

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

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Abstract:

This study explores the impact of incentives on fostering creative activity within the context of Algerian institutions, with a specific focus on the National Institute of Measurement and Control Devices (AMC) in El Eulma, Setif. The primary objective is to assess how theoretical concepts of incentives translate into practical outcomes in this setting. Additionally, the research delves into the differential effects of moral (non-material) and material incentives on creative activity enhancement. For this purpose, the AMC, a prominent Algerian economic institution, was selected as the study's focal point. The research identified multiple outcomes using SPSS, most notably the presence of a statistically significant influence of incentives on creative activities, with a significance level of ($\alpha \leq 0.05$).

key words: Motivations; Creativity; Incentives; Motivation system; Creativity capacities; Creative activity.

Introduction:

Economic, social, technological, and cultural changes in the world have gradually affected economic institutions, which have been obliged to keep pace with these changes and ensure that appropriate solutions are implemented thanks to their available material and, in particular, to their human resources. To increase the latter's competencies and abilities, there had to be a motivating factor that received considerable attention. Human resource management focuses on the need to motivate workers to benefit from their creative energies and ideas, contribute to their aspirations, provide all appropriate conditions and meet human needs, respect all individual and collective efforts and rights, and raise the level of the organization to become a creative and distinct organization.

Creativity is pivotal within organizations that rely on innovative strategies to navigate challenges and excel. These organizations must fully engage their tasks to achieve their goals, which are closely tied to enhancing the creative abilities of their human resources. Consequently, this leads to the formulation of the following problem:

- Is there any effect of incentives to develop the creative activity of the employees within the institution under study?

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The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

This problem leads to posing the following questions:

- Is there a statistically significant moral effect of material incentives at the level of significance ($\alpha \leq 0.05$) on the development of the employees' creative capacities within the institution in question?

- Is there a statistically significant moral effect of moral incentives at the level of significance ($\alpha \leq 0.05$) on the development of the employees' creative capacities within the institution in question?

Study hypotheses:

Main hypothesis: There is a statistically significant effect at the significance level ($\alpha \leq 0.05$) of incentives on the development of the creative activity.

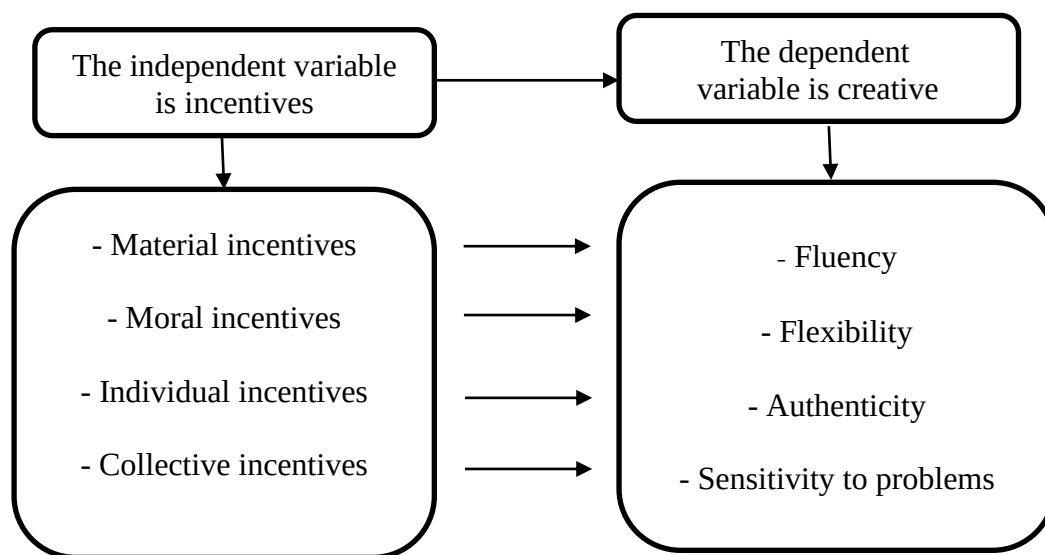
This main hypothesis is subsumed into the following sub-hypotheses:

- There is a statistically significant moral effect of material incentives at the level of significance ($\alpha \leq 0.05$) on the development of the employees' creative capacities within the institution in question.

- There is a statistically significant moral effect of moral incentives at the level of significance ($\alpha \leq 0.05$) on the development of the employees' creative capacities within the institution in question.

-Study model:

Figure No. 01: Search form



Source: Prepared by the researcher

THE FIRST TOPIC: Review of literature

(Chunyang & Dongsheng, 2023), explored the correlation between management incentives, team stability and corporate innovation performance through an empirical analysis of Chinese listed companies, highlighting the importance of leadership roles, reasonable salary

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

structures and long-term support for innovation¹. Evidence suggests that managerial incentives are significantly positively associated with organizational innovation performance, with team stability serving as a mediating factor in the impact of these incentives.

Supporting these findings, a study by (Khairunnisa, Irwandy, Ansariadi, & Mai)², explored the relationship between job satisfaction and both financial and non-financial incentives among hospital employees in South Sulawesi Province. Their research confirmed that both types of incentives are linked to employee job satisfaction within that region.

Furthermore, research by (Jiang, Wang, Ruilin, & Ou Liu, 2023)³, underscored the importance of individual motivation and the innovation climate, demonstrating that individual motivation directly enhances innovation performance, while innovative behavior mediates this relationship and innovation climate moderates the link between innovative behavior and innovation performance, (Carsten, Bernard, & Matthijs, 2023)⁴, highlighted the essential role of creativity in solving complex survival-related problems, discussing how neurocognitive factors like cognitive flexibility and perseverance are foundational to creative output.

Additionally, the paper discussed research indicating that fronto-striatal circuits innervated by dopamine play a role in the balance between persistence and cognitive flexibility

(Byun, 2022)⁵, emphasizes the importance of both extrinsic and intrinsic incentives in promoting corporate innovation. He showed that strong extrinsic incentives are effective when combined with strong intrinsic incentives. Also, the results challenge the notion that extrinsic and intrinsic incentives are substitutes rather than complementary in motivating innovation. (Speckbacher & Wabnegg, 2020)⁶, discussed the concept of recombinant innovation, discusses the importance of two key innovation behaviors, highlights the need for both explicit and implicit incentives, The study utilized survey data from the chemical and pharmaceutical sectors, correlating it with patent records to analyze innovation.

Key outcomes included the evaluation of both overt and subtle incentives in fostering innovation, the impact of various incentive contract structures on innovative behaviors, and the verification of synergistic effects of knowledge sharing and extended search strategies on

¹- Chunyang. Z, & Dongsheng. Z, Executive incentives, team stability and corporate innovation performance, Finance Research Letters, V 58 (Part D), 2023, PP 104-690. Available : <https://www.sciencedirect.com/science/article/abs/pii/S1544612323010620>.

² - Khairunnisa. A, Irwandy, Ansariadi, & Mai. A, The job satisfaction and incentive relation of hospital employees in South Sulawesi Province, Enfermería Clínica, V 30, (s.d), PP254-257.

³ - Jiang, S, Wang, J, Ruilin, Z, & Ou Liu, Innovation climate for individual motivation and innovation performance: Is innovative behavior a missing link? Journal of Innovation & Knowledge, V8, N4, 2023, PP 100-440. Available: <https://www.sciencedirect.com/science/article/pii/S2444569X2300135X>

⁴ - Carsten. K, Bernard. A, & Matthijs. B, Human creativity: Functions, mechanisms, and social conditioning, Advances in Experimental Social Psychology, Academic Press, V69, 2024, PP 203-262. Available: <https://www.sciencedirect.com/science/article/pii/S0065260123000291>.

⁵ - Byun. S, The role of intrinsic incentives and corporate culture in motivating innovation, Journal of Banking & Finance, V 134, 2022, PP 106-325. Available: <https://www.sciencedirect.com/science/article/pii/S0378426621002764>.

⁶ - Speckbacher. G, & Wabnegg. M, Incentivizing innovation: The role of knowledge exchange and distal search behavior, Accounting, Organizations and Society, V 86, 2020, PP101-142. Available: <https://www.sciencedirect.com/science/article/pii/S0361368218302010>.

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

innovation efficacy. (Andreas Saether, 2019)⁷, research further assessed the significance of innovative work behavior (IWB) within organizations, finding that employees with a strong alignment between personal and organizational values exhibit higher self-driven motivation and more frequent IWB. The study also sheds light on the dynamics between person-organization (PO) compatibility, motivation, and behavior, proposing that self-directed motivation might bridge the relationship between person-organization (PO) fit and its related outcomes.

THE SECOND TOPIC: Incentives and Creativity

In this section, we aim to explore the relationship between incentives and creativity. We will discuss the various concepts related to each element, detailing both the types of incentives available and the creative capacities of individuals.

FIRST REQUIREMENT: Incentives and Creative abilities

Firstly: Definition and types of incentives

Incentives are pivotal in motivating employees to excel, aligning their efforts with the organization's objectives. This section explores the definition, significance, and various forms of incentives.

Incentives can be described as a blend of factors and methods employed by an organization to influence its staff's behavior, encouraging them to enhance their effort both in quantity and quality⁸. This improvement leads to increased production, reduced labor costs, heightened morale, and worker satisfaction.

Linder (1998) conceptualize incentives as an internal drive within individuals, spurring them to engage in specific activities or behaviors to achieve set goals.⁹

Broadly, incentives encompass both material and moral tactics used by institutions to boost individual morale, satisfy needs, and drive efficient activity to meet predefined objectives.¹⁰

The significance of incentives lies in their ability to monitor and measure workers' productivity¹¹, link compensation to output, and motivate employees based on their efforts,

⁷ - Andreas Saether. E, Motivational antecedents to high-tech R&D employees' innovative work behavior: Self-determined motivation, person-organization fit, organization support of creativity, and pay justice, The Journal of High Technology Management Research, V30, N2, 2019, PP 100-350. Available: <https://www.sciencedirect.com/science/article/pii/S1047831019300124>.

⁸ - Hammermann. A, Mohnen. A, The price of hard work: Different incentive effects of non-monetary and monetary prizes, Journal of economic psychology, V43, 2014, PP 1-15. Available: <https://www.sciencedirect.com/science/article/pii/S0167487014000221>

⁹ - Chatzopoulou. A, Vlachvei. A, Monovasilis. T, Employee's Motivation and Satisfaction in light of Economic Recession: Evidence of Grevena Prefecture- Greece, Procedia Economics Finance, V24, 2015, PP 136-145. Available: <https://www.sciencedirect.com/science/article/pii/S2212567115006334>

¹⁰ - Bowen. D, Ostroff. C, Understanding HRM-Firm performance linkages: the role of the strength of the HRM system, Academy of Management Review, V29, N2, 2004, PP 203-221. Available: <https://www.researchgate.net/publication/234021376>

¹¹ - Shafini. N, Zaidee. M, Zahari. A, Rapidah. S, Salleh. S, Relationship between Employee Motivation and Job Performance: A Study at University Technology MARA (Terengganu), Mediterranean. Journal of Social Sciences MCSER Publishing, V6, N4, 2015, PP 632-637.

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

thereby fulfilling their needs and enhancing satisfaction.¹² Incentives vary, reflecting the diversity of human needs, The key types include:¹³

1- Material incentives: These are financial or tangible rewards aimed at directly or indirectly boosting production. They include allowances, profit sharing, occupational and social insurance, with salary being a primary material incentive¹⁴.

2- Moral incentives: These rewards recognize career excellence and may include authority delegation, awards, administrative participation, promotion, holidays, a positive work environment, written recognition, gifts, and social events.¹⁵

3- Positive incentives: Focused on the reward principle, these incentives address workers' needs and motives to enhance and improve quality and creativity.

4- Negative incentives. These are based on punitive measures, such as disciplinary actions, to influence behavior.¹⁶

5- Individual incentives: Tailored to individual performance, these can be positive or negative, material or moral.

6- Collective incentive: Aimed at promoting teamwork and cooperation, ensuring that individual efforts complement each other.¹⁷

7- Internal incentives. These derive from personal satisfaction with the job, such as pride in one's work or belonging to a prestigious organization.

8- External incentives: External to the job itself, these include material rewards, additional benefits, profit sharing, encouragement, and peer appreciation.¹⁸

On the other hand, Creativity a subject of widespread attention in management studies, lacks a universally accepted definition¹⁹, leading to a multitude of interpretations by researchers.²⁰

¹² - Anghelache. A, A possible explanatory model for the relationship between teaching motivation and job satisfaction, *Procedia – Social and Behavioral Sciences*, V180, 2015, PP 235-240. Available: <https://www.sciencedirect.com/science/article/pii/S187704281501441X>.

¹³ - Mehta. R., Dahl. D, Zhu. R, Social-recognition versus financial incentives? Exploring the effects of creativity- contingent external rewards on creative performance, *Journal of Consumer Research*, V44, N3, 2017, PP 536-553. Available: <https://doi.org/10.1093/jcr/ucx062>.

¹⁴ - Selsel. C, The impact of incentives on job satisfaction, *Journal of the University of Research. University of Tartous*, V38, N01, 2016, PP 129-130.

¹⁵ - Hezekiah Olubusavo. F, incentives packages and Employees Attitudes to work: A study of selected government parastatals In Ogun state, south-west. *international journal of research in business and social science*, V3, N01, 2014, PP 63-74. Available: <https://www.researchgate.net/publication/267510817>

¹⁶ - Hamad al-Fateh. M, al-Maghribi. B, *Human Resources Management*, University Publishing House, Egypt, 2013, P168.

¹⁷ - Mahmoud Hassan, *Principles of Modern Management Science Iraq*, Book and Documentation House Diyala University, Iraq, 2014, P125.

¹⁸ - Lee. M, Raschk. R, Understanding employee motivation and organizational performance: Arguments for a set-theoretic approach, *Journal of Innovation & Knowledge*, V1, N3, 2016, PP 162–169. Available: <https://www.sciencedirect.com/science/article/pii/S2444569X16000068>

¹⁹ - Hennessey. B, Amabile. T, Creativity, *Annual Review of Psychology*, V61, 2010, PP 569-598. Available: <https://doi.org/10.1146/annurev.psych.093008.100416>

²⁰ - Shalley. C, Zhou. J, Oldham. G, The effects of personal and contextual characteristics on creativity: Where should we go from here?, *Journal of management.*, V30, N06, 2004, PP 933-958. Available: <https://www.researchgate.net/publication/234021892>.

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

Secondly: Creativity and creative abilities

Also, creativity is often conceptualized as the implementation of novel ideas within or outside an organization²¹.

These ideas could pertain to products, processes, systems, or other aspects and are considered new to the organization upon their initial application²².

Guilford views creativity as a set of abilities indicative of creative individuals, determining their capacity for creative behavior²³. From an institutional perspective defines it as the undertaking of new projects encompassing design, development, negotiation, and risk to generate future profits.²⁴

Overall, creativity can be seen as a human activity that amalgamates new, unique, and useful ideas, whether generated individually, by a group, or by an organization, to fulfill needs or solve problems.

Given the diverse concepts of creativity, its elements vary, providing a comprehensive understanding of what constitutes creative thinking. These elements include.²⁵

1- Fluency: Fluency is understood as an individual's capacity to generate a substantial number of ideas, surpassing the general average, within a designated timeframe. It is often considered the foundation of creative ability .

a .Verbal fluency: This is characterized by the effortless production of words under specific compositional conditions, where the meaning of the words is not the primary focus.

b .Associational fluency: It refers to the quick generation of words that are linked by a shared meaning or another characteristic.

c .Figural fluency: This involves the rapid creation of multiple examples, illustrations, or compositions based on provided figures or visual elements.

d .Ideational fluency: This is the ability to generate a wide range of relevant ideas in a limited time frame, particularly in relation to a specific problem or stimulating situation.

e .Expressional fluency: It denotes the capacity for rapid thought in formulating connected and coherent words, leading to the creation of linguistic combinations.

2- Flexibility: This is the ability to offer a variety of ideas, avoiding fixation on a single solution type or a singular approach to problem-solving. It entails continuous shifts in meaning, interpretation, and application.

3- Originality: Originality refers to an individual's ability to generate rare and generally accepted ideas, essentially producing what is novel or unconventional.

²¹ -Sariyatull. I, Mahfud. S, The effect of Incentives and leadership styles on creative performance, journal of Indonesian Economy and Businesse, V36, N01, 2021, PP 14-30. Available: [https:// DOI: 10.22146/jieb.59893](https://doi.org/10.22146/jieb.59893).

²² - McLean. L, Organizational culture's influence on creativity and innovation: a review of the literature and implications for human resource development, Advances in developing human resources, V7, N02, 2005, PP 226-246. Available: <https://doi.org/10.1177/1523422305274528>

²³ - Diri. Z, Regulatory conduct, Dar al-Massira for publishing, distribution, and printing, Oman, 2011, PP 297-298.

²⁴ - François. R, the management of innovation modeling testing from a systemic perspective (PhD thesis), Central School of Arts and Manufactures, Paris, 2003, P 35. Available: <https://theses.hal.science/tel-00009312>.

²⁵ - Swidan. T, al-Adlouni. M, Principles of creativity, In Arabic: Cordoba Publishing and Distribution, V 3, Syria, 2004, PP 56-59.

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

4- Sensitivity to problems: This element involves an individual's aptitude for identifying and engaging with specific situations that encompass one or more problems. It includes the capacity to recognize errors and deficiencies, essentially sensing underlying issues in a scenario.

SECOND REQUIREMENT Studying the role of incentives in the development of creative abilities

To explore the role of incentives in creative endeavors, this research employs an analytical descriptive framework. This methodological choice facilitates an exhaustive collation and scrutiny of data germane to the posed research question.

For the empirical dimension of the study, a case study approach was adopted, centering on the National Institute of Measurement and Control Devices (AMC) located in Algeria.

Firstly: Definition of the National Institute of Measurement and Control Devices (AMC)

The National Institute of Measurement and Control is one of the most important and oldest economic projects in the state of Setif and the only one of its kind in Africa, where it is constantly evolving in Algeria. It was created after the structure that affected the Sonelgaz Foundation according to Decree No. 93/663 dated 05 November 1983. It is considered a joint-stock company.

Furthermore, The National Institute of Measurement and Control (AMC) is located in the State of Setif, where the counters unit is located south of the city of El Eulma. The decision to establish the institution was made in 1975 with Sonelgaz ensuring its completion. Starting in 1976, the National Institute of Measurement and Control (AMC) came into being after the restructuring of the membership that affected the parent foundation Sonelgaz by Executive Decree No. 83/633 of 05/02/1983.

1- Sample: Consisted of employees from the National AMC Foundation, with a random selection of 55 participants from various roles including officials, supervisors, and agents. Out of 65 distributed questionnaires, 55 were returned and analyzed.

The empirical investigation hinged on the deployment of a structured questionnaire, meticulously designed to capture the nuanced perspectives of AMC employees regarding the interplay between incentives and creativity. This study primarily investigates the impact of incentives on employee creativity within the AMC Foundation, focusing on the following core question: Does incentivization enhance the creative capabilities of the employees?

Additionally, the research specifically seeks to determine

-Is there a statistically significant moral effect of material incentives at the level of significance ($\alpha \leq 0.05$) on the development of the employees' creative capacities within the institution in question?

-Is there a statistically significant moral effect of moral incentives at the level of significance ($\alpha \leq 0.05$) on the development of the employees' creative capacities within the institution in question?

Main hypothesis. There is a statistically significant effect at the significance level ($\alpha \leq 0.05$) of incentives on the development of the creative activity.

This main hypothesis is subsumed into the following sub-hypotheses .

-There is a statistically significant moral effect of material incentives at the level of significance ($\alpha \leq 0.05$) on the development of the employees' creative capacities within the institution in question.

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

- There is a statistically significant moral effect of moral incentives at the level of significance ($\alpha \leq 0.05$) on the development of the employees' creative capacities within the institution in question.

2- Validity and reliability test: The development and validation of the questionnaire underwent a comprehensive review to ensure its validity and alignment with the study's goals. Initially, organizational experts evaluated the questionnaire for clarity, accuracy of questions, and relevance to the objectives, establishing its content validity. The reliability was then confirmed using SPSS to analyze its internal consistency, revealing Alpha Cronbach coefficients ranging from 0.855 to 0.949 for different sections, well above the accepted minimum of 0.6, with an overall reliability coefficient of 0.950. This high level of reliability indicates the questionnaire's consistency in measuring the intended variables.

This analysis revealed Pearson Correlation coefficients ranging from 0.639 to 0.841 across different sections, all with significance values below 0.05, demonstrating robust statistical reliability.

3- Validity of the structural consistency: validation through SPSS showed significant correlations between the various axes of the questionnaire and the overall structure, with coefficients between 0.639 and 0.841, affirming the structural consistency of the instrument."

Secondly: Description of study sample properties:

The demographic analysis of the study sample highlighted a male predominance, with males constituting 58% (32 participants) and females 41.8% (23 participants), reflecting the gender distribution within the sample. Profession-wise, the sample was almost equally divided among officials and executive agents, each representing 36.4% of the participants, while supervisors accounted for 27.3%.

This demographic distribution provides a comprehensive overview of the sample's characteristics, ensuring a diverse representation of perspectives within the findings.

University graduates constituted the next significant group at 30.9%, illustrating a substantial representation of tertiary education. Conversely, participants with education levels below middle school and those at the middle school level accounted for smaller portions of the sample, 14.5% and 9.1% respectively, highlighting a trend towards higher educational attainment among the participants.

Work experience among the participants showcased a diverse range, with the largest group, 29.1%, possessing between 5 to 10 years of experience. This was closely followed by those with less than 5 years of experience, representing 27.3% of the sample.

A noteworthy 20% of participants had accumulated more than 20 years of experience, indicating a significant presence of long-term professionals within group. Employees with 10 to 15 years of experience accounted for 14.5% of the sample, while those with 15 to 20 years made up 9.1%, showing a diversity in tenure lengths among the workforce. This distribution underscores the breadth of professional experience within the study sample, ranging from novices to seasoned veterans.

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

Tables (1): Shows the distribution of participants according to the gender variable

		Frequency	Percentage %
Gender	Male	32	58.2%
	Female	23	41.8%
	Total	55	100%

Source: prepared by author using (SPSS V 25, 2022).

The composition of the study's sample revealed a gender skew, with males representing 58.2% (32 participants) and females 41.8% (23 participants). This disparity is attributed to the institutional roles targeted by the study, which typically are male-dominated due to the demanding nature of these positions that often involve extensive travel, numerous meetings, and critical responsiveness to time-sensitive tasks.

Tables (2): Shows the distribution of participants according to the profession

		Frequency	Percentage %
Profession	Official	20	36.4%
	Supervisor	15	27.3%
	Executive agent	20	36.4%
	Total	55	100%

Source: prepared by author using (SPSS V25, 2022).

The distribution of the study's participants was balanced among officials and executive agents at 36% each, with supervisors comprising 27%.

Tables (3): Shows the distribution of participants according to the educational

		Frequency	Percentage %
Educational qualification	Bellow middle school level	8	14.5%
	Middle school level	5	9.1%
	High school level	25	45.5%
	University level	17	30.9%
	Total	55	100%

Source: prepared by author using (SPSS V25, 2022).

According to the table above, the majority of the sample (25 participants) have high school level by (45%), followed by a university-level by (30%), while middle school level and below middle school have close ratios; 9% and (14%), respectively.

From this standpoint, we find that the institution relies on individuals with university degrees to fill senior positions, that is individuals with higher educational levels. In other cases, these

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

positions are granted to individuals with long work experience who do not possess university degrees.

1- Study hypotheses testing: The central hypothesis investigated the effect of incentives on creative activities at the National Institute of Measurement and Control Devices:

Tables (4): Variance analysis of regression to verify the model validity to test the main hypothesis

//	Sum of Squares	Freedom degree	Mean square	Significance level (F)	Sig
Regression	6.974	1	6.974	9.756	0.003
Error	37.889	53	0.7150	*: statistically significant ($\alpha \leq 0.05$)	
Total	44.864	54	//		

Source: prepared by author using (SPSS V25, 2022).

The analysis employed the Fisher Test to assess the relationship between the dependent and independent variables. A significant F-value of 9.756 with a significance level of 0.003, well below the 0.05 standard, validated the hypothesis, indicating that the model is appropriate for hypothesis testing (referenced in Table 4).

Tables (5); Simple linear regression analysis to test the main hypothesis

Variable	Coefficients	Standard error	Regression coefficient	T value	(Sig)
Constant	2.213	0.363	//	6.098	0.000
Incentives	0.408	0.131	0.3940	3.123	0.003
Determination coefficient (R ²)	0.155	Simple regression equation: $Y = 2.213 + 0.408$			

Source: prepared by author using (SPSS V25, 2022).

The T-test, with a calculated value of (3.123) at a significance level of (0.003) (which is below the accepted threshold of 0.05), demonstrates that incentives influence the development of creative activity at the National Institute of Measurement and Control Devices. This is further evidenced by the positive regression coefficient (0.394) and the determination coefficient (R²=0.155) (Table 5).

These results indicate that variations in incentives account for (15.5%) of the changes in creative activity development, with the remaining (84.5%) potentially explained by other factors.

The analysis revealed a statistically significant and meaningful correlation between the variables examined. Consequently, the null hypothesis (H₀) is rejected in favor of the alternative hypothesis (H₁), affirming a substantial influence of incentives on enhancing creative activity at the National Institute of Measurement and Control Devices.

- The hypothesis is structured to determine the statistical impact of incentives on creativity within the institute at a significance level ($\alpha \leq 0.05$).

- Null Hypothesis (H₀): Incentives do not have a statistically significant impact at the significance level ($\alpha \leq 0.05$) on the development of creative activity at the National Institute of Measurement and Control Devices.

- Alternative Hypothesis (H₁): Incentives have a statistically significant impact at the

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

significance level ($\alpha \leq 0.05$) on the development of creative activity at the National Institute of Measurement and Control Devices.

Tables (6): Variance analysis of regression to validate the model to test the first sub-hypothesis

//	Sum of Squares	Freedom degree	Mean square	Significance level (F)	Sig
Regression	0.869	1	0.869	1.047	0.311
Error	43.995	53	0.830	*: statistically significant ($\alpha \leq 0.05$)	
Total	44.864	54	//		

Source: prepared by author using (SPSS V25, 2022).

The table's data validate the model for testing the sub-hypothesis using the Fisher test, where the calculated F-value was 1.047 with a significance level of 0.311, surpassing the threshold of 0.05 (Table 6).

Tables (7): Simple linear regression analysis to test the first sub-hypothesis

Variable	Coefficients	Standard error	Regression coefficient	T value	(Sig)
Constant	3.591	0.3190	//	11.256	0.000
Material incentives	-0.104	0.102	-0.139	-1.023	0.311
Determination coefficient (R ²)	0.019	Simple regression equation: $Y = 3.591 - 0.104X$			

Source: prepared by author using (SPSS V25, 2022).

The statistical analysis reveals that material incentives do not significantly influence the development of creative activity at the National Institute of Measurement and Control Devices. This conclusion is drawn from the T-test, which yielded a value of (-1.023) at a significance level of (0.311) (Table 7). This level exceeds the acceptable threshold of 0.05, indicating a lack of statistical significance.

Further, the negative regression coefficient of (-0.139) and a determination coefficient ($R^2 = 0.019$) suggest that changes in material incentives account for only (1.9%) of the variance in creative activity within the institution (Table 7). This minimal impact demonstrates that material incentives are not a major driver of creativity among the employees.

This indicates no statistically significant relationship between material incentives and creative activity, leading to the acceptance of the null hypothesis (H_0) and rejection of the alternative hypothesis (H_1). This result confirms that material incentives do not significantly affect creative activity development at the National Institute of Measurement and Control Devices.

For the second sub-hypothesis regarding moral incentives:

- The hypothesis is formulated to assess the impact of moral incentives on creativity at a significance level of ($\alpha \leq 0.05$).

-The null hypothesis (H_0): There is no statistically significant effect at the significance level ($\alpha \leq 0.05$) of moral incentives on the development of creative activity in the National Institute of Measurement and Control Devices.

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

-The alternative hypothesis (H1): There is a statistically significant effect at the significance level ($\alpha \leq 0.05$) of moral incentives on the development of creative activity in the National Institute of Measurement and Control Devices.

Tables (8): Variance analysis of regression to validate the model to test the second sub-hypothesis

//	Sum of Squares	Freedom degree	Mean square	Significance level (F)	Sig
Regression	9.435	1	9.435	14.114	0.000*
Error	35.429	53	0.668	*: statistically significant ($\alpha \leq 0.05$)	
Total	44.864	54	//		

Source: prepared by author using (SPSS V25, 2022).

The analysis of the second sub-hypothesis, verified through the Fisher test, demonstrated a calculated F-value of 14.114 and a significance level of 0.000, well below the threshold of 0.05

Tables (9): Simple linear regression analysis to test the second sub-hypothesis

Variable	Coefficients	Standard error	Regression coefficient	T value	(Sig)
Constant	2.414	0.258	//	9.361	0.000*
Moral incentives	0.360	0.096	0.459	3.757	0.000*
Determination coefficient (R ²)	0.210	Simple regression equation: $Y = 2.414 + 0.360X$			

Source: prepared by author using (SPSS V25, 2022).

Based on the statistical findings presented in the table, it can be concluded that moral incentives exert a significant influence on creative abilities within the institution under investigation. This conclusion is drawn from the calculated T-value, which stands at (3.757) and is associated with a significance level of (0.000*), notably lower than the permissible error threshold of (0.05) (Table 9).

This analysis confirms a statistically significant influence of moral incentives on the enhancement of creative activity at the National Institute of Measurement and Control Devices, as indicated by the positive regression coefficient of 0.459. The determination coefficient (R²) of 0.210 implies that variations in moral incentives explain 21% of the changes in creative activity, with the remaining 79% due to other factors (referenced in Table 9).

Thus, the empirical evidence supports the existence of a statistically significant and positive correlation between moral incentives and creative activity development within the institution, leading to the rejection of the null hypothesis (H0) and acceptance of the alternative hypothesis (H1) that moral incentives significantly impact creative activity advancement.

Conclusions:

Incentives are crucial in organizations that prioritize human resource competencies. In today's dynamic landscape, many organizations strive to evolve and excel, aiming to bolster their competitiveness and deliver products that not only meet but surpass the demands of a rapidly

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

changing creative environment. The Foundation, in its commitment to fostering creativity, employs various strategies to enhance the creative activity of its workforce. Among these strategies, the development of a highly efficient incentive system stands out as a critical component applied to the employees of the foundation.

Our comprehensive study on this subject has yielded several noteworthy findings:

- There is a statistically significant effect of incentives on the development of creative activity in the AMC institution.
- However, material incentives lack a significant impact on creative activity enhancement as perceived by employees, while moral incentives are effective in driving institutional goals. This does not imply a lack of material incentives within the institution; rather, it underscores the institution's commitment to fostering innovation through a motivational strategy. This strategy aims to elevate motivation levels and stimulate creativity by establishing a system of material incentives targeted at employees who contribute novel ideas and creations within the institution. Through this approach, the institution strives to inspire employees capable of initiating change and innovation.
- There is a statistically significant effect of moral incentives on the development of creative activity in AMC.
- Incentives emerge as the most effective means for an institution to nurture an individual's morale and creativity.
- The significance of incentives in achieving a competitive advantage cannot be overstated.
- The motivation framework involves three key elements: the individual, their role, and the nature of the job.
- Both material and moral incentives are vital for addressing the varied needs of employees.
- Innovation relies on the creation of novel and original ideas.
- Institutions face substantial creative demands in their pursuit of goals, reputation enhancement, and elevated status.
- Creative abilities encompass key elements such as fluency, flexibility, authenticity, and sensitivity to problems.
- Leaders, in their motivational roles, actively contribute to the development of their subordinates' creative activity by providing encouragement and opportunities.

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- List of appendices

Appendix No. 01 : Questionnaire

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

Incentives						
Degree of approval					Phrase	
not agree at all	not agree	not sure	OK	Very agree		
Material incentives						
					The pay you receive matches your qualifications.	01
					The wage you receive is proportional to your effort.	02
					The wage you receive meets your needs.	03
					You benefit from the multiple insurances provided by the organization.	04
					You are offered bonuses, bonuses, and gifts according to your performance.	05
Moral incentives						
					You get promotions as a result of your best performance	06
					I have a reasonable opportunity to participate in decision-making	07
					Providing you with thanks and appreciation from your superiors	08
					Delegating authority and granting powers at work contributes to developing your skills at work	09
					It provides you with the appropriate atmosphere and all work requirements	10
Individual incentives						
					The organization offers rewards only to outstanding workers	11
					The organization has special bonuses for each worker according to his performance.	12
					The best worker receives praise and support from his superiors	13
					The promotions granted are proportional to my effort and qualifications	14

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

					There is mutual trust between me and the officials	15
Collective incentives						
					Responds to workers' requests and needs to encourage them to work.	16
					The organization encourages teamwork and offers group benefits to all employees	17
					The organization provides training courses for workers.	18
					The organization takes care when making decisions with the participation of work groups	19
					The president is keen to develop team spirit	20

Appendix No. 0 2: Cronbach's alpha coefficient results

Case Processing Summary

		N	%
Cases	Valid	55	100,0
	Excluded ^a	0	,0
	Total	55	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
,939	5

Reliability Statistics

Cronbach's Alpha	N of Items
,932	5

Reliability Statistics

Cronbach's Alpha	N of Items
,915	5

Reliability Statistics

Cronbach's Alpha	N of Items
,855	5

Reliability Statistics

Cronbach's Alpha	N of Items
,940	20

Reliability Statistics

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

Cronbach's Alpha	N of Items
,949	19

Reliability Statistics

Cronbach's Alpha	N of Items
,950	39

Appendix No. 03: Structural consistency results for the study sample

Correlations

		First dimension	second dimension	third dimension	fourth dimension	The first axis
First dimension	Pearson Correlation	1	,332*	,390**	,233	,639**
	Sig. (2-tailed)		,013	,003	,086	,000
	N	55	55	55	55	55
second dimension	Pearson Correlation	,332*	1	,736**	,708**	,866**
	Sig. (2-tailed)	,013		,000	,000	,000
	N	55	55	55	55	55
third dimension	Pearson Correlation	,390**	,736**	1	,710**	,881**
	Sig. (2-tailed)	,003	,000		,000	,000
	N	55	55	55	55	55
fourth dimension	Pearson Correlation	,233	,708**	,710**	1	,809**
	Sig. (2-tailed)	,086	,000	,000		,000
	N	55	55	55	55	55
The first axis	Pearson Correlation	,639**	,866**	,881**	,809**	1
	Sig. (2-tailed)	,000	,000	,000	,000	
	N	55	55	55	55	55

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		The first axis	The second axis	All questionnaire
The	Pearson Correlation	1	,394**	,829**

The Role of Incentives in Fostering Creative Activity among Employees of Algerian Institutions: A Case Study the National Institute of Measurement and Control Devices (AMC) in Algerian

first axis	Sig. (2-tailed)		,003	,000
	N	55	55	55
The second axis	Pearson Correlation	,394**	1	,841**
	Sig. (2-tailed)	,003		,000
	N	55	55	55
	Pearson Correlation	,829**	,841**	1
All questionnaire	Sig. (2-tailed)	,000	,000	
	N	55	55	55

** . Correlation is significant at the 0.01 level (2-tailed).