How to Cite:

Alkharabeh, A. A. (2022). The impact of innovative leadership on enhancing productive entrepreneurship: An applied study to solid waste treatment projects in Jordan. *International Journal of Health Sciences*, 6(S8), 3222–3254. https://doi.org/10.53730/ijhs.v6nS8.12816

The impact of innovative leadership on enhancing productive entrepreneurship: An applied study to solid waste treatment projects in Jordan

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> Abstract --- Most countries tend to develop solid waste treatment projects in order to reduce the waste problem and increase their interest in environmental issues, in order to preserve the rights of its future generations. This prompted them to enhance the presence of green jobs in the projects and to find a job description and job specification consistent with environmental quality. The study aimed to identify the impact of the innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on the productive entrepreneurship represented by its dimensions (productive initiative, productive creativity. productive innovation, risk tolerance. proactive productivity, production flexibility) in the solid waste treatment projects in the Jordan Valley. I adopted the descriptive approach and analytical approach, depending on the interview and a questionnaire that was distributed to (9) projects. A sample of (97) individuals was selected, and the response rate was (89.3%). The sample consisted of (project manager or assistant manager, production manager, supervisor or production engineer, production employee) in the waste treatment projects in Jordan. Six managers were interviewed. The study relied on the statistical methods such as the descriptive statistics represented by (percentages and frequencies, arithmetic means and standard deviations), the analytical statistics represented by (multiple regression test), and the hypotheses of the study .The study reached several findings, the most important of which is the existence of a significant effect at the level of statistical significance $(\alpha \le 0.03)$ for innovative leadership by improving productivity leadership. The study recommended the necessity of enabling the

International Journal of Health Sciences ISSN 2550-6978 E-ISSN 2550-696X © 2022.

Manuscript submitted: 9 May 2022, Manuscript revised: 18 July 2022, Accepted for publication: 27 August 2022 3222

employees to obtain modern information and data about solid waste production, and motivating them to present their ideas, even if these ideas contradict the persons concerned. This contributes to creating a stimulating work environment to generate creative ideas, providing the best possibilities that contribute to innovation, and developing their abilities to anticipate risks and to face problems.

Keywords---innovative leadership, productivity leadership, solid waste treatment projects, Jordan.

Introduction

The term Productive Entrepreneurship refers to the concept of practicing entrepreneurship strategies in the development and management of the production processes in projects in order to increase profits, by tolerating many risks in production processes (Alkhararbeh, 2021). It can be defined as the desire to start new production, or to develop procedures for production processes, where productivity entrepreneurship plays a fundamental and vital role in the economic development of the global market (Alkhararbeh and Al-Kasasbeh, 2021). This can be done by providing new ideas, solutions and new production processes that contribute to increasing the volume of production and reducing the shortcomings in the production processes to preserve the speed in production while maintaining high quality, and to reduce the risks and problems that could hinder the production process (Al-Awamleh et al., 2021).

Innovative leadership is a philosophy and technology that combines different leadership styles and skills to influence people working to produce products, provide services, and maintain high performance in operations (Berdecia-Cruz et al., 2022). This is done by motivating employees to provide innovative ideas and solutions to maintain the competitive progress of the project by focusing on the productivity (Razzak, 2022). The innovative leader exercises the main role in leading innovation in the project. Dr. David Galydon (2006) developed a competency model for the innovation leaders and developed the concept of innovation leadership at Penn State University, where innovative leadership has goals, mission and vision for the projects and the teamwork (Erhan et al., 2022). This is achieved by providing a safe innovative environment, training and developing the innovative behavior of the employees on the project (Khan, 2022).

Projects adopt a productive thinking to ensure the continuity of their success and increase their competitiveness by increasing the volume of production to dominate the market through a cost leadership strategy (Al-Nusour and Alkhararbeh, 2020). As the volume of production increases, they can control prices, target markets and the different categories of the society that consumes the products and services they provide. This strategy requires an innovative leadership that contributes to the rooting of the thought and innovative behavior of the employees and transforming innovation from a temporary behavior to a permanent one in the work environment (Zhao et al., 2022). The innovative leadership is the one that is able to adapt to the new changes in the markets in terms of controlling the productive entrepreneurship, where the need for productive entrepreneurship has led to increasing the interest in the innovative leaders (Islam et al., 2022), focusing on the new role of the innovative leaders in empowering the creative efforts of the employees, contributing to their success and turning them into a new force, and taking part in the spreading the culture of innovation. This is achieved by finding and developing new ideas and methods to encourage creativity and institutional development and motivate employees to innovate and put forward innovative ideas. Thus, the innovative leadership has become a vital factor in the institutional performance, and without it, projects are likely to be hampered (Puni et al., 2022).

The research problem arises in the need to develop production departments in the projects; especially that productivity requires achieving quality conditions (time, cost, performance). Furthermore, the increase in the volume of production can lead to a loss of the quality in exchange for the decrease in the time required to produce the production unit, and a decrease in quality of performance (Gomez Sanchez, 2022). Hence, productivity entrepreneurship came as a new term that I present as a researcher based on my experience as a general manager of an organic fertilizer and solid waste treatment plant for more than 15 years. During these years, the productivity was the biggest goal that we are trying hard to control to increase the market share by following the strategy of cost leadership. The greater the volume of production is, the greater the possibility to reach new markets with a lower price compared to competitive prices will be. Accordingly, the need to achieve productivity entrepreneurship through innovative leadership arose.

Development of the theory and hypothesis

Innovation is one of the basic necessities in project management in light of the growing needs and ambitions. It is no longer sufficient to perform business in the traditional way because it leads to stability, freezing and in keeping pace with the competitive business environment (Liu et al., 2022). Therefore, successful projects, in order to ensure their survival and continuity strong and influential, must not stop at the limit of efficiency, and their ambition must go beyond doing their work in a correct manner with honesty and sincerity (Puni et al., 2022). The innovative leadership must be brilliant in ideas, performance and goals, and it must be creative and innovative. Thus, the innovative leadership becomes the hallmark of the project management (Hoang et al., 2022).

Productive entrepreneurship in projects is based on raising the efficiency of the work being performed, through (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility). Hence, it can be considered that successful ideal projects include an efficient work environment and the elements of production are intertwined (Sami and Abdallah, 2022). The human element is considered the most important in the production process. Without these personnel, the ability to exploit raw materials and to apply production processes to them (Amornketvikai et al., 2022). In order for the human element working in the projects to improve, there must be an innovative management that seeks to provide comfort, job security and a wage that commensurate with the effort it exerts. Moreover, it must be dealt with humanely and develop its skills. Thus, achieving productive entrepreneurship and

increasing the project's productivity necessitates an innovative management to be available (Anderson and Raissi, 2022).

The main hypotheses of the study

Ho.1: There is no statistically significant effect at the level of significance ($a \le 0.03$) for the innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on the productivity entrepreneurship represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility) on solid waste treatment projects in the Jordan Valley.

Hoang et al (2021) noted that innovation is more important than ever for sustainable business performance in the contemporary global economic and social context. Entrepreneurial enterprises (SMEs) are well positioned to innovate through their ability to quickly adapt, with leadership and organizational climate playing a major role in innovation. Innovative leadership practices stimulate innovative behaviors of employees. The study confirms that creativity and innovation in projects can be improved through the development of reward and incentive systems and the development of the innovative skills and capabilities.

The application of innovative leadership in its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities), on the productive entrepreneurship strategies with its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility) have many positive effects that are reflected on the employees and on the project in general. If productivity improves, the performance of employees improves, and the level of the project improves (Song et al., 2022). This raises its competitiveness through its ability to reduce prices. This will eventually lead to an increase in the volume of the profits and their multiplication, an increase in the market share of the project and the strengthening of its position in the market. Moreover, the values of its exports will rise, the values of its imports will decrease, and the conditions of its employees will improve (Mullins, 2022)

Ye et al (2022) pointed out how to explore the organizational climate and the creative leadership capacity, and the emotional reaction on the impact of imposed change on the innovative behavior of employees through knowledge sharing and the development of innovative behavior within the workplace. They also explained the nature of factors affecting innovation behavior of employees, i.e. organizational climate (Innovation versus risk climate) and the ability for creative leadership (leadership skills, building innovative vision). The climate of innovation and knowledge exchange positively affects the innovation behavior of the employees. Also, he climate supportive of risk in addition to the emotional interaction positively affects the innovation climate. Furthermore, it was found that knowledge sharing regulates the relationship between the innovation climate and innovation behavior.

The concept of innovation refers to three different stages, all of which are dynamic and iterative (static). They are the generation, evaluation and implementation of ideas. The innovation lies in one of the two cases. Innovation lies in one of the two cases. The first is innovation by discovery, which involves the generation of completely new ideas, and the other is value-added innovation, which involves modifying and improving already existing ideas (Al-Nusour and Alkhararbeh, 2020). Musenze and Mayende (2022) indicated that ethical leadership has an impact on innovative work behavior. Islam et al (2022) emphasized that knowledge sharing positively affects the innovative work of the employees, and that employees' perception of entrepreneurial leadership enhances the link between knowledge exchange and the innovative work. This is done by means of exploring the professional self-efficacy as a mediation mechanism and leading entrepreneurship as a border condition that enhances the productivity of employees. The ideas generated must be useful to be innovative (Musenze and Mayende, 2022). Also, innovation should not be confused with creativity, which is simply the generation of a new idea that may not necessarily be implemented. The innovative leadership includes a variety of different activities, actions, and behaviors that interact to produce innovative results (Ye et al., 2022).

The innovative mind is the one that is able to reach new and original solutions to problems that no one else has preceded to, meaning that it is the mind that can produce the new and original (Puni et al., 2022). The innovative person is the person who precedes other members of his society in the field of presenting, adopting and testing the innovative ideas (Khan, 2022).

The sub-hypotheses of the study

The first sub-hypothesis

HO.1-1: There is no statistically significant effect at the level of significance ($a \le 0.03$) for innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on the productive initiative in solid waste treatment projects in Jordan.

Zhang et al., (2022) emphasized that the motivational perspective of innovative leadership enhances the adoption of new ideas among the employees by enhancing their initiative through developing their innovative skills and capabilities in providing innovative ideas and solutions during the specified time period. Also, it highlights the mechanisms of self-motivation to achieve the productivity initiative. Khan, (2022) explained that entrepreneurial leadership positively and significantly affects the innovative behavior of the employee. Moreover, Liu et al. (2022) indicated that the form of the joint leadership in the scientific research teams has a positive impact on the innovative behavior of the team members by focusing on the sequence of the creative self-efficacy and motivating self-actualization.

Productive entrepreneurship in all its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity,

production flexibility) are one of the most prominent and most frequently used terms in the economic, industrial, and various fields of business (Sgarbossa, 2022). It is a strong indicator of the ability of the production elements in the projects to synergize in order to carry out a correct production process with the highest quality, the least time and the lowest cost. It has a great relationship with the competitive position of the projects in the business environment (Ruales Guzmán and Castellanos, 2022). Thus, productivity can be defined as a measure of the ability of projects to achieve outputs from inputs, and to achieve the largest possible amount of outputs from a certain amount of inputs (Razzak, 2022).

Kriese et al (2021) indicated that entrepreneurship is an important mechanism for enhancing national productivity and other economic results. He also referred to the importance of the productive creativity, productive innovation, and risk tolerance in order to achieve productivity. Moreover, Ghosh et al (2020) explained that the successful management motivates employees to increase productivity, and the managers are the most to stimulate the productivity of the employees. Amornkitvikai et al (2022) emphasized that wages, skills development, research and development have a significant impact on the productivity, and enhancing labor productivity and overall productivity is due to the mature project leadership. He also indicated that that human resource development contributes significantly to improving productivity, and the projects are measured by labor productivity and total worker productivity.

The second sub-hypothesis

HO.1-2: There is no statistically significant effect at the level of significance ($a \le 0.03$) for the innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on the productive creativity in the solid waste treatment projects in Jordan.

Innovative leadership stems from the "path-goal" theory, developed by (Robert House) in 1971, and revised in 1996. It is known as the "path-goal theory of leader effectiveness" or "path-goal model", which is a leadership theory in the field of organizational studies (Al-Nusour and Alkharabeh 2020). The theory states that "the behavior of the leader is conditioned by the extent of satisfaction, motivation, and performance of his subordinates", and that the leader engages in behaviors that complement the abilities of the subordinate and compensate for their shortcomings. It is derived from the work of Martin Evans (1970) that which indicates that "leadership behavior and subordinate perceptions of following a particular behavior (path) will lead to the achievement of a certain result (goal) (Musenze and Mayende, 2022).

Su et al. (2020) indicated that service innovation has become an important matter by relying on the innovative behaviors to serve the employees for the survival and continuity of the projects. This study showed that the service leadership enhances the innovative behavior of service for the employees and their self-motivation, and highlighted the importance of the innovative behavior of the leader and the enrichment of his positive side on the employees' innovative behavior. Cao and Zhang (2020) that friendship in the workplace and psychological safety affect the innovative behavior of the employees and the moderating role of transformational leadership, and the friendship in the workplace is positively correlated with the innovative behavior. Daharwal and Mishra (2021) emphasized the importance of human resources (employees and managers) in enhancing and improving productivity in the projects by reinforcing the efficiency of human resources. Furthermore, designing the appropriate strategies to motivate the workforce in this direction appears as one of the critical aspects of the productivity management. Addai et al (2019) indicated that ethical leadership has a significant impact on the productive work attitudes and employee behavior, and the relationship between the ethical leadership and the productive work attitudes is positive. Anderson and Raissi (2022) reinforces the need for distinguished leadership that works to re-grow the productivity of the projects as a result of the lack of successful management, with a focus on the proactive productivity, and production flexibility. This reinforces the need for innovative leadership that contributes to the success of the projects through its successful management.

The third sub-hypothesis

HO.1-3: There is no statistically significant effect at the level of significance ($a \le 0.03$) for the innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on productive innovation in the solid waste treatment projects in Jordan.

Berdecia-Cruz et al (2022) indicated that the innovative mindset is the opposition of the traditional culture followed by the employees in their various jobs. The innovative leadership directly affects the productivity of employees by influencing their innovative behavior through achieving reinforcement, motivation, and planning their inventiveness. Grošelj et al (2021) explained that the innovative work behavior of employees is affected by the innovative leadership behavior, which continuously contributes to stimulating and developing innovative behavior among employees. Moreover, Mutonyi et al (2020) emphasized that leadership empowerment, work group cohesion, directing the individual learning and the development of the innovative skills and capabilities affect the innovative behavior of the employees, which enhances their performance and productivity. Wang et al (2021) also indicated that the intellectual capital and enabling the innovative leadership enhance the innovative behavior of the employees, and develop the work environment.

Song et al (2022) pointed out the impact of the mechanism of the digital development on work productivity, and that digitization has an impact on the productivity of work in projects by developing the innovative skills and capabilities of the employees. This supports the impact of the innovative leadership on productivity, and investment must be increased in data-driven innovation capabilities, and improve implementation of the human resource training plans. Kalkavan et al. (2021) emphasized that economic development is directly related to productivity, which requires effective management to apply its methodologies. They showed that there is a causal relationship between labor

productivity, economic growth and employees' productivity. Moreover, attention must be paid to the employees and increase their motivation. This situation has a positive and important contribution to the labor productivity.

Fourth sub-hypothesis

HO.1-4: There is no statistically significant effect at the level of significance ($a \le 0.03$) for the innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on risks tolerance in the solid waste treatment projects in Jordan.

Erhan et al. (2022) explained in his study that the innovative leadership reduces costs by controlling the risk factor, and that innovative leaders are highly skilled who work on adapting innovative behaviors and influence the behavior of the employees to tolerate risks. Yang et al (2021) also emphasized that the selfmotivation and innovative behavior of employees require a leadership capable of managing the work team and directing it towards the innovative behaviors. They also confirmed that the innovative leadership has a positive impact on the innovative behavior of the employees, and that the behavior of innovative leadership motivates the employees to tolerate risks. Also, Alblooshi et al (2021) indicated that different leadership styles have a positive impact on the organizational innovation, either directly or indirectly, by influencing the organizational climate, behaviors of employees and leaders or other organizational variables. They also explained that the different leadership styles have a role in determining the innovative organizational, and how aspects of leadership and innovation are related. On the other hand, Gomez Sanchez et al (2022) referred to the need to enhance the productivity and how it affects the economic growth of regions in the short and long term. Their study also tackled the methodologies that should be followed in improving manufacturing productivity through obtaining the latest technologies by focusing on the production initiative and productive creativity, and productive innovation. Sami and Abdallah (2022) stressed the need to stimulate productivity and how each type of productivity effects on the productivity of the projects, through studying the internal and external knowledge and achieving proactive productivity and production flexibility.

Fifth sub-hypothesis

HO.1-5: There is no statistically significant effect at the level of significance ($a \le 0.03$) for innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on proactive productivity in solid waste treatment projects in Jordan.

Cui and Yu (2021) indicated that innovative individual performance has an impact on the performance of the work team in the organizational innovative performance. Also, enabling the innovative leadership is the key to unleashing the

innovative individual performance and reinforcing the proactivity of the employees by enhancing the intrinsic motivation and influencing the work team, through improving the innovative self-efficacy and internal motivation. Moreover, Hoang et al. (2022) explained that the process of continuous improvement at work is affected by the innovative behavior of the employees, based on social cognitive theory. Also, the ethical leadership has direct and indirect effects on the innovative behavior of employees by focusing on their self-motivation, which generates proactivity in providing ideas and solutions. Nguyen et al (2021) confirmed that the transformational leadership is one of the important factors that predict the employee's creativity and innovation, and that insight into leadership style effectively contributes to enhancing the employee's creativity and innovation. Furthermore, the organizational innovation is reinforced through the positive impact of the leadership behaviors and the improvement of the employee's innovation. Abdallah and Abdallah (2021) referred to a group of factors that affect the improvement of the productive work behavior through the proactive productivity. This study emphasized the importance of flexibility, proactivity and job description, and it explored the criteria required to improve the productivity. Razzak (2022) explained that the direct relationship between the social sustainability dimension of supply chain practices and productivity is a positive and important relationship. Also, this study maintained that productivity is based on the proactive productivity, and production flexibility to achieve a positive relationship between sustainable supply practices and competitive advantage. Ruales Guzmán et al (2022) indicated that the productivity indicators appear after the application of the quality management, one of the most important dimensions of which is the commitment of senior management, in addition, evidence of control over all productivity indicators.

Sixth sub-hypothesis

There is no statistically significant effect at the level of significance ($a \le 0.03$) of the innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on the production flexibility in the solid waste treatment projects in Jordan.

Puni et al (2022) explained that the innovative climate, which includes (adopting new ideas, reinforcement and motivating, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) has become a necessity for developing creative and innovative behaviors among employees. The study provided evidence for enhancing organizational performance with the innovative leadership through an innovative climate. This reinforces the production flexibility by creating an innovative work environment and enhances the innovative leadership orientations for work. Vandavasi et al (2020) mentioned that sharing knowledge contributes to the development of the innovative behavior, the adoption of new ideas, and the reinforcement and motivation of the employees. This requires the rooting of the participatory behavior in knowledge among the employees. Mullins, (2022) also emphasized the ways to enhance productivity in the global projects by increasing the empowerment of employees and enhancing their skills in productive innovation, risk tolerance and production flexibility. Moreover, Sgarbossa et al (2022) pointed out the need to enhance productivity at work by focusing on flexibility in terms of the speed of arrival of expert employees and improving their learning methods and raising their incentives. Also, this study focused on employees and the enhancement of their behavior, and the support of the managers in preparing work plans, developing incentive systems for learning, and enhancing productivity. Giotopoulos et al (2021) strengthened the role of the human capital, the adoption of the information and communication technology, and the innovation in enhancing enterprise productivity. The study also confirmed that human capital, information and communication technology infrastructure and organizational innovation greatly affect productivity. Moreover, the human capital reinforces and improves productivity in a significant way, and information and communication technology infrastructure and organizational innovation support business productivity.



Second: Study model

Figure (1): Study model

Importance of the study

The study highlights the importance of the productive entrepreneurship as a new term, forming a general framework on its importance, showing the impact of its six strategies on the seven dimensions of the innovative leadership and the extent of its impact on productive entrepreneurship. This is achieved by applying its strategies and obtaining results and recommendations that will develop productivity in the projects and enhance their competitiveness in the economic environment.

Research design, sample size, and procedures

This study followed the descriptive analytical approach using the comprehensive survey sampling technique. The size of the population was (103) items, and the sample consisted of (project manager or assistant manager, production manager, supervisor or production engineer, production employee) in the solid waste treatment projects in Jordan. The study sample consisted of a group of supervisory and executive jobs. The response rate was (89.3%) depending on the data obtained by the Ministry of Environment, the Ministry of Agriculture and the project-execution municipalities. The significance level ($\alpha \le 0.03$) was adopted, which corresponds to a confidence level (97%) to interpret test results. This study was applied to the study sample by the comprehensive survey method.

Table (1)
Number of questionnaires distributed and valid for analysis

Solid	Sample	No. of	No. of recovered	No.	Percentage of
waste	no.	distributed	questionnaires	questionnair	questionnaire
treatment		questionnaires		es valid for	valid
projects in				analysis	for analysis
Jordan					
total	103	103	97	92	89.3%

Data Analyze and results

The descriptive analytical method was used, and the study model was developed based on the analysis of previous studies, and three study tools were used (questionnaire, interview).

- •The questionnaire: It was developed based on the opinions of a group of experts and managers of solid waste treatment projects, in addition to a number of academics in the universities, institutes, vocational, technical and agricultural colleges. Primary data was collected from the study population, which was selected from the specialists in the field of the environment in Jordan.
- Interview: A set of open-ended questions were prepared, which are essential questions from which conclusions can be drawn, and (6) project managers were interviewed.

Reliability of the study tool

To ensure the stability of the study reliability of the tool, the value of Cronbach's Alpha Coefficient was calculated to show the extent of the internal consistency of the study paragraphs and the quality of building the questionnaire paragraphs and the strength of its cohesion. Table (2) shows the reliability coefficient of the study scales. The alpha values ranged (0.905) for the independent variable, and (0.885) for the dependent variable. This shows that all alpha values exceeded the minimum acceptable percentage for the purposes of statistical analysis, as alpha is considered equal to or greater than (0.70), and this is acceptable in the previous studies.

Variable	No. of items	Value of validity and reliability of the questionnaire (Cronbach's alpha)
Independent variable: Innovative Leadership	42	0.905
Dependent variable: Productive entrepreneurship	32	0.885
Total	74	0.947

Table (2)	
values of Cronbach's stability coefficient alpha for study sc	ales

It is clear from Table (2) that the values of Cronbach's alpha coefficient are alpha values of (0.905) for the independent variable, and (0.885) for the dependent variable. The total value reached (0.947) with a total number of (74) paragraphs, which is a high value.

Study Results

Results of the characteristics of the study population: The study dealt with a number of demographic variables for the members of the study population, which are "gender, age, academic level". Based on this, the study sample was described as in Table (3).

Variable	Category	Frequency	Percentage
Gender	Male	77	83.7%
	Female	15	16.3%
Total		92	100%
Age	Less than 30	4	4.3%
	30 - 40	40	43.5%
	41 - 50	15	16.3%
	Over 50	33	35.9%

Table (3)Characteristics of the study population

Total	Total					
Qualification	Technical education	2	2.2%			
	Bachelor	55	59.8%			
	Master	27	29.3%			
	PhD	8	8.7%			
Total		92	100%			
Years of	5 years or less	6	6.5%			
experience	6 – 10	6	6.5%			
	11 – 14	45	48.9%			
	15 years or over	53	0.38%			
Total		92	100%			
Job title	Project manager or assistant	17	18.5%			
	manager					
	Production manger					
	Supervisor or production engineer	6	6.5%			
	production employee	24	26.1%			
Total		92	100%			

It is noted from Table (3) that males constitute the largest percentage of the study sample members with a percentage of (83.7%) compared to (16.3%) for females, and that those aged from (30 to 40 years) make up the largest percentage of (43.5)%). The lowest percentage was for those aged less than 30 years (4.3%). Those with a bachelor degree constituted the largest percentage of (59.8%), and the lowest percentage was for those with a technical education (2.2%). Those with years of experience ranged from 11 to 14 years constituted the largest percentage (48.9%), and the lowest percentage was for those with a percentage (6.5%). As for job title, production manager formed the largest percentage (48.9%), the lowest percentage was of those whose job title was supervisor or production engineer (6.5%).

Arithmetic means and standard deviation of the independent variable (innovative leadership) represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building a new vision, developing work environment, developing innovative behavior, developing innovative skills and capabilities).

Table (4) Arithmetic means and standard deviations of the respondents' answers to the dimensions of innovative leadership

Rank	Dimension	Arithmetic	Standard	Relative
		means	deviation	importance
1	Developing innovative skills and capabilities	3.96	0.823	High
2	Reinforcement and motivation	3.95	0.797	High
3	developing work environment	3.93	0.786	High
4	adopting new ideas	3.92	0.850	High
5	adopting new ideas	3.89	0.866	High
6	building a new vision	3.78	0.751	High

7	developing innovative behavior	3.72	0.775	High
Total		3.878	0.710	High

Arithmetic means and standard deviation of the dependent variable (productive entrepreneurship) represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility) are presented in Table (5).

Table (5) Arithmetic means and standard deviations of the respondents' answers to the dimensions of productive entrepreneurship

Rank	Dimension	Arithmetic	Standard	Relative
		means	deviation	importance
1	Proactive productivity	4.04	0.632	High
2	Productive innovation	3.93	0.817	High
3	Risk tolerance	3.93	0.786	High
4	productive initiative	3.87	0.818	High
5	Productive creativity	3.75	0.886	High
6	Productive flexibility	3.74	0.689	High
Total		3.876	0.771	High

Test study hypotheses

Ho.1 The first main hypothesis: There is no statistically significant effect at the level of significance ($a \le 0.03$) for the innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on the productive entrepreneurship represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility) in the solid waste treatment projects in the Jordan Valley.

The standard multiple linear regression test was used. Table (6) is illustrative.

Table (6)

Standard multiple regression analysis to identify the impact of innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building innovative vision, developing work environment, developing innovative behavior, developing innovative skills and capabilities) on productive entrepreneurship in projects Solid waste treatment in the Jordan Valley

	Model	summary	Variance ^b				Regr	ession coef	ficients ^a
Depende nt variable	RR R Correlatio n coefficien t	R ² Coefficient of determin- ation	Degree of freedom	(F) Value	Sig F statistical significan ce	Dimension s of the independen t variable	(B) Value	(T) Value	Sig t statistical significan ce
			Regre			Adopting			

Independ			-ssion	7	169.85	0.000	new ideas	0.136	3.025	0.003
-ent	0.966	0.934	Resid-		5		Reinforcem			
variable			ual	84			ent and	0.079	2.697	0.008
							Motivation			
			Total	91			Innovative			
							Planning	0.096	2.306	0.024
							Building	0.188	5.914	0.000
							Innovative			
							Vision			
							Developing	0.212	5.831	0.000
							Work			
							environme			
							nt			
							Developing	0.174	6.222	0.000
							Innovative			
							Behavior			
							Developing	0.110	3.860	0.000
							innovative			
							skills and			
							capabilities			

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The values of the (t) test, as presented in Table (6), show that the sub-variables related to the innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) have a statistically significant effect on the level of productivity entrepreneurship. The calculated (t) values reached between (2.306 - 6.222), and all of them are significant values at the level of significance ($\alpha \le 0.03$).

On the other hand, it is noted that the value of the correlation coefficient of the relationship between the innovative leadership with its dimension of productivity leadership reached (R = 0.966), and the coefficient of determination reached (R2 = 0.934). This is, the innovative leadership as an independent variable with its dimensions explains (93.4%) of the variance in the dependent variable, which is the productivity entrepreneurship. The calculated F value was (F = 169.855), which is a function value at the significance level ($\alpha \le 0.03$).

To determine the importance of each independent variable individually in the impact of innovative leadership on the productive entrepreneurship, a Stepwise Multiple Regression analysis was conducted. This is shown in Table (7), which shows the order of the entry of the independent variables into the regression equation.

Table (7) Results of Stepwise Multiple Regression to predict the level of productive Entrepreneurship through dimensions of innovative leadership

Model no.	Model summary	Variance					
	R	R ²			Sig F		
	Correlation	Correlation	Degree of	(F)	statistical		
	coefficient	coefficient	freedom	value	significant		
1	0.812	0.659	1	173.605	0.000		

2	0.919	0.845	2	241.810	0.000
3	0.941	0.885	3	224.867	0.000
4	0.957	0.916	4	237.392	0.000
5	0.961	0.924	5	210.168	0.000
6	0.964	0.930	6	187.742	0.000
7	0.966	0.934	7	169.855	0.000

Model number

1. Adopting new ideas

2. Adopting new ideas and building innovative vision

3. Adopting new ideas, building innovative vision and developing work environment

4. Adopting new ideas, building innovative vision, developing work environment and developing innovative behavior

5. Adopting new ideas, building innovative vision, developing work environment, developing innovative behavior and developing innovative skills and capabilities

6. Adopting new ideas, building innovative vision, developing work environment, developing innovative behavior, developing innovative skills and capabilities and reinforcement and motivation 7. Adopting new ideas, building innovative vision, developing work environment, developing innovative behavior, developing innovative skills and capabilities, reinforcement and motivation and innovative planning

Looking at the results presented in Table (7), the dimensions of the independent variable "innovative leadership" were as follows: The adoption of ideas came in the first place and explained the value of (65.9%) of the variance in the dependent variable "productive entrepreneurship", while building the innovative vision came in the second place, as it explained, with the adoption of ideas, an amount of (84.5%) of the variance in productive entrepreneurship. The development of the work environment ranked third with the adoption of ideas and building an innovative vision, and it explained a value of (88.5%) of the variance in productive entrepreneurship.

Developing the innovative behavior came in the fourth place with the adoption of ideas and building an innovative vision and development of the work environment, which explained its value of (91.6 %) of the variance in the productive entrepreneurship. The development of skills and capabilities ranked fifth, with the adoption of ideas, building an innovative vision, developing the work environment and developing the innovative behavior, which explained a value of (92.4%) of the variance in productive entrepreneurship. The reinforcement and motivation ranked sixth with the adoption of ideas, building an innovative vision, developing the work environment, developing innovative behavior and developing skills and capabilities, which explained an amount of (93.0%) of the variance in productive entrepreneurship. The innovative planning ranked seventh with the adoption of ideas, building an innovative vision, developing the work environment, developing innovative behavior, developing skills and abilities and reinforcement and motivating, which explaining (93.4%) of the variance in the productive entrepreneurship.

Based on the above, the null hypothesis is rejected and the alternative hypothesis is accepted. That is, "there is a statistically significant effect at the level of significance ($\alpha \le 0.03$) of the innovative leadership represented by its dimensions

(adopting new ideas, reinforcement and motivation, innovative planning, building an innovative vision, developing the work environment, developing innovative behavior, developing innovative skills and capabilities) on the productive entrepreneurship. Table (8) shows the results of the coefficients analysis.

Table (8)
Results of multi-gradient linear regression coefficients to reveal the impact of
innovative leadership with its dimensions on productivity entrepreneurship

Мо	odel		Regression	n coefficients
		(B) value	(T) value	Sig t statistical significance
	1			
1		0.591	13.176	0.000
2		0.460	13.953	0.000
		0.344	10.320	0.000
3		0.318	8.294	0.000
		0.307	10.379	0.000
		0.244	5.525	0.000
4		0.273	8.053	0.000
		0.230	7.981	0.000
		0.261	6.848	0.000
		0.176	5.711	0.000
5		0.221	6.073	0.000
		0.212	7.551	0.000
		0.239	6.476	0.000
		0.181	6.125	0.000
		0.090	3.069	0.003
6		0.146	3.205	0.002
		0.227	8.160	0.000
		0.234	6.519	0.000
		0.177	6.199	0.000
		0.096	3.365	0.001
		0.078	2.578	0.012
7		0.136	3.025	0.003
		0.188	5.914	0.000
		0.212	5.831	0.000
		0.174	6.222	0.000
		0.110	3.860	0.000
		0.079	2.697	0.008
		0.069	2.306	0.024

It is noticed from Table (8) that the significance of all the values of (B) at the calculated and different (T) levels in the seven models ranged between (0.000b – 0.024). All of them were less than (0.03), which is significant at the level of ($\alpha \le 0.03$). This assures the significant transactions .Based on the above, we cannot accept the first main null hypothesis and accept the alternative hypothesis, which states that there is a statistically significant effect at the level of significance ($\alpha \le 0.03$) for innovative leadership represented by its dimensions (adopting new ideas, reinforcement and motivation, innovative planning, building an innovative

vision, developing work environment, developing innovative behavior, developing innovative skills and capabilities) on productive entrepreneurship

Sub-hypothesis testing

Ho1.1: There is no statistically significant effect at the level of significance ($a \le 0.03$) for adopting new ideas in the productivity entrepreneurship represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility) in the solid waste treatment projects in the Jordan Valley.

The Simple Regression test was used, and Table (9) illustrates this.

Dependent variable	ndent Model summary ^b			Variance ^b				Regression coefficients ^a		
	RR R Correlation coefficient	R ² Coefficient of determin- ation	Degree freedom	of 1	(F) value	Sig F statistical significan ce	(B) value	(T) value	Sig t statistical significan ce	
Independ-ent variable	0.812	0.659	Regre - ssion Resid- ual Total	1 90 91	173.60 5	0.000	0.591	13.176	0.000	

 Table (9)

 Results of the simple linear regression test to reveal the effect of adopting new ideas on the productive entrepreneurship with its dimensions

^a Independent variable (building new ideas)

^b Dependent change (productive entrepreneurship)

Looking at Table (9), the results showed that the value of the correlation coefficient (R) between the two variables (adopting new ideas and productive entrepreneurship) was (0.812), and the relationship between the two variables was direct. This explains that adopting the new ideas positively affects the dependent variable "productive entrepreneurship". The value of the coefficient of determination (R2) was (0.659), which is (65.9%) of the change in innovative leadership and productive entrepreneurship, while the calculated value of (F) reached (173.605) with a statistical significance level (0.000), which is less than (p≤0.03). This confirms the significance of the regression.

Accordingly and also based on the above-mentioned results, the null hypothesis was rejected, and the alternative hypothesis was accepted. That is, there is a statistically significant effect at the level of significance ($\alpha \le 0.03$) to adopt new ideas in the productive entrepreneurship represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance proactive productivity, production flexibility) in the solid waste treatment projects in the Jordan Valley.

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Ho1.2: There is no statistically significant effect at the level of significance ($a \le 0.03$) for reinforcement and motivation in the productivity entrepreneurship represented by its dimensions (productive innovation, productive innovation and risk tolerance) in the solid waste treatment projects in the Jordan Valley.

To test this hypothesis, the Simple Regression test was used. Table (10) is illustrative.

Table (10)

Results of the simple linear regression test to reveal the effect of reinforcement and motivation on the productive entrepreneurship with its dimensions

Dependent variable	Model su	mmary ^b			Variance ^b		Regression coefficients ^a		
	RR R Correlation coefficient	R ² Coefficient of determin- ation	Degree freedom	of 1	(F) value	Sig F statistical significan ce	(B) value	(T) value	Sig t statistical significan ce
Independ-ent variable	0.622	0.387	Regre - ssion Resid- ual Total	1 90 91	56.902	0.000	0.396	7.543	0.000

^a Independent variable (reinforcement and motivation)

^b Dependent change (productive entrepreneurship)

The results in Table (10) showed that the value of the correlation coefficient (R) between the two variables (reinforcement and motivation and productivity entrepreneurship represented by its dimensions) reached (0.622), and the relationship between the two variables was direct. This explains that the dimension of reinforcement and motivation positively affects the dependent variable "productive entrepreneurship". The value of the coefficient of determination (R2) was (0.387), which is (38.7%) of the change in the innovative leadership and productive entrepreneurship, while the calculated value of (F) was (56.902) with a level of statistical significance (0.000), which is less than ($\alpha \le 0.03$). This proves the significance of the regression.

Based on the previous results, the null hypothesis was rejected, and the alternative hypothesis was accepted. That is, there is a statistically significant effect at the level of significance ($\alpha \le 0.03$) for the reinforcement and motivate on the productive entrepreneurship represented by its dimensions (productive innovation, productive innovation and risk tolerance) in the solid waste treatment projects in Jordan Valley.

Ho1.3: There is no statistically significant effect at the level of significance ($a \le 0.03$) to innovative planning on the productive entrepreneurship represented by the dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility) in the solid waste treatment projects in Jordan Valley.

To test this hypothesis, the Simple Regression test was used, as presented in Table (11).

Dependent variable	Model sur	mmary ^b		v	Variance ^b		Regression coefficients ^a			
	RR R Correlation coefficient	R ² Coefficient of determin- ation	Degree freedom	of	(F) value	Sig F statistical significan ce	(B) value	(T) value	Sig t statistical significan ce	
Independ-ent variable	0.646	0.417	Regre - ssion Resid- ual Total	1 90 91	64.318	0.000	0.473	8.020	0.000	

Table (11) Results of the simple linear regression test to reveal the effect of innovative planning on the productive entrepreneurship with its dimensions

^a Independent variable (innovative planning)

^b Dependent change (productive entrepreneurship)

The results in Table (11) showed that the value of the correlation coefficient (R) between the two variables (innovative planning and productive entrepreneurship) was (0.646), and the relationship between the two variables was direct. This explains that the dimension of the innovative planning positively affects the dependent variable "productive entrepreneurship". The value of the coefficient of determination (R2) was (0.417), which is (41.7%) of the change in the innovative leadership and productive entrepreneurship, while the calculated value of (F) was (64.318) with a level of statistical significance (0.000) which is less than ($\alpha \le 0.03$). This confirms the significance of the regression.

Based on the previous results, the null hypothesis was rejected, and the alternative hypothesis was accepted. That is, there is a statistically significant effect at the level of significance ($\alpha \le 0.03$) innovative planning on the productive entrepreneurship represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity production flexibility) in the solid waste treatment projects in the Jordan Valley.

Ho1.4: There is no statistically significant effect at the level of significance ($a \le 0.03$) to building the innovative vision on the productivity leadership represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility) in the solid waste treatment projects in the Jordan Valley.

The Simple Regression test was used to test this hypothesis, and Table (12) presents this .Table (12) results of the simple linear regression test to reveal the impact of building an innovative vision on the most distant productivity leadership.

Table (12)

Results of the simple linear regression test to reveal the effect of building innovative vision on the productive entrepreneurship with its dimensions

Dependent variable	Model su:	mmary ^b		1	Variance ^b		Regression coefficients ^a		
	RR R Correlation coefficient	R ² Coefficient of determin- ation	Degree freedo	of om	(F) value	Sig F statistical significan ce	(B) value	(T) value	Sig t statistical significan ce
Independ-ent variable	0.710	0.505	Regre - ssion Resid- ual Total	1 90 91	91.660	0.000	0.522	9.547	0.000

^a Independent variable (building innovative vision)

^b Dependent change (productive entrepreneurship)

Inspecting Table (12), the results showed that the value of the correlation coefficient (R) between the two variables (building innovative vision and productive entrepreneurship) was (0.710), and the relationship between the two variables was direct. This explains that the dimension of building the innovative vision positively affects the dependent variable "productive entrepreneurship". The value of the coefficient of determination (R2) was (0.505), that is (50.5%) of the change in innovative leadership and productive entrepreneurship, while the calculated value of (F) reached (91.660) with a level of statistical significance (0.000) which is less than $(\alpha \le 0.03)$. This asserts the significance of the regression. Based on the previous results, the null hypothesis was rejected, and the alternative hypothesis was accepted. That is, there is a statistically significant effect at the level of significance ($\alpha \le 0.03$) for building the innovative vision on the productive entrepreneurship represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, and proactive productivity, production flexibility) in the solid waste treatment projects in the Jordan Valley.

Ho1.5: There is no statistically significant effect at the level of significance ($\alpha \le 0.03$) for developing the work environment on the productivity entrepreneurship represented by its dimensions (productive creativity, productive innovation and risk tolerance) in the solid waste treatment projects in the Jordan Valley.

This hypothesis is tested by the Simple Regression test. Table (13) illustrative.

Table (13)

Results of the simple linear regression test to reveal the effect of developing work environment on the productive entrepreneurship with its dimensions

Dependent	Model summary ^b	Variance ^b	Regression coefficients ^a
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variable	RR R Correlation coefficient	R ² Coefficient of determin- ation	Degree freedo	of om	(F) value	Sig F statistical significan ce	(B) value	(T) value	Sig t statistical significan ce
Independ-ent variable	0.787	0.619	Regre - ssion Resid- Ual Total	1 90 91	146.35 2	0.000	0.649	12.098	0.000

^a Independent variable (developing the work environment)

^b Dependent change (productive entrepreneurship represented by its dimensions)

Examining the results in Table (13) showed that the value of the correlation coefficient (R) between the two variables (developing the work environment and productivity leadership represented by its dimensions) was (0.787), and the relationship between the two variables was direct. This explains that the dimension of developing the work environment positively affects the dependent variable "productive entrepreneurship". The value of the coefficient of determination (R2) was (0.619), which is (61.9%) of the change in the innovative leadership and productivity entrepreneurship, while the calculated value of (F) reached (146.352) with a level of statistical significance (0.000) which is less than ($\alpha \le 0.03$). This establishes the significance of the regression.

Based on the previous results, the null hypothesis was rejected, and the alternative hypothesis accepted. That is, there is a statistically significant effect at the level of significance ($\alpha \le 0.03$) for developing the work environment on the productive entrepreneurship represented by its dimensions (productive creativity, productive innovation and risk tolerance) in the solid waste treatment projects in the Jordan Valley.

Ho1.6: There is no statistically significant effect at the level of significance ($\alpha \le 0.03$) for developing innovative behavior on the productivity leadership represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive productivity, production flexibility) in the solid waste treatment projects in the Jordan Valley.

To test this hypothesis, the Simple Regression test was used, and Table (14) clarifies this.

Table (14) Results of the simple linear regression test to reveal the effect of developing of innovative behavior on the productive entrepreneurship with its dimensions

Dependent variable	Model su:	mmary ^b			Regression coefficients ^a			
	RR R Correlation coefficient	R ² Coefficient of determin- ation	Degree of freedom	(F) value	Sig F statistical significan ce	(B) value	(T) value	Sig t statistical significan ce
			Regre					

Independ-ent			-	1	63.690	0.000	0.515	7.981	0.000
variable	0.644	0.414	ssion						
			Resid-						
			ual	90					
			Total	91	1				

^a Independent variable (developing innovative behavior)

^b Dependent change (productive entrepreneurship)

Checking the results in Table (14) showed that the value of the correlation coefficient (R) between the two variables (developing innovative behavior and productive entrepreneurship) reached (0.644), and the relationship between the two variables was direct. This explains that the dimension of developing the innovative behavior, positively affects the dependent variable "productive entrepreneurship". The value of the coefficient of determination (R2) was (0.414), which is (41.4%) of the change in the innovative leadership and productive entrepreneurship, while the calculated value of (F) was (63.390) with a level of statistical significance (0.000) which is less than ($\alpha \le 0.03$). This affirms the significance of the regression.

Depending on the previous results, the null hypothesis was rejected, and the alternative hypothesis was accepted. That is, there is a statistically significant effect at the level of significance ($\alpha \le 0.03$) for developing innovative behavior on the productive entrepreneurship represented by its dimensions (productive initiative, productive creativity, productive innovation, risk tolerance, proactive Productivity, production flexibility) in the solid waste treatment projects in the Jordan Valley.

Ho1.7: There is no statistically significant effect at the level of significance $(\alpha \le 0.03)$ for developing innovative skills and capabilities on the productive entrepreneurship represented by its dimensions (productive innovation, productive innovation and risk tolerance) in the solid waste treatment projects in the Jordan Valley.

To test this hypothesis, the Simple Regression test was used, and Table (15) illustrates this.

Dependent variable	Model sur	nmary ^b	Variance ^b				Regression coefficients ^a		
	RR R Correlation coefficient	R ² Coefficient of determin- ation	Degree of freedom		(F) value	Sig F statistical significan ce	(B) value	(T) value	Sig t statistical significan ce
Independ-ent variable	0.731	0.535	Regre - ssion Resid- ual	1 90	103.52 1	0.000	0.468	10.175	0.000

Table (15)

Results of the simple linear regression test to reveal the effect of developing innovative skills and capabilities on the productive entrepreneurship with its dimensions

			Total	91					
^a Independent variable (developing innovative skills and capabilities)									

^b Dependent change (productive entrepreneurship)

A looking at the results in Table (15) showed that the value of the correlation coefficient (R) between the two variables (developing innovative skills capabilities and productivity entrepreneurship represented by its dimensions) was (0.731), and the relationship between the two variables was direct. This explains that the dimension developing innovative skills and capabilities had a positive impact on the dependent variable "productive entrepreneurship." The value of the coefficient of determination (R2) was (0.535), i.e. (53.5%) of the change in the innovative leadership and productive entrepreneurship, while the calculated value of (F) reached (103.521) with a level of statistical significance (0.000), which is less than $\alpha \leq 0.03$). This emphasizes the significance of the regression .Consequently, the null hypothesis was rejected, and the alternative hypothesis was accepted. That is, there is a statistically significant effect at the level of significance ($\alpha < 0.03$) for developing innovative skills and capabilities on the productive entrepreneurship represented by its dimensions (productive creativity, productive innovation and risk tolerance) in the solid waste treatment projects in the Jordan Valley.

Discussion of the results

First: Discussing the results related to the independent variable (innovative leadership) and its dimensions

The results found that the innovative leadership obtained a high degree of agreement in its seven dimensions, with an arithmetic mean of (3.878). This indicates that the study population adopts new ideas, reinforces and motivates its employees, pays attention to innovative planning, and participates in building the vision. It also works continuously on developing the work environment, innovative behavior, and innovative skills and capabilities of employees through their participation in many courses and seminars. Thus, the coefficient of determination for the innovative leadership (as an independent variable) in productive entrepreneurship (as a dependent variable) reached (R^2 =0.934). This reinforces the degree of high level agreement of the innovative leadership.

Adopting new ideas

The results show that the dimension of adopting the new ideas obtained a high degree of agreement was obtained, which amounted to (3.92). This is due to the fact that the study population helps employees by presenting new ideas, and the project management discusses the innovative ideas of employees, and provides employees with the appropriate possibilities to develop their abilities Also, (4) managers out of (6) when interviewed confirmed that the project management adopts new innovative ideas and directs them to avoid traditional ideas, and this is confirmed by the analysis of demographic variables, where the largest percentage was according to years of experience (11-15 years). This gives them sufficient experience to present new ideas and solutions, knowing that the older age group is from (30-40 years). This means that it is youthful energies with

sufficient experience to present new ideas, as the determination factor for the new ideas in the productive entrepreneurship reached ($R^2=65.9\%$).

Reinforcement and motivation

The results showed that after the dimension of reinforcement and motivation, a high degree of agreement was obtained, which amounted to (3.95). This is due to the fact that the study population does not hesitate to apply new ideas for fear of accountability. Moreover, the project management reduces direct supervision on the performance of employees, with the aim of increasing self-confidence of the employees. When interviewing the project managers, (4) managers out of (6) confirmed that employees feel pleasure and excitement when they are involved in solving work problems. Also, they asserted that project management motivates the employees when they accomplish their work in an innovative way. The coefficient factor of reinforcement and motivation in the productive entrepreneurship reached ($R^2=93\%$).

Innovative Planning

The results showed that the dimension the innovative planning obtained a high degree of agreement of (3.89). This is due to the fact that the study population confirmed that the project management adopts a strategic plan to encourage employees to innovate, sets appropriate standards for outstanding performance, and encourages them to plan to face the expected production problems. It has been found that (4) managers out of (6) confirmed, during their interview, that the project management encourages the culture of the collective planning for employees to encourage them to innovate. It also develops a future plan for the production process. This reinforces that the largest percentage of the experiences of employees is the category (11-15 years), which reached (48.9%). This explains the importance of this dimension, as the coefficient of determination of the dimension of the innovative planning in productivity entrepreneurship amounted to ($R^2 = 93.4\%$)

Building the innovative vision

The results showed that the dimension of building the innovative vision obtained a high degree of agreement, which amounted to (3.78). This is due to the fact that the study population affirms that the project management follows appropriate strategies to achieve change, as well as it contributes to unleashing the innovative intellectual energies of the employees. It was found that (4) managers out of (6) affirmed that the project management encourages proposals for change, and it deals with challenges as opportunities for innovation and development. This reinforces the demographic variables for people with expertise for groups (11 to 15 years and over), which amounted to (86.9%). This explains the importance of this dimension, as the coefficient of determination of the dimension of building innovative vision in the productive entrepreneurship reached ($R^2 = 84.5\%$).

Developing the work environment

The results showed that the dimension of developing the work environment obtained a high degree of agreement, reaching (3.93). This is what the study sample confirms that the project management encourages employees to form a work team to exchange ideas, and it responds to their demands. It was indicated that (6) project managers who were interviewed emphasized that there are specific standards for the quality of production, and that the project management uses various supervisory methods on the production, and it has an accurate view of work requirements. This enhances the description of demographic variables, as the number of the supervisory and leadership positions participating in answering the questionnaire reached (73.9%). This clarifies the degree of importance of this dimension, as its coefficient of determination is ($R^2=88.5\%$).

Developing innovative behavior

The results demonstrate that the developing innovative behavior dimension attained a high degree of agreement, which reached (3.72). This is what is confirmed by the study population that project management helps employees to use scientific thinking in developing the solid waste treatment methods, and it seeks to obtain ideas and suggestions that contribute to solving the production problems. There were (5) project managers interviewed, and they confirmed that the project management applies new innovative ideas submitted by employees. This explains the degree of importance of this dimension, as the coefficient of determination of this dimension in the dependent variable productive entrepreneurship ($R^2 = 91.6\%$).

Developing innovative skills and capabilities

The results illustrated that the dimension of developing innovative skills and capabilities attained a high degree of agreement, reaching (3.96). This was confirmed by the study population that stated that project management helps employees in performing their tasks, and it provides training courses to develop the performance of the solid waste treatment, and it works to develop their productive performance. It was found that (4) managers out of (6) who were interviewed confirmed that the project management helps in developing planning in order to face the increase in the solid waste treatment, and it enhances employees with innovative capabilities. This explains the degree of importance of the dimension of developing innovative skills and capabilities. This explicate the percentage ($R^2 = 92.4\%$) of the productive entrepreneurship.

Second: Discussing the results related to the dependent variable (productive entrepreneurship) and its dimensions

The results illustrated that the productive entrepreneurship gained a high degree of agreement, reaching (3.876). This confirms its importance in the study population. This also affirms the existence of the productive initiative practices in the solid waste treatment, the productive innovation practices in the production department in the solid waste treatment projects, and the adoption of risk by the employees in the solid waste treatment projects, while ensuring the availability of

Productive initiative

facing the solid waste treatment.

The results showed that the dimension of the productive initiative achieved a high degree of agreement, reaching (3.87). This was confirmed by the study population in its response to the questionnaire. It emphasized the project management embraces new productive ideas, and it is interested in enhancing my productivity skills. This is indicated by (4) managers out of (6) who were interviewed and confirmed that the project management rewards the employees who have new productive ideas, and it takes the initiative to promote new productive ideas in the solid waste treatment projects.

proactive productivity and production flexibility to ensure control over changes

Productive creativity

The results indicated that the dimension of productive creativity attained a high degree of agreement, which amounted to (3.75), as (5) managers out of (6) who were interviewed affirmed that the project management relies on creativity as a source for generating new knowledge in the production process. Moreover, they indicated that the organizational procedures in the project encourage employees to innovate, while the six interviewed managers emphasized that the project management supports research and development activities.

Productive innovation

The results showed that the productive innovation dimension obtained a high degree of agreement, reaching (3.93). This confirms the importance of the productive innovation in the productive entrepreneurship, as the study population asserted that the project management is concerned with the productive innovation processes and recompense the owners of the new ideas. Furthermore, the six managers assured that the project management is keen to innovate new production processes in the treatment of the solid waste, and it encourages the employees to come up with new ideas to improve productivity.

Risk tolerance

The results showed that the dimension of risk tolerance obtained a high degree of agreement, with a score of (3.93). This confirms the importance of risk tolerance among the employees in the solid waste treatment projects. Their answers confirmed that the project management adopts new ideas and solutions even if it faces challenges or obstacles in their application, and it considers the failure of the proposed ideas as an opportunity for learning and innovation. It was found that (2) managers out of (6) confirmed that the project management hesitates when there are high costs in the solid waste treatment, while (5) managers out of (6) asserted that the employees are trained in specialized courses in risks tolerance, and that the project management adopts a bold and risky stance to treat large quantities of the solid waste.

Proactive productivity

The results indicated that the dimension of the proactive productivity gained a high degree of agreement, which amounted to (4.04), This explains its importance, as this emerged through the study population's assertion that the project management works to develop work performance continuously, and rewards employees when presenting new ideas or solutions. The six managers emphasized that the project management seeks distinction distinguished through the production processes, and it responds to the increase in raw materials, and it motivates me to think outside the box.

Production Flexibility

The results showed that the production flexibility dimension obtained a high degree of agreement, reaching (3.74). This confirms its importance, as it was found that the project management adjust the production management strategies when new the solid wastes emerge. Five managers out of (6) who were interviewed said that substantial adjustments are made in the production management, followed by the available solid waste, and plans are re-drafted according to the production management requirements.

Results

The study reached the following results:

- 1. The management of the solid waste treatment projects helps the employees in presenting new ideas in the treatment of solid waste, and it discusses these ideas with them.
- 2. Solid waste treatment projects reduce direct supervision on the performance of the employees, and are keen to increase their self-confidence, because this makes them feel pleasure at work.
- 3. The management of the solid waste treatment projects takes a strategic plan to encourage the employees to innovate, and it sets appropriate standards for outstanding performance, and it follows appropriate strategies to achieve change. Moreover, it contributes to unleashing the innovative intellectual energies of the employees.
- 4. The management of the solid waste treatment projects encourages employees to form teamwork to exchange ideas and it respond to their demands, in order to achieve production quality standards.
- 5. The management of the solid waste treatment projects helps employees to use scientific thinking in developing methods of solid waste treatment, in order to obtain ideas and suggestions that contribute to solving the production problems. Moreover, it helps the employees in the performance of their tasks.
- 6. The management of the solid waste treatment projects provides training courses for the employees, in order to develop the performance of solid waste treatment, develop their productive performance and motivate them to produce.

- 7. The management of the solid waste treatment projects embraces new productive ideas, and it is concerned with enhancing the productive skills of the employees, and it supports individual creativity in production.
- 8. The management of the solid waste treatment projects is concerned with the innovation of production processes, and it rewards those with new ideas, and it is keen to invent new production processes in the treatment of the solid waste.
- 9. Solid waste treatment projects adopt new ideas and solutions, and it considers the failure of the proposed ideas as an opportunity for learning and innovation, and it does not hesitate when there are high costs in the solid waste treatment.
- 10. The management of the solid waste treatment projects works on developing work performance in a continuous manner, and it rewards employees when presenting new and distinct ideas or solutions. It also adjusts production management strategies when new solid wastes emerge, with fundamental modifications in the production management following the available solid waste.

Recommendations

The study recommends the need to work on the following:

- 1. Enabling employees to obtain information and modern data about solid waste production, and motivating them to present their ideas, even if these ideas are contrary to those of the management. This contributes to creating a stimulating work environment to generate creative ideas, provide the best possibilities that contribute to innovation, and development of their abilities to anticipate risks and to face the problems.
- 2. Developing a flexible production plan to deal with the changes at work, involving employees in setting the future vision, with a behavioral assessment and innovative ideas for them, encouraging them to submit new proposals to improve the production process, and enhancing self-control in them.
- 3. Allowing the employees to invest their expertise in putting forward new productive ideas, encouraging them to work in a team spirit to generate new ideas to improve productivity, and accepting the failure of the ideas proposed by them with large-heartedness.
- 4. Producing a different set of available solid waste in fixed quantities, so that the available solid waste is disposed of as soon as possible, in order to prevent the accumulation of the produced and important quantities by treating the largest possible amount of solid waste.

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