factor Reliability"
	AI-Enabled Decision-Making		.950
	AI-driven management system helps the employee to make informed decisions	.872	
	Quality of employee decisions is improved with AI tools	.869	
	Time required to make the decisions is reduced	.863	
	Employees are able to find better solutions to issues related to work	.831	
	Performance Monitoring		.915
	AI system provides regular feedback on performance of the employees	.867	
	Help the employees to identify the area of improvement	.864	
	Provide information regarding work productivity of employees	.838	
	Encourage the employees to improve their work efficiency	.824	
	Employee empowerment		.862
	AI tools provide resources required for effectively job performance	.895	
	AI-based management practices encourage employees to take responsibility	.873	
	Supports employee to feel confident in handling complicated tasks	.834	
	Encourages employees to participate in taking decisions	.556	
	Creative Thinking		.825
13	AI driven practices encourage employees to generate new ideas	.849	
14	Help to develop innovative solutions to work related challenges	.834	
15	Motivate employees to experiment with methods of working	.797	
16	Encourages to suggest creative ideas to improve organizational performance	.640	

Factor "AI-Enabled Decision-Making" includes the variables like AI-driven management system helps the employee to make informed decisions, Quality of employee decisions is improved with AI tools, Time required to make the decisions is reduced and Employees are able to find better solutions to issues related to work. Factor "Performance Monitoring" consist of variables like AI system provides regular feedback on performance of the employees, help the employees to identify the area of improvement, provide information regarding work productivity of employees and encourage the employees to improve their work efficiency. Factor "Employee empowerment" includes the variables AI tools provide resources required for effectively job performance, AI-based management practices encourage employees to take responsibility, supports employee to feel confident in handling complicated tasks and Encourages employees to participate in taking decisions. Factor "Creative Thinking" consist of variables like AI driven practices encourage employees to generate new ideas, help to develop innovative solutions to work related challenges, motivate employees to experiment with methods of working and encourages to suggest creative ideas to improve organizational performance.

"Table 5 Reliability Statistics"

"Cronbach's Alpha"	"N of Items"
.900	16

"Table 6 Model Summary"

"Model"	"R"	"R Square"	"Adjusted R Square"	"Std. Error of the Estimate"
1	.659[a]	.435	.423	.62250
Predictors: (Constant), AI-Enabled Decision-Making, Performance Monitoring, Employee Empowerment and Creative Thinking				

0.423 is "adjusted R-squared value" with approx. 43% of the variation.

"Table 7 ANOVA"

"Model"		"Sum of Squares"	"df"	"Mean Square"	"F"	"Sig."
1	"Regression"	58.418	4	14.604	37.689	.000[b]
	Residual	75.950	196	.388		
	Total	134.368	200			
DV: Overall impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour						
Predictors: AI-Enabled Decision-Making, Performance Monitoring, Employee Empowerment and Creative Thinking						

Value under significant column indicates a significant relationship between the factors namely "AI-Enabled Decision-Making, Performance Monitoring, Employee Empowerment and Creative Thinking" and Employee Autonomy and Innovative Work Behaviour.

"Table 8 Coefficients"

"Model"	"Un standardized Coefficients"		"Standardized Coefficients"	"t"	"Sig."
	"B"	"Std. Error"	"Beta"		
(Constant)	3.781	.044		86.115	.000
AI-Enabled Decision-Making	.416	.044	.508	9.460	.000
Performance Monitoring	.125	.044	.153	2.845	.005
Employee empowerment	.303	.044	.369	6.877	.000
Creative Thinking	.107	.044	.130	2.426	.016
DV: Overall impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour					

All the factors "AI-Enabled Decision-Making, Performance Monitoring, Employee Empowerment and Creative Thinking" are showing significant impact on Employee Autonomy and Innovative Work Behaviour. Highest impact is shown by AI-Enabled Decision-Making (.508), Employee empowerment (.369), Performance Monitoring (.153) and Creative Thinking (.130).

Conclusion

AI has enabled organisations to deal with humans in ways that couldn't have been done 10 years ago. What this review shows, however, is that innovation is not a technological issue at all, but depends on the people who use the technology. The use of the way does. The same system can relieve people of tedious aspects of a task and enable them to spend more time on thinking, or it can monitor them and provide little room for their judgment. The point at which these two paths diverge is called Autonomy, and it is on whichever path this is taken, that innovation tends to follow. There's a little more than that, actually, and a not-so-obvious lesson. It is not very innovative to have freedom merely in theory. Employees should feel that there are choices available, that he or she will not be punished for trying something different, and that he or she will not be replaced by the same system he or she is working. They also have to be able to leverage the room AI provides. These conditions could otherwise increase efficiency, but take away what organisations rely on for creativity: their intuition.

This is where it becomes a challenge to managers, as implementing AI is actually a decision regarding individuals in addition to technology. Transparency about algorithms, employee questioning, and training are more likely to be important than the software itself. For researchers, it means a study of AI and employees, not in isolation one day in this corner of the literature, and the other in that corner the next. So the more AI can manage, the more crucial things humans have to decide regarding management. The innovation of workplaces will largely be determined by the extent to which organisations allow their people to let loose and not be constrained by what AI can do.

The study aimed to explore the factors showing AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour and measured the impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour. The study concludes that there is significant impact of AI-Driven Management Practices on Employee Autonomy and Innovative Work Behaviour.

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