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Influencing and Measuring Factors for Service Delivery Innovativeness in Australian Water Utilities

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Abstract:- The threat of climate change and increasing demands for water have placed immense pressure on water utilities. Hence, it has become important for water utilities to foster innovativeness within their organizations to improve their performance. This research has used a qualitative approach, and primary data was collected through focus group discussions. The findings propose a model of organizational innovativeness for service delivery in water utilities across Australia. The model consists of 16 influencing factors and five measuring factors of innovativeness for service delivery in water utilities across Australia. This model can help to drive innovativeness in water utilities.

Keywords:- *Influencing Factors, Organizational Innovativeness, factor of innovativeness, water utilities, service delivery.*

I. INTRODUCTION

Water utilities encounter immense challenges that endanger long-term water security [1] due to societal, biological, and mechanical issues, including being threatened by climate change, increasing populations and dwindling resources [2], [3]. Numerous researchers across the world have emphasized the likelihood of future water crises and have warned the relevant authorities [4], [5], [6], [7], [8], while also suggesting improvements for better water services through proper sanitation, wastewater management, etc. [9], [10], [11], [12]. To meet the challenges, water service delivery organizations must develop agility [13] to cope with these changes and challenges [14]. Such changes and challenges often work as drivers for innovativeness. The emphasis on innovativeness in dynamic situations affirms the need for water utilities to sense, plan and interpret outcomes accurately [15].

Traditionally, water utilities are risk averse, conservative and highly regulated [16], [17]. In a traditional environment, the adoption of innovative activities in service delivery is challenging. Nevertheless, in the face of increased demand for water and for better service delivery, water utilities must focus on their innovativeness and improve their innovation capabilities in service delivery. However, very few have identified innovativeness in water service delivery as a necessary prerequisite for solving these problems [18], [19].

During the last two decades, researchers across the world [20], [21], [22], [23], [24], [25], [26] have conducted several innovation-related studies. These have focused on water supply augmentation techniques. However, previous research has not looked into the influencing factors that could enable water utilities to deliver improved water services [27]. The operation of water utilities in monopoly markets may be a major reason for the failure to focus on innovativeness. Taking this gap or shortcoming into consideration, and given the current water crisis across the globe, it is crucial to determine the driving forces (factors) of service delivery innovativeness in water utilities. Water utilities depend on research to sustain and advance their activities, but not enough research is available or reliable enough to support transformation and invention [28]. Therefore, researchers have suggested exploring the influencing factors that enable water utilities to develop innovativeness [25].

This research aims to identify the factors influencing organizational innovativeness in service delivery for water utilities and to improve innovativeness in service delivery for water utilities across Australia.

Therefore, the research is limited to the Australian water sector.

II. LITERATURE REVIEW

A. Innovativeness in the Context of Product Service Integration in Water Utilities

Water collection, desalination, distribution and recycling, and wastewater management are the major services of water utilities across the globe. Water supply refers to the infrastructure that collects, transmits, treats, stores and distributes water to homes and commercial establishments. Service delivery in water utilities begins with the efficient collection of water [29] from sources that include rivers, dams, rainwater and even waste water. After collecting the water, the utilities focus on safety and perform water desalination to ensure the water is safe for human consumption [30]. Proper distribution channels (e.g. pipelines) for providing water to the customer are not a new concern [31], and it is also very important that the distribution is effective and optimized [32].

Changes in climate, coupled with fast growth in populations and urbanization are causing increasing water demands that have put water utilities under huge pressures. Moreover, water storage levels plunge faster during dry and hot periods, resulting in less water storage and increased evaporation [33]. These threats, changes and challenges are now forcing water utilities to rethink their service delivery to ensure sustainability in the long run. Therefore, water utilities in Australia should focus on increasing their innovative capabilities and the major water services they offer to society.

In water utilities, water as a product is provided to customers, and it is essential to integrate the product and service as a stand-alone function [34]. To satisfy customer demands in a challenging environment, water utilities need to develop more agile and innovative service delivery procedures [35].

In defining innovativeness in organizations, scholars [36], [37], [38], [39], [40], [41], [42] have argued that innovativeness is the ability of an organization to develop and/or establish a baseline and/or platform for innovations. Thus, innovations are the result of an organizational capacity called innovativeness. Innovativeness, in most cases, refers to organizational innovativeness, as it has developed as an organization's significant non-financial aim and as the central measure of organizational performance [43].

Furthermore, organizational innovativeness has become a key aspect of management practice [44] and has five broad dimensions, including future orientation, proactiveness, openness, creativity, and risk-taking. Anticipating the future of an organization, managers act as required now to face future challenges and to be open to new concepts and ideas, cultivating the scope and culture for creativity and allowing employees to take risks for innovation – all of which have a major impact on organizational innovativeness.

In recent decades, services and utilities organizations have been identified as adding more than 70% to the value of the economies of OECD (Organization for Economic Cooperation and Development) countries [45]. Meanwhile, the threats of environmental and climate change, as well as the pressures of increasing populations, have made these sectors unstable, especially for utilities where environmental and climate-change-related costs are huge. Therefore, maybe the most fruitful activities for these organizations to undertake are cultivating new ideas and technologies for dynamic innovative capabilities [46].

Since Australian water utilities are governed by regulators at different stages, there should be flexibility to cope with new service delivery systems that include innovative ways to increase the performance of product service systems [34]. This requires a review of the current problems and forecasts of future trends, as well as the active participation of stakeholders, e.g. employees, regulators and customers, in designing the customized integration of product (water) and service delivery [47]. In addition, product–service integration in water utilities is also a very important factor that cannot be overlooked, and, therefore, to attain the best result, besides ensuring organizational agility, process reengineering is also required [48] at the industry level.

B. Influencing Factors of Innovativeness

Earlier in this chapter, it was noted that organizations are affected by numerous factors that help them to practice innovation activities and a couple of factors restricting them from performing innovations. This research aims to identify the factors of organizational innovativeness for service delivery in water utilities across Australia. How services are delivered by the water utilities in Australia has already been described. Now the most crucial task is to identify the factors that assist organizations, particularly water utilities, to be innovative in delivering services and, at the same time, the research also aims to identify those factors or indicators that are critical for measuring innovation performance and/or indicating the presence of organizational innovative capabilities in water utilities across Australia.

In general, the terms 'factors of innovativeness' or 'factors of organizational innovativeness' refer to those issues that have very direct impacts on organizational innovation performance [49]. These are the factors that enable organizations to be creative [50] and these factors must be cultivated properly through organizational strategies, culture, structure and different operations to ensure that the organization cultivates innovative capabilities [51]. When these factors are nourished appropriately within organizations, they enjoy competitive advantages [52] and growth in market share.

While studying the innovation literature and trying to accumulate the factors of innovativeness, it has been noticed that terms like 'factors' and 'drivers' have been used by scholars simultaneously. While identifying these factors, scholars have used such phrases as 'factors of innovativeness', 'factors of innovation', 'factors of innovation capability', 'drivers of innovativeness', 'drivers of innovation', etc., for the same purpose, i.e., to discover the factors that enable organizational innovativeness and flexibility to carry out innovative performance.

Keeping in mind the research gap, it can be very firmly claimed that no study has concentrated on the factors of innovativeness for service delivery in water utilities. But the innovation literature concentrating on the service sector contains many similar studies.

Water utilities are very closely related to the service sector [53]; therefore, the factors of innovativeness in the service sector may impact water utilities. A thorough literature search for the factors of innovativeness in the service sector resulted in the identification of 81 factors that have been proven to influence the innovative capabilities of numerous service organizations. These factors have been identified by different research groups over time and across the world. Specifically, research groups, such as [54], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64], [65], [66], [67], [68], [69], [70], [71], [72], [73], [74], [75], [76], [77],

[78], [79], [80], [81], [82], [83], [84], [85], [86], [87], [88], [89], [90], [91], [92], [93], [94], [95], [96], [97], [98], [99], [100], [101], [102], [103], [104], [105], [106], [107] are found to be very prominent in the research of innovation in service industry.

For convenient use of these 81 factors, the authors have used thematic coding [108] with research synthesis [109] to classify the factors into ten groups. This synthesis has allowed the authors freedom to express their own contribution in a scientific manner by describing each group with the support of the literature [110], [111]. Table – 01in the appendix shows the thematic groups and individual factors.

As mentioned, these factors have been identified in the service sector innovation literature, and water utilities are a very customized service-providing sector, thus, it is very natural that not all of these factors will be suitable for water utilities. Moreover, some of these 81 factors are similar to each other. Hence, an appropriate research method is required to point out the most relevant factors for service delivery innovativeness in water utilities.

C. Measuring Factors of Innovativeness

Some organizations have used a balanced scorecard model [112] to measure innovation in the context of customers, finance, internal processes, and learning and growth [113]. Some studies have used competitiveness, economic outcomes (profit), market (share), and environmental footprint (contribution) as measures of innovativeness [114]. Furthermore, employment in knowledge-intensive activities, more exports, sales to new markets, and license and patent revenues are the measuring factors of the outputs of innovation [115]. Hence, besides different organizational benefits, patents are the measures of innovativeness because of the number of products or services an organization introduces into markets, the development of new markets, research and development, and patents have also been identified as measures of innovativeness [43]. Revenue, market share and new products are strongly assessed when measuring innovation capabilities [116], which are critical in improving organizational capabilities referring to number of innovations, R&D expenses in relation to sales, product enhancement, market acceleration, and patent applications [117].

Taking into consideration the research carried out and described, four measures that can be used to indicate the level of innovativeness are benefit, patent, experience of innovation and speed. Scholars have also mentioned that intensity, that is, the frequency of innovation, can be an effective measure [118], and they have also established that the level of risk involved is another crucial indicator of organizational innovativeness.

Although the findings appeared to include a wide variety of factors, when these factors are scrutinized and critically assessed the list of factors narrows. In summary, it can be stated that the following seven factors are usually and universally proved as measures of organizational innovativeness (refer to Table – 02 in the appendix).

III. METHODOLOGY

To discover the most suitable factors for innovativeness for service delivery in the Australian water sector, it is necessary to identify these factors with the help of the relevant professionals. To engage other people in selecting the factors, a qualitative research method is the best choice, because using a quantitative approach to develop a model [119] with related factors for innovativeness would be overly complex, troublesome and time consuming, and therefore a qualitative method would be more effective [120], [121].

There are a few widely used qualitative data collection methods, e.g. in-depth interviews, convergent interviews, case studies and focus group discussions [122], [123], [119], [124].

In this research, focus group discussion was the best technique to deploy [125], [126], [127], because it is an approach that would permit group members to share and discuss their experiences and insights, that is, collaboratively develop the data, as well as being enjoyable for participants [128].

There are 82 urban and council-operated water utilities [129] in Australia, and among them are a few that are linked with water utilities in New Zealand. Out of these 82, some water organizations are bulk sellers only.

Employees at the managerial level of the innovation departments in all the water utilities across Australia were the total population for this research. Participants for focus group discussions were randomly selected, referred to as the simple sampling technique (Cochran, 2007). Apart from this, it was ensured that at least one giant water utility from each state of Australia participated to support the sampling effectively (Sharma, 2017).

Early researchers have suggested that the size of the focus groups should be determined on the basis of the aim of the research [130]. Some scholars have argued for 6–8 participants [131], [132], while others suggest 8–12 participants [133], excluding the moderators.

IV. ANALYSES AND DISCUSSION

A. Analyzing and Discussing Focus Group Discussions

With the active participation of the Water Services Association of Australia (WSAA), a network was established to conduct focus groups with the innovation managers of water utilities across Australia. Due to the COVID–19 pandemic, all of the focus group discussions were conducted over Zoom. In three different meetings, an average of 14 people in each meeting who work in the innovation department participated in the focus group discussions. Prior to joining the discussion, the participants received the list of factors (Table - 01). On a scale of 1 to 10, participants were asked to rate the most essential factor at 10 and the least essential factor at 1. In this exercise, the

factor rated at 10 was multiplied by 10, the factor rated at 9 was multiplied by 9, and so on. Accordingly, the factor rated at 1 was multiplied by 1. The multiplied values were then summed up and average values were taken. Participants were also allowed to add new factor(s) if they found this necessary.

The method of calculating the average value is described in the previous paragraph and is shown in the appendix in Tables 03 to 12. After completing the task, the participants were asked to determine relevant factors that can be used to measure innovativeness for service delivery from the given list of organizational economy, frequency, benefits, patent, speed, experience, and risk. Like the previous activity, they were free to include any new factor(s) required. A follow-up focus group discussion was arranged for further discussions of the findings from the first round and to verify the factors required for improving service delivery innovativeness in water utilities across Australia.

The first focus group discussion resulted in the identification of 30 factors essential for innovativeness in service delivery. Table 13 in the appendix lists these factors and their average values. Simultaneously, five measuring factors were also finalized. In the second focus group discussion, the participants analyzed each of 30 factors individually. After observing the list of 30 factors with their average values, the participants agreed with the order of the factors in accordance with average values. The entire group decided that further discussion of these factors could be limited to those factors having at least 7.00 as average values. Thus, the list came down to 18 factors. The other 12 factors were somehow related to or reflective of the other 18 factors on the list.

Interestingly, the participants also found more relationships among the 18 factors in the list. They stated that ‘freedom’ and ‘risk taking’ are elements of ‘Culture for Creativity’, so these two factors could be ignored. They also identified ‘social network’ and ‘collaborative relationship network’ under the umbrella of ‘Industry Relationships’. The group decided that ‘total quality management (TQM)’ goes with ‘Organizational Resources’, and, as a factor, ‘marketing’ was weak while another two important factors, i.e., ‘Clients’ Requirements’ and ‘Brand Advertisement’, were present in the list. Thus, the total number of factors became 14, excluding the factors related to the regulators. The title of one factor, ‘knowledge management’, was changed to ‘managing knowledge for innovation’, to make it easier to understand.

Since there was a participant from the NSW Water Directorate, the group endorsed two regulator-related factors, i.e., ‘Regulators’ Influence: change’ and ‘Regulators’ Influence: improvement’. In total, 16 factors that influence service delivery innovativeness in water utilities across Australia were determined, with five measuring factors.

B. Model Factors of Innovativeness for Service Delivery in Australian Water Utilities

Using the influencing factors and measuring factors determined through focus group discussions with the innovation champions working in Australian water utilities, a model has been developed to support innovativeness in service delivery.

Please find the figure – 01 in the appendix.

C. Influencing Factors of Innovativeness for Service Delivery

a) Idea Generation

Ideas are the keys to innovation. When organizations have very broad vision, it becomes very easy for them to generate new ideas [134]. When leaders and top managers generate new ideas for new initiatives and solve problems through innovative reasoning, it enables water utilities to develop innovativeness in service delivery. Multiple researchers have identified this factor for improving service delivery through innovativeness [60], [63], [64], [69]. Based on this idea, work can be properly delegated, with necessary training programs, and thus employees will also be highly motivated in their innovation endeavors [135], [136], [137].

b) Teamwork

With new ideas, organizations organize people in teams to move towards innovative performance [138]. Teamwork has been discovered as a crucial driver for innovation by different scholars in the service sector [55], [64], [67], [85], [95]. People with sufficient training can contribute more effectively through teamwork [139], hence, in turn, an effective team structure enables innovativeness. As teamwork motivate employees, they also feel more responsible for their delegated duties. In addition, an organizational culture that supports innovation also accelerates such teamwork.

c) Clients' Requirements

Organizations should prioritize their clients’ requirements and practices in their culture that supports creativity [140]. Therefore, a major criterion related to service delivery was obviously clients’ demands [141] and their attitudes towards price setting [142]. Both are, in fact, vital for water utilities, and thus innovativeness could be an outcome of this factor. In the service sector innovation literature, researchers found that this factor influenced innovativeness [54], [57], [65], [75], [87], [143]. Addressing the requirements of clients often needs new ideas with broad vision and training programs [144], [145], [146].

d) Organizational Resources
With high levels of capital investment, organizations can address clients' requirements more effectively with new ideas, vision and adequate training. When the organization can ensure and provide sufficient resources, employees can easily use them for creative thinking, which in turn can lead towards innovativeness. Many scholars of service sector innovation have supported this factor [54], [60], [70], [73], [77], [80], [83], [84], [104].

e) Vision
Broad vision enables organizations to develop new ideas [134]. Through discussions in the focus groups, it has been established that water utilities will have the potential to undertake innovative activities if they have proper vision, which is also justified in service sector innovative performances [66], [69], [73], [83], [90], [104]. Vision and new ideas motivate employees to pursue innovative activities [137] through effective teamwork [138].

f) Industry Relationships
When organizations develop a culture of building relationships across the industry, they can gain information on the scope of development and innovation [147]. These relationships open opportunities for better performance in innovative activities. Water utilities should take opportunities for acquiring knowledge and information in relation to innovative practices from different water utilities. In this way, they can get a feel for the existing situation and generate ideas for innovativeness. Such relationships within the industry or sector have been emphasized by researchers in studies of innovativeness in the service sector [54]. In other words, water utilities can manage their knowledge about innovation in a better way. Highlighting their brand image, utilities can also attract more clients in the water sector and serve them more satisfactorily [148], [149].

g) Training and Development
Training is vital for managing knowledge for innovation [150]. Training also motivates employees to perform their innovative activities [135], [136], [137]. Moreover, properly designed training and development programs contribute to better teamwork [138] and improve organizational culture for creativity [118]. Well-designed and timely training programs, as well as employee development schemes, are vital for disseminating new concepts and ideas that nourish innovation in the water utilities in Australia. The focus group participants emphasized the need for training and development, which is also supported in the literature of service sector innovation [54], [63], [98], [100], [102], [105].

h) Delegation
When employees are delegated responsibilities they find themselves empowered, which is vital for initiating innovative activities [151]. Organizations that are willing to innovate must develop the culture for proper delegation of authority and responsibilities [152]. Unless the employees of water utilities are accurately assigned responsibilities along with the applicable authorities, it is highly unlikely that they will be influenced to undertake innovative activities, and thus proper delegation is prioritized in the service innovation literature [64]. The innovation literature argues that through delegation, employees are not only motivated, but also perform better in the team setting [153].

i) Use of ICT
The present world is running on extensive use of information and communication technology (ICT). Availability and access to ICT resources not only motivates employees in innovative performance [154], but also helps to develop their skills [155]. Therefore, organizations should ensure a supportive culture for extensive use of ICT [156]. The maximum utilization of ICT enables people in the Australian water sector to adopt new technological advancements for fostering service delivery innovation, the focus group participants agreed. The service sector innovation literature also confirms that appropriate and sufficient use of ICT is a major influencing factor in this regard [87], [93], [99], [104].

j) Motivation
Motivation is a crucial driver towards innovation in complex situations [157]. Such motivation empowers employees and enables them to use knowledge for innovation [158]. Moreover, highly motivated employees perform better in team settings [159]. The participants in the focus groups indicated that unless employees are inspired to undertake innovative activities or, at least, to think independently, innovativeness in service delivery is not possible. As a factor of innovativeness, motivation is crucial in all sectors, and scholars in service sector innovation have recognized this with ample emphasis [59]. Therefore, water utilities should nourish a culture in which people are motivated and where innovation will result from effective teamwork.

k) Brand Advertisement
Brand image performs a vital role in employee motivation to innovate [160]. Through proper brand advertisements, employees feel motivated and perform at their best in teamwork when the organization maintains a culture that encourages creativity. The participants in the focus groups have claimed that the quality of water supplied from different water utilities across Australia is better than bottled water. This is a point made in advertisements and has established the brand advertisement image of Australian water utilities. Advertising the brand to

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attract and secure the faith of the customer is also supported in the literature of innovation in the service industry [75].

l) Managing Knowledge for Innovation
Knowledge is also vital for the motivation of employees in innovative activities [161]. Proper knowledge management leads to new ideas, which in turn guide training programs for innovation and help prepare effective teams [135], [136], [137]. Knowledge of innovation and new ideas must be nourished and managed through proper research and development, as this will facilitate service delivery innovativeness in a true sense. The literature of service sector innovation strongly supports this factor [63], [74], [83], [92], [106], [107].

m) Culture for Creativity
Culture is an essential influence on innovation [162], therefore, ensuring and facilitating creativity in organizational culture is yet another key to service delivery innovativeness in water utilities. When organizations maintain such a culture, idea generation, vision, teamwork and delegation become very fruitful [163], [164][165]. The culture-for-creativity factor has been highlighted by many researchers in the innovation literature of service industries [57], [60], [62], [92], [98], [103], [107].

n) Capital Resources
Scholars of service sector innovation have described how capital resources are not only limited to financial capabilities, but also include infrastructure, procedures, human resources, etc. All of these are critical for initiating and improving innovativeness [65], [66], [71], [73], [82], [85], [101], [104]. The participants in the focus groups strongly supported nourishing this factor in the water utilities.

o) Regulators' Influence: Change
The regulators of the water utilities in Australia directly influence the operations of water utilities. Since innovativeness makes change, so influences from the regulators should encourage employees towards innovative performance. This factor has already been justified through the literature in the section 2.

In the innovation literature, two factors of the external environment, i.e., government or regulatory roles and regulations and legislation, were very similar to the participants' proposed two new factors, since the work of employees is often impacted by the different regulations and legislations imposed by the regulators [71], [166], [167].

p) Regulators' Influence: Improvement
The focus group participants also recognized and explained another influence from the regulators in relation to improvement. They claimed that employees' work outcomes can be affected by such influences.

The regulatory bodies frequently influence the improvement of the outcome of the employees' work regulations [168], [169], [70], [76], [100], [101], [103], [170].

Through the discussion presented, it becomes very clear that all the influencing factors are very closely related to each other. It has also been shown that a few crucial factors, e.g., culture, delegation, motivation, idea generation, vision, teamwork, training and development, have very direct impacts on each other.

D. Measuring Factors of Innovativeness for Service Delivery

In determining the measuring factors, the focus group participants agreed with five factors from the list. Their explanations for the five selected factors are described here.

a) Frequency of Innovative Change
Frequency is a factor that measures innovativeness when there are changes in water utilities because of innovative activities.

b) Benefits of Innovative Change
As a factor, benefits can be used to evaluate service delivery innovation when there are changes in water utilities due to innovative pursuits.

c) Speed of Innovative Change
Speed is a crucial factor for measuring innovativeness in service delivery in water utilities when there are modifications as a consequence of innovative endeavours.

d) Experience of Innovative Change
The employee experience is also a vital factor for measuring innovative performances when there are changes in water utilities resulting from innovative behaviours. Employees may feel either positive or negative impacts due to such changes as innovative endeavours contribute to the achievement of organizational objectives.

e) Risks Associated with Innovative Change
The focus group participants strongly supported level of risk as a measuring factor in water utilities in relation to their service delivery innovativeness. The reason is that risk is very closely related to the changes resulting from innovative activities. The employees can evaluate such risk while innovating.

V. CONCLUSION

This research aimed to identify the essential driving forces (factors) of organizational innovativeness for service delivery in water utilities. The research question was addressed successfully by identifying, through focus group discussions, the essential influencing factors that need to be cultivated in Australian water utilities.

Meeting the first research objective, in line with the accomplishment of the research question, this research successfully pointed out the measuring factors of innovativeness for service delivery as a second objective. Finally, by developing a model of factors for organizational innovativeness for service delivery in water utilities across Australia, the research fulfilled the third research objective.

The finding from this research has added a new concept to the innovation literature, particularly for water utilities. The body of knowledge has been enriched through the identification of influencing and measuring factors of service delivery innovativeness for water utilities, which are significant inclusions.

This concept can be used by practitioners to inform their innovative performance. Water utilities can use the model to assess their service delivery innovation capabilities, as well as to measure their innovative performance. Thus, this research makes contributions to both the body of knowledge and to practice.

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APPENDIX

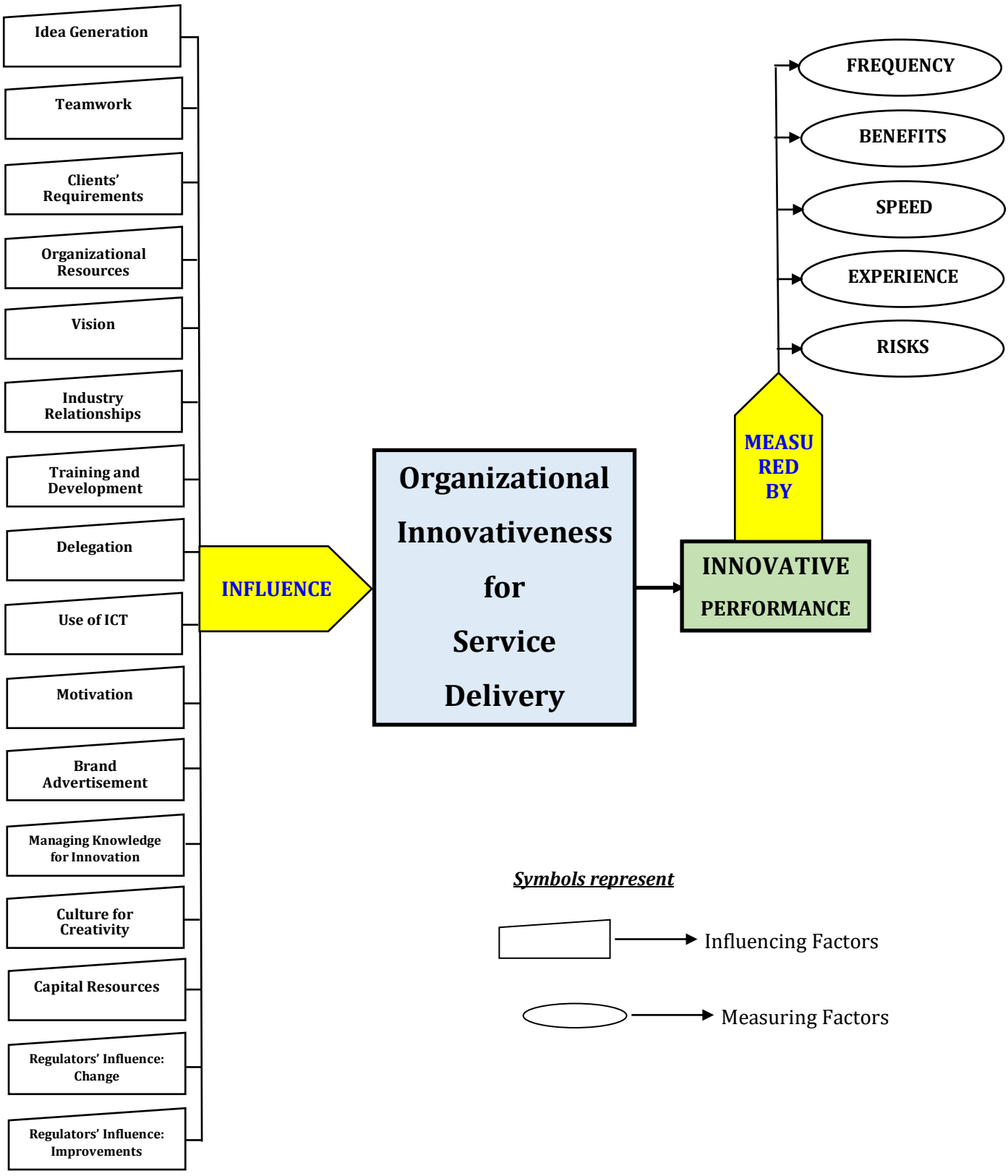

Fig. 1: Model Factors for Service Delivery Innovativeness in Australian Water Utilities

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GROUPS	INDIVIDUAL FACTORS
Culture	Culture for Creativity, Organizational Climate, Organizational Learning and Capacity, Freedom/Autonomy, Innovation Culture, Entrepreneurial Culture, Risk/Risk Taking, Tolerate Failure, Governance, Approach of the Project Team
Human Resource Management Functions	Human Resources, Reward/Incentive Schemes/Systems, Training and Development, Teamwork/Coordination, Competent Technical Staff, Good Internal Communication Systems, Selective Recruitment, Human Resource Management Practices, Motivation, Employee participation/Engagement, Human/Employees' Potentials/Interests, Flexible Working Contracts.
Top Management Orientation	Entrepreneurship, Strategic Vision, Management Priority, Proactiveness, Decision Making, Delegation.
External Environment	Collaborative Relationship Network, Partnering/Networking with Specialist Experts, Government/Regulatory Role, New Technology, Factors of External Environment, Environmental Sustainability, Social Network, Industry Relationships, Opportunity, Regulations and Legislations, Labour Market.
Organizational Proficiencies	Organizational Support for Innovation, Capital Resources, Innovation Strategy/Policy, Organizational Resources, Firm Size, Information & Communication Resources, Intellectual Property Rights, Organizational Structure, Total Quality Management (TQM), Organizational Age, Available Finance, Innovation Management, Sustainability, Productivity, Project Management, Integration (Internal & External), Organizational Innovation Capacity (OIC), Continuous Improvement.
Leadership	Vision, Leadership Style, Idea Generation.
Knowledge Management	Knowledge Management, Knowledge Development, External Knowledge Sources, Knowledge Codification/Transfer, Learning/Action Learning.
Market Pressure and Competition	Market (Structure),Competition Level, Clients' Requirements, Marketing, Market Demands, Clients and Manufacturers Relationship, Suppliers, Brand Advertisement.
Technology Adaptation	Technological Competence, Use of ICT/CAD, Scientific and Technology Resources, Technology Transfer, Technology Strategy.
Research and Development	Internal Research and Development, Academia – Industry Collaboration, R&D Collaboration with Other R&D Institutions.

Table 1: List of Factors for Organizational Innovativeness in Service Industries

MEASURING FACTORS	DESCRIPTION	REFERENCES
Organizational Economy	Every organization primarily focuses on its economic growth, because economic growth is the vital measure of organizational innovativeness as narrated in different research.	[116], [114], [171], [172]
Frequency	Frequency of innovativeness is the intensity of innovative performances which determines the rate of innovativeness in a given period of time. Thus, innovation frequency talks about the occurrence of innovation in the organization.	[118], [173]
Benefits	Without any benefit, or the high propensity to be benefited, no organization will pursue innovative activities. Benefits are those measures related to customer satisfaction, financial and market growth and organizational capabilities supported by many scholars.	[113], [115], [117], [114], [118]
Patent	Patents are a measure of innovativeness, and registered innovations are easily counted.	[43], [117]
Speed	'Speed' as a measure has been concealed within a market share that is accelerating very quickly as well as in increased revenue.	[116], [117]
Experience	Experience is a measure of organizational innovativeness which people feel as they observe and participate in organizational functions that relate research and development practices with expenses.	[115], [117], [118]
Risk	Investing money in research and development to accelerate sales, deploying human resources and developing corporate-level strategies all involve high risk, which is also a measure of innovative performance, because scholars have discovered that the higher the risk, the higher the possibilities for innovation.	[117], [118], [174]

Table 2: Measuring Factors for Organizational Innovativeness in Service Industries

ultural Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Culture for Creativity				2	1				5	2	**7.80**
Freedom			1			2	1	2	2	2	**7.60**
Risk Taking		1		1		1	2	2	3		**6.90**

Table 3: Responses in Rating Exercise for Culture

- **Calculating Average Value:**

Example – Culture for creativity

For rated at 1, multiplied by 1, rated at 2, multiplied by 2, rated at 3, multiplied by 3, and accordingly, rated at 10, multiplied by 10.

2 participants rated at 4, so 2 X 4 = 8; 1 participant rated at 5, so 1 X 5 = 5; 5 participants rated at 9, so 5 X 9 = 45, and 2 participants rated at 2, so 2 X 10 = 20. Thus, the total is (8+5+45+20) 78, average is divided by 10 participants, i.e., 7.80.

HRM Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Motivation					1	1	2	1	3	2	**8.00**
Teamwork							1	2	4	3	**8.90**
Training and Development							1	4	3	2	**8.60**

Table 4: Responses in Rating Exercise for HRM Functions

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Top Management Orientation Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Delegation							1	3	5	1	**8.60**
Proactiveness		1	1	1	1		1	1	1	3	**6.80**
Strategic Vision	1	2	1					1	2	3	**6.40**

Table 5: Responses in Rating Exercise for Top Management Orientation

External Environment Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Collaborative Relationship Network	1	1			1	1		1	3	2	**6.90**
Industry Relationships							1	4	3	2	**8.60**
Social Network		1			1	1	1	3	3		**7.10**

Table 6: Responses in Rating Exercise for External Environment

Organizational Proficiency Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Capital Resources				1			1	6	2		**7.70**
Organizational Resources								3	5	2	**8.90**
Total Quality Management (TQM)				1	3		2	1	1	2	**7.00**

Table 7: Responses in Rating Exercise for Organizational Proficiency

Leadership Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Idea Generation							1	2	2	5	**9.10**
Leadership Style	1	2	1		1		1		1	3	**5.90**
Vision							2	1	4	3	**8.80**

Table 8: Responses in Rating Exercise for Leadership

Knowledge Management Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
External Knowledge Sources	2		2				1	4	1		**5.60**
Knowledge Development	1	3					2	1	2	1	**5.70**
Knowledge Management						2	2	3	1	2	**7.90**

Table 9: Responses in Rating Exercise for Knowledge Management

Technology Adaptation Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Technology Resources		2	1	1			2	1	3		**6.00**
Technology Transfer		2	1	1		1		2	3		**6.00**
Use of ICT							3	4	2	1	**8.10**

Table 10: Responses in Rating Exercise for Technology Adaptation

Market Pressure and Competition Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Brand Advertisement							2	6	2		**8.00**
Clients' Requirements							1	2	4	3	**8.90**
Marketing					1	2	4	2		1	**7.10**

Table 11: Responses in Rating Exercise for Market Pressure and Competition

Research and Development Factors	RATING										Average Value
	1	2	3	4	5	6	7	8	9	10	
Academia - Industry Collaboration	3		1		2	1		3			**4.60**
Collaboration with Other R&D Institutions	1	1	2				2	4			**5.50**
Internal Research and Development		3	1					4	1	1	**6.00**

Table 12: Responses in Rating Exercise for Research and Development

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Serial	FACTORS	FGP-1	FGP-2	FGP-3	FGP-4	FGP-5	FGP-6	FGP-7	FGP-8	FGP-9	FGP-10	AVG
1	Idea Generation	8	8	9	10	7	10	10	9	10	10	9.10
2	Teamwork	9	10	8	7	8	9	9	10	10	9	8.90
3	Clients' Requirements	9	10	8	9	8	10	7	10	9	9	8.90
4	Organizational Resources	9	8	9	10	9	8	9	8	10	9	8.90
5	Vision	7	8	9	9	10	7	9	10	10	9	8.80
6	Industry Relationships	8	10	9	8	7	9	8	10	9	8	8.60
7	Training and Development	8	9	8	7	8	8	10	9	10	9	8.60
8	Delegation	8	9	9	7	8	8	9	9	10	9	8.60
9	Use of ICT	8	9	7	8	8	7	10	8	9	7	8.10
10	Motivation	8	9	7	5	6	7	9	10	10	9	8.00
11	Brand Advertisement	8	9	8	7	8	9	8	7	8	8	8.00
12	Knowledge Management	8	7	6	9	8	7	10	6	10	8	7.90
13	Culture for Creativity	9	9	4	4	10	5	9	10	9	9	7.80
14	Capital Resources	8	8	8	9	4	8	8	8	7	9	7.70
15	Freedom	8	8	6	3	9	6	10	10	7	9	7.60
16	Social Network	8	6	2	9	9	5	8	9	7	8	7.10

Table 13 : List of essential factorsinfluencing innovativeness, identified through focus group discussions

Serial	FACTORS	FGP-1	FGP-2	FGP-3	FGP-4	FGP-5	FGP-6	FGP-7	FGP-8	FGP-9	FGP-10	AVG
17	Marketing	7	8	7	6	10	5	7	7	6	8	7.10
18	Total Quality Management (TQM)	4	5	10	10	5	8	9	7	5	7	7.00
19	Risk Taking	6	9	7	2	7	4	9	8	8	9	6.90
20	Collaborative Relationship Network	8	9	1	2	6	5	10	10	9	9	6.90
21	Proactiveness	10	9	4	2	5	3	10	7	10	8	6.80
22	Strategic Vision	9	10	2	1	3	2	8	10	10	9	6.40
23	Internal Research and Development	9	8	3	2	2	2	8	8	10	8	6.00
24	Technology Resources	7	7	2	2	4	3	9	9	8	9	6.00
25	Technology Transfer	8	8	4	3	2	2	9	9	6	9	6.00
26	Leadership Style	9	7	1	2	2	3	10	10	5	10	5.90
27	Knowledge Development	7	9	2	2	1	2	10	8	9	7	5.70
28	External Knowledge Sources	8	8	1	3	3	1	8	8	9	7	5.60
29	Collaboration with Other R&D Institutions	7	8	2	3	3	1	7	8	8	8	5.50
30	Academia - Industry Collaboration	5	6	1	1	3	1	5	8	8	8	4.60

Table 14 : List of essential factorsinfluencing innovativeness, identified through focus group discussions, *cont.*