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Knowledge Sharing Mediates the Relationship Between Budget Participation and Innovative Work Behavior

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Abstract
This study researches the role of knowledge sharing as a mediator between budget participation and innovative work behaviour of budget preparers within Libyan public industrial companies. This research is modelled on organisational knowledge creation theory, where the theory of knowledge creation is employed to justify and explore the effect of budget participation on knowledge sharing, and then creation of new knowledge. Quantitative methods were applied to achieve the research purpose: a single questionnaire was developed and distributed to 480 personnel involved in budget preparation within Libyan public industrial companies, from which 210 completed questionnaires were analysed. The Structural Equation Modelling technique and SmartPLS software were employed to analyse the relevant data. The innovative behaviour in the workplace of the budget participants was affected by their participation in the budget setting process: an indirect relationship being established through knowledge sharing, where results showed that there is an indirect relationship via knowledge sharing between budget participation and innovative work behaviour. The study recommends exploiting the budgetary participation of staff as a means to enhance and develop knowledge sharing.
Keywords: Knowledge Sharing; Budget Participation; Innovative Work Behavior; Budget Preparers; Libyan Industrial Companies.

1. Introduction

Participative budgeting is commonly defined in the accounting literature as a process in which a lower level manager is involved with, and has an influence on the determination of his or her budget. Participation involves interaction among participants, and budget programmes involve many individuals, often operating in teams (Hemali & Tahajuddin, 2018b; Kyj & Parker, 2008; Marginson & Ogden, 2009). Participative budgets include lower-level managers who are tasked with coming out with estimates, which are later coordinated and communicated upward. Such budgets are referred to as bottom-to-top budgets. In these budgets, attainment of goals is more likely, as a result of the active role played by lower-level managers in establishing budgets. Because of their day-to-day involvement in departmental activities, they possess an intimate knowledge of the capabilities of their department and the requisite resource requirements (Magner, Welker, & Campbell, 2008). Budgetary participation also provides a framework within which managers sharing information and ideas to make budgetary planning, coordination and control more efficient (Poon, Pike, & Tjosvold, 2001). Budgetary participation is used for many purposes, for example, knowledge purposes because with higher levels of employee participation in the budget process, employees will be more likely to share their knowledge and help each other in the planning stage (Heath & Brown, 2007; Kyj & Parker, 2008; Yuen, 2007). Hence it is predicted that a high level of budgetary participation is likely to lead to a high level of knowledge sharing.

According to Ikujirō Nonaka and Takeuchi, (1995), knowledge is created only by individuals. An organisation cannot create knowledge on its own without individuals. Organisational knowledge creation should be understood as a process that organizationally amplifies the knowledge created by individuals and crystallises it at the group level through dialogue, discussion, experience sharing or observation. Based on Tiwana (1999), knowledge sharing provides a basis for development, so the model of knowledge sharing needs to be interactive and collaborative. Collaboration is a process through which people who see different aspects of a problem can constructively explore their differences and search for solutions that go beyond their limited vision of what is possible. Budgetary participation also provides a framework within which budget preparers exchange information and ideas to make budgetary planning, coordination and control more efficient (Poon et al., 2001). Many researchers support the view that information gathered from lower level managers can facilitate the process of budget preparation. This potentially provides an opportunity to improve budget preparers' knowledge as well as the budget setting processes (Leach-López, Stammerjohan, & Lee, 2009; Leach - López, Stammerjohan, & McNair, 2007; Macinati & Rizzo, 2014). Numerous studies have hypothesised that participation by managers in the budgetary process improves satisfaction, motivation, coordination and performance (Briers & Hirst, 1990; Brownell, 1982; Poon et al., 2001; Saidu & Musa, 2017; Shields & Shields, 1998).

Budget preparers in Libyan public industrial companies, being the research frame of this study, accordingly will gain more innovative behaviours in the workplace, which is reflected in the budget setting process. More specifically, the budget preparers in Libyan public industrial companies have low effectiveness of their key areas of functions associated with the budget, as a result of the lack of necessary knowledge as well as lacking

innovative behaviour, during budget preparation (Administrative Control Authority, 2016). The sufficiency or insufficiency of budget planning and implementation relies on the professional and technical effectiveness of those officers (Baerdemaeker & Bruggeman, 2015; Hanifah, 2013; Lueg & Lu, 2012). The consequence is that the budget preparation becomes routinised and the result is merely updating the former year's estimates (Administrative Control Authority, 2016). The importance of budgetary participation in Libyan public industrial companies, as a critical enabler to enhance knowledge sharing as well as innovative work behaviour of budget preparers' within these entities is seen as a key focus area by the Administrative Control Authority who require budget preparers' to acquire sufficient knowledge as well as being innovaters for the higher effectiveness of their key functions associated with the budget (Administrative Control Authority, 2016). This study, therefore, focuses on the mediation role of the knowledge sharing between budget participation and innovative behaviours at work. Specifically, the study will contribute to an emerging research focus on the relationship between budget participation and innovative work behaviour, which has thus far received very limited attention, especially in regard to the interpretations of the relationship between budget participation and innovative work behaviour, not only in the Libyan context but also more widely.

2. The relationship between budget participation and innovative work behaviour

Initially, participation in the budgeting process empowers subordinates to discuss with their superiors their ideas and proposals for innovation. Based on (Hemali & Tahajuddin, 2017, 2018a), budget participation explicitly encourages the generation of new ideas, the promotion of new ideas, and their realization. Damanpour and Evan (2013), suggested that innovation is increased when there are open lines of communication inside organizations. Budgetary participation encourages subordinates to share their thoughts, perspectives and opinions, and it allows them to interact with their supervisors. An innovative behaviour is directly affected by team work, informational flow, supervision, morale-climate, involvement and meetings (Taghipour & Dezfuli, 2015), whereas all those activities represent budgetary participation features (Carlitz, 2013; Karakoc & Ozer, 2016; Kyj & Parker, 2008; Macinati & Rizzo, 2014). Janssen, (2000), defined innovative behaviour as the way in which employees innovate, use and carry out new ideas in a purposeful fashion, and that employees with such behaviour can further achieve greater performance, for themselves, their groups, and their organisation. Innovative work behaviour can be defined as the intentional generation, promotion and realisation of new ideas within a work role, work group or organisation, to benefit role performance, the group, or the organisation (Scott & Bruce, 1994; West & Farr, 1992; Yuan & Woodman, 2010). The scope of innovations ranges from the development and implementation of new ideas that have an impact on theories, practices or products of the whole organisation, to smaller scale ideas that are related to improvements in daily work processes and work designs (Janssen, 2003). The innovative behaviour of individuals in the workplace suggests the advancement of unique and beneficial ideas in addition to the execution of such ideas through creating new products, services or techniques (Zhu & Mu, 2016). When knowledge is transferred between individuals and groups within the organization, existing ideas from an individual or group may appear novel to another, and vice versa, resulting in potentially innovative new work behaviour, or solutions (Rıfat & Bulutlar, 2010). Because low level managers have high levels of tacit knowledge (Özera & Yilmaz, 2011; Setiawan & Ghozali, 2016; Uyar & Bilgin, 2011), they are in an ideal position to find the required 'new combinations' of existing practices, which form the core of innovations in organisations (Spiegelaere, 2014).

3. Knowledge sharing mediates the relationship between budget participation and innovative work behaviour

The Theory of Organizational Knowledge Creation (SECI model) explains how knowledge held by individuals, organizations, and societies can be concurrently enlarged and enriched through the spiral, interactive amplification of tacit and explicit knowledge held by individuals, organisations, and societies. The key for this synergistic expansion of knowledge is joint creation of knowledge by people and organisations. Organizations play a critical role in mobilizing tacit knowledge held by individuals and provide the forum for a "spiral of knowledge" creation through socialisation, combination, externalization, and internalization. All of these conversion modes interact in a dynamic and continuous "entanglement" to drive the knowledge creation process. This spiral is created by the four modes of knowledge conversion through which knowledge is converted from one knowledge type to another. The theory also explains how individual knowledge is "amplified" into and throughout the organization through the four conversion modes.

According to Kao, Wu, and Su, (2011), socialization and externalization are essential mechanisms to reveal knowledge. Nevertheless, if individuals only receive and provide knowledge, this procedure does not guarantee knowledge creation. They claim that effective and successful knowledge creation happens during the phase of combination and internalization when the recipient combines and internalizes the explicitly obtained knowledge and finally creates new knowledge. For that reason, the knowledge creation procedure cannot just rely on the characteristics of the individual, however, it ought to depend on an environment which assists in promoting

creative and innovative intention to guarantee success. To sustain organisational knowledge creation, Hsiao, (2017) and Ikujiro Nonaka and Toyama, (2003) suggest that the SECI processes of knowledge conversion require platforms or regions where knowledge is created; knowledge assets existing in an organisation; and strategies or occasions that allow these knowledge creation constructs. Knowledge creation or sharing will not happen without a context, rather it relies on the manner of participation and the individuals who participate (Tyagi, Cai, Yang, & Chambers, 2015). Ikujiro Nonaka, Toyama, and Byosiere, (2000) believed that the knowledge-creating procedure is "context-specific" regarding time, space, and in the relationship with others. Creating knowledge requires an area or place where information is given meaning via interpretation. The individuals participate in a context to generate a shared sense of purpose by interacting with each other and transcend each person's subjective and limited perception to create knowledge" (Tyagi et al., 2015). The process of knowledge creating is essentially context-specific (Ikujiro Nonaka et al., 2000). Budgetary participation is a context where information is interpreted and incorporated as new knowledge for the participants. Additionally, participation in budgeting preparation provides platforms and energy for employees to engage in each method of knowledge conversion and to move along the knowledge spiral (Ikujiro Nonaka & Toyama, 2003). A fundamental concept in understanding budget participation is interaction. Knowledge is produced via interactions between employees or between employees and their environments, instead of by an individual operating alone.

The involvement of budget preparers in the knowledge sharing process helps them to adopt more knowledge, which assists towards innovative behaviour on their part. It has already been noted in the model proposed by Woodman, et al., (1993), that the innovation of the individual is affected by several factors, such as social networks, knowledge, and cognitive capability. Woodman et al., (1993), pointed out that more rapid transfer of knowledge via sharing supports the cultivation of an aptitude to think and generate ideas. It has also been found that all kinds of knowledge flows, from the top downwards, from the bottom upwards, and horizontally, all influence the employees' innovative behaviour (Mom, Bosch, & Volberda, 2007). Knowledge, skill, and experience all contribute to the value creation process. According to this view, knowledge sharing could be seen as a valuable input to innovation because of its characteristics of being firm-specific, socially involved, and path-dependent (Wang & Wang, 2012). It is evident that a organisation's ability to transform and exploit knowledge may determine its level of innovation in areas such as new problem-solving methods, and new products for rapid reaction to market demands (Ng, Goh, & Eze, 2011; Wang & Wang, 2012). To better fulfil innovative tasks, budget preparers can borrow from the tacit knowledge (skills or experience) of their colleagues or search for explicit knowledge (institutionalized practices) existing in the company (Wang & Wang, 2012). Therefore, a corporation that fosters knowledge sharing practices within groups or organisations is likely to generate new ideas, thus facilitating innovation (Mumford, 2000; Wang & Wang, 2012; Yesil, Koska, & Buyubese, 2013). Consequently, there is an assumption that knowledge sharing acts as a mediator between budget participation and innovative work behaviour; specifically, it is posited that the knowledge sharing will interpret the relationship between budget participation and innovative work behaviour. Based on the above discussion, the following hypothesis is put forward:

Research Hypothesis:

Knowledge sharing mediates the relationship between budget participation and innovative work behaviour.

Fig. 1. Research Model

4. Research Method

The quantitative approach has been adopted as the research technique for this study because data collection involved a large-scale survey rather than interviews. This method should yield a better understanding of the studied population by testing the relationships between variables involved in budget participation, knowledge sharing, innovative work behaviour of budget preparers in Libyan public industrial companies. The population of the study is budget preparers in Libyan public industrial companies, who are identified as employees at many different levels, that participated in the budget-setting process to some extent. Employees were selected from a variety of industries in Libyan public companies; the only criterion being that they be involved in the budget setting process. The sample for this study was drawn from employees in the industrial public sector throughout

Libya. In this study, the sample size was 210. For this research, purposive sampling was utilized which falls under the category of non-probability sampling techniques. Purposive sampling is the appropriate method available because of limited primary data sources with particular individuals. One questionnaire was used to collect data from individuals whose job responsibilities require them to participate in the budget process. Self-administered closed-ended questions using a five-point Likert-scale were used to measure their views on all the components of the constructs. The six closed-ended type questions was chosen for measuring budget participation, adopted from Cheng et al., (2014). This research study uses the concepts of (Hooff & Ridder, 2004), who employ knowledge donating and knowledge collecting to determine and measure the degree of knowledge sharing between individuals in an organization. Each knowledge sharing dimension has five questions. Innovative work behaviour was examined by three dimensions according to the (Janssen, 2000) scale for individual innovative behaviour in the workplace, three items refer to idea generation, three items to idea promotion, and three items to idea realisation. The data collected was analysed using structural equation modelling (SEM).

5. Analysis and Results

5.1 Profile of Respondents

Table 1 Profile of Respondents

Demographic Variables	Categories	Frequency	Perc (100%)
Job position	Chief financial officer	32	15.2%
	Department Head	47	22.4%
	Accountant	94	44.8%
	Accounts clerk	37	17.6%
Gender	Male	172	81.9%
	Female	38	18.1%
Age	26 - 35	47	22.4%
	36 - 45	94	44.8%
	46 - 60	66	31.4%
	Above 60	3	1.5%
Education	High school	22	10.5%
	Diploma	51	24.3%
	Degree	118	56.2%
	Masters	16	7.6%
	Doctorate	3	1.4%
Specialization	Accounting	169	80.5%
	Management	15	7.1%
	Economics	7	3.3%
	Other	19	9.0%
Working experience	1 - 5	30	14.3%
	6 - 10	41	19.5%
	11 - 15	46	21.9%
	Above 15	93	44.3%

5.2 Study Model Evaluation Using SmartPLS-SEM

Analysis by SmartPLS-SEM occurs through a two process encompassing assessment of the outer model (Measurement Model) and the assessment of the inner model (Structural Model) (Hair, Adriane, & Chong, 2017; Joseph F Hair, Hult, Ringle, & Sarstedt, 2017; Sarstedt, Ringle, & Hair, 2018). Assessment of the outer model included the reliability and validity. Evaluation of the latent variables relates to the evaluation of the

relationships between latent variables and their items, in order to know their capability to measure the study variables.

The second phase of analysis was the assessment of the inner model which dealt with the relationships between latent variables themselves rather than their items, in order to assess their ability to measure the phenomenon itself (Joseph F Hair et al., 2017; Sarstedt et al., 2018). Within this study, which contains two of high order constructs, a two-stage approach was applied.

5.2.1 Assessment of the Measurement Model

This study comprised three reflective constructs: Budget Participation which refers to the involvement and influence of budget preparers in the budget setting of the organisation, Knowledge Sharing which indicates employees' interaction with their knowledge, Innovative Work Behaviour that refers to individual innovative behaviour in the workplace. Measurement model assessment basically provides two indicators which are reliability and validity (Sarstedt et al., 2018). Reliability assessment is provided from two indicators which were indicator reliability (item loading), and internal consistency reliability (composite reliability **CR**). Whereas the validity evaluation is obtained through two indicators which were convergent validity which is assessed by the index of the average variance extracted (**AVE**), and discriminant validity (Sarstedt et al., 2018).

5.2.1.1 Item loading, **CR** and **AVE**

Indicator reliability (**item loading**) refers to the size of the outer loading. At a minimum, all indicators' outer loadings should be statistically significant. Because a significant outer loading might still be relatively weak, a common rule of thumb is that the standardized outer loadings should be **0.70** or greater (Joseph F Hair et al., 2017). Internal consistency reliability (**CR**) is a form of reliability employed to evaluate the consistency of results across items on the same test. It identifies whether the items measuring a construct are comparable in their scores. The traditional standard for internal consistency is Cronbach's alpha that provides an estimate of the reliability based on the intercorrelations of the observed indicator variables. But PLS-SEM prioritises the indicators according to their individual reliability. The standardized **CR** should be ≥ **0.70** (Joseph F Hair et al., 2017). Convergent validity (**AVE**) is actually the extent to which a measure correlates positively with alternative measures of the same construct. To assess convergent validity of reflective constructs, researchers consider the outer loadings of the indicators and the average variance extracted (**AVE**). The standardized **AVE** should be ≥ **0.50.** (Joseph F Hair et al., 2017). The results of the of reliability evaluation are given in Table 2, which shows all reliability indications (item loadings, **CR** and **AVE**) were accepted because they were in line with the criterion set.

Table 2 Item loading, CR and AVE for first and second order constructs

First-Order Cons	Second-Order Cons	Items	Loadings	CR	AVE
Budget Participation		BUDGETPA1	0.704	**0.858**	**0.501**
		BUDGETPA2	0.708		
		BUDGETPA3	0.734		
		BUDGETPA4	0.706		
		BUDGETPA5	0.679		
		BUDGETPA6	0.716		
Knowledge Collecting		KNOWCOL1	0.714	**0.852**	**0.591**
		KNOWCOL3	0.839		
		KNOWCOL4	0.734		
Knowledge Donating		KNOWCOL5	0.783		
		KNOWDON1	0.844	**0.904**	**0.652**
		KNOWDON2	0.829		
	Knowledge Sharing	KNOWDON3	0.753		
		KNOWDON4	0.817		
		KNOWDON5	0.792		
				0.893	**0.807**
		Knowledge Collecting	0.911		
		Knowledge Donating	0.886		
Idea Generation		IDEAGEN1	0.799	**0.859**	**0.671**
		IDEAGEN2	0.840		
		IDEAGEN3	0.817		
Idea Promotion		IDEAPRO1	0.787	**0.885**	**0.72**
		IDEAPRO2	0.890		
Idea Realisation		IDEAPRO3	0.865		
		IDEAREA1	0.832	**0.871**	**0.692**
	Innovative Behaviour	IDEAREA2	0.808		
		IDEAREA3	0.854		
				0.898	**0.745**
		Idea Generation	0.892		
		Idea Promotion	0.837		
		Idea Realisation	0.859		

Note: The item KNOWCOL2 was deleted.

5.2.1.2 Discriminant validity

Discriminant validity is the extent to which a construct is really unique from other constructs by experiential criteria. Therefore, determining discriminant validity implies that a construct captures phenomena not represented by other constructs in the model, should be a unique construct compared with other constructs. Traditionally, researchers have depended on two measures of discriminant validity, they are cross-loadings and the Fornell-Larcker criterion (Joseph F Hair et al., 2017).

Table 3 Fornell-Larcker

Construct	Budget Part	Idea Gen	Idea Prom	Idea Real	Kno Colleting	Kno Donating
Budget Part	**0.708**					
Idea Generation	0.591	**0.819**				
Idea Promotion	0.465	0.623	**0.848**			
Idea Realisation	0.515	0.656	0.571	**0.832**		
Kno Colleting	0.418	0.539	0.516	0.513	**0.769**	
Kno Donating	0.571	0.606	0.467	0.56	0.614	**0.808**

5.2.2 Assessment of the Structural Model

In the final phase of analysis after ensuring that all the measurement model indicators were accepted, it was necessary to evaluate the structural model or inner model that indicates the role and capability of all constructs together and separately for the phenomenon prediction (Hair et al., 2017; Sarstedt et al., 2018). Indicators should be examined and reported initially is path coefficient significance values. The indicators values are obtained through a bootstrapping with re-samples of 5000. Therefore, the most important results is the values corresponding t-values for the mediation analysis (Joseph F Hair et al., 2017; Sarstedt et al., 2018).

5.2.2.1 Mediation analysis

At this time there are multiple schools of thought and arguments concerning mediation claims for certain models or sets of assumptions. The most important views on this issue come from two different schools. The first school is known as Baron and Kenny, (1986), that claims there are four steps or four conditions which are:

The 1st step is to prove that there is a significant association between the predictor and the outcome which is called Path **c**.

The 2nd step is to prove that there is a relationship between the predictor and mediator that is known as Path **a**.

The 3rd step is to prove that the mediator associated with the outcome which is known as Path **b**.

The final step is to present that the strength of the relation between the predictor and the outcome is significantly reduced when the mediator is added to the model.

The second school is known as Preacher and Hayes, (2008), which claims that there is no need for the first step and, as a result, no need for the final step as well, of the Baron & Kenny school. This study follows the Preacher and Hayes view, because it is more updated.

By having complementary mediation, the mediated indirect effect (**a**, **b**) and direct effect (**c**) both of these exist and point in the same direction (the signs are either both positive or both negative) (Matthews, Hair, & Matthews, 2018).

Table 4 Total indirect Effect

Tot Indirect Effect	Orig Sample	Sample Mean	(STDEV)	T Statistics	P Value
* BUD PAR->INN BEH	0.215	0.218	0.044	**4.882****	0

*** BUD= Budget participation, INN BEH= Innovative work behaviour**

**** T-values should be higher than 1.96** (Hair et al., 2017; Ringle, Sarstedt, Rasoolimanesh, Ryu, & Ali, 2017).

Table 5 Bootstrapped Confidence Interval values

IV--> Me	**Me-->DV**				Bootstrapped Confidence Interval	
Path a	**Path b**	Indirect Effect	(STDEV)	**t-value**	**95% LL**	**95% UL**
0.496	0.433	0.215	0.044	**4.881**	**0.129**	**0.301**

Note: Zero should not cross the Bootstrapped Confidence Interval values (95%LL and 95%UL).

Research Hypothesis:

Knowledge Sharing mediates the relationship between Budget Participation and innovative work behaviour.

A mediation role of Knowledge Sharing was proposed to the relationship between Budget Participation and Innovative Work Behaviour, and the study results indicate Knowledge Sharing positively mediates the relationship.

6. Argumentation and Final Considerations

More knowledge sharing was achieved through budget participation, which played a vital role through the interaction between all management levels, which is in agreement with Bos-nehles et al., (2016); Dörner, (2012);

Kumaraswamy and Chitale, (2012); Sharma, (2017), who emphasize that the effective key to knowledge sharing is working together. In keeping with Holste & Fields, (2010); C.P. Lin, (2007); H.F. Lin, (2007); Lee, Steven, Sanjib, & Intakhab, 2007, as cited in (Ali, Saleem, & Sikandar, 2015; Lin, 2007), the best approach for an effective knowledge sharing process is direct interaction between employees. Budgetary participation provides an arena in which members could use others as resources to enlarge their own knowledge via the beneficial knowledge of group members that was revealed during problem solving. According to the Theory of Organisational Knowledge Creation, knowledge held by individuals (personal skills, beliefs, values, creativity, insight), and knowledge held by organisations (trade skills, policies, procedures, patents, trademarks, research) could be concurrently enlarged and enriched through interactive amplification. The significant role played by organisations in mobilising knowledge held by individuals provide the forum for knowledge creation.

As mentioned by Hsiao, (2017); and Ikujiro Nonaka and Toyama, (2003), knowledge sharing does not happen without a context, rather it requires platforms where information is given meaning via interpretation, while this platform could be tangible, intangible, or a combination of both to utilise the knowledge and create. Ikujiro Nonaka et al., (2000), say this platform provides a shared context for the meaningful existence of knowledge and bridges the information gap. According to Kao et al., (2011), when the knowledge recipient combines and internalises the explicitly obtained knowledge and finally creates new knowledge, thus the budgetary participation is a context where information is interpreted and incorporated as new knowledge for the participants, which can be considered as innovation. For all of that, knowledge sharing is considered a mediator between budget participation and innovative work behaviour. It could be said that knowledge sharing may be considered as a new interpretation, discovered by the current study, on how budget participation affects innovation behaviour. While the mediation role was defined as an explanation of the influence of independent variable to dependent variable. This study has proved how knowledge sharing significantly plays a mediation role in the relationship between budget participation and innovative work behaviour, therefore knowledge sharing played an interpretive role of how the budget participation influences innovative work behaviour. The results indicate that when budget preparers were actually allowed to provide contributions to the budget setting process, they generate more reasonable plans and more perfect budgets, they will be more aware via knowledge sharing and consequently become more innovative to achieve their roles, responsibilities and expectations in accomplishing the budget targets that will certainly lead to enhance their organisations' performance.

7. Limitations

As with other empirical studies, the current study also has a few limitations. The limitations associated with this present study are as follows:

1. There are limitations connected with the survey questionnaire technique. Even though precautions were taken to reduce the limitation of the method, possible response biases may still exist.
2. The sample in the present study was from Libyan public industrial companies in the area surrounding the capital city of Libya because most public-sector activity has ceased in other regions because of political problems and conflicts.

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