

## MTUN Open Data Framework

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**ABSTRACT:** The phenomenon of delivering an Open Data initiative becomes pervasive in every country. Communities nowadays are starting to consider Higher Education (HE) Open Data portal in deriving the ideas and understanding about HE perspectives. The need of implementing an Open Data framework for Malaysian Technical University Network (MTUN) academics (OD-MTUN-ACA) is crucial and demanding. During the preliminary study phases, there were about 17 MTUN Officers were interviewed from several divisions; the IT division, Legal Unit, and the Strategic and Planning division. The questionnaire was constructed by adapting the questionnaire from the previous study and there were 5 experts have been appointed to validate the questionnaire. During the pilot study phase, there was a total of 226 MTUN academics have responded and 442 total MTUN academics have participated during the field study phase. This paper discussed the factors that influence MTUN academics on data sharing that lead to the development of the OD-MTUN-ACA framework.

**Keywords:** MTUN; Data Sharing; Open Data

### 1. INTRODUCTION

In 2015, Malaysia has embarked on a government agency's Open Government Data framework by The Malaysian Administrative Modernisation and Management Planning Unit (MAMPU). The initiative is then leveraged to be implemented at the ministries' and agencies' levels [1]. The institutions play a significant role and are among the most significant contributors that support the citizen's needs in the education world [2].

Data sharing is essential in the world nowadays. By sharing the data, the value of the data will increase both to the funders and respective parties [3]. Universities are organisations that produce a large amount of data. However, [4] has stated that the data producer is reluctant to share data might because it possesses challenges at many levels such as cultural, ethical, financial, and technical. On the other hand, [5] has highlighted that the reluctance of data sharing perhaps due to disinterest from the universities. Thus, to find out the perception of MTUN towards data sharing and Open Data, this study employs quantitative techniques in research.

It started with employing a personal structure interview with 17 MTUN Officers from several divisions; the IT division, Legal Unit, and Strategic and Planning division during the preliminary study phase. These interview sessions were meant to get an insight on

data sharing, acknowledge the readiness of MTUN infrastructure, examining the concern related to Open Data, and the importance of Open Data from the perspectives of MTUN. Once the perception was highlighted, this study proceeds with carrying a pilot study to MTUN academics. There was a total of 226 MTUN academics have responded to the pilot study and 442 total MTUN academics have been participated during the field study phase.

### 2. METHODOLOGY

During the pilot study phase, the questionnaire was constructed by adapting the questionnaire from the previous study and had been validated by 5 experts to suit the research's domain. There were 4 constructs that determine data sharing; technological, organizational, environmental, and individual. Adding to this, the Open Data License (ODL), and the perception towards Open Data were also be examined. There was a total of 226 MTUN academics have responded to the pilot study. Based on the pilot study feedback, the unnecessary items in the questionnaire were then be measured by the Exploratory Factor Analysis (EFA) and Cronbach Alpha. The new questionnaire was then constructed for field study purposes.

During the field study phase, there was a total number of 442 MTUN academics have participated. The details of the analysis are presented below.

### 3. RESULTS AND DISCUSSION

During the preliminary study, the concerns towards opening up data were acknowledged. The concerns regarding Open Data were divided into several issues as depicted in Figure 1.

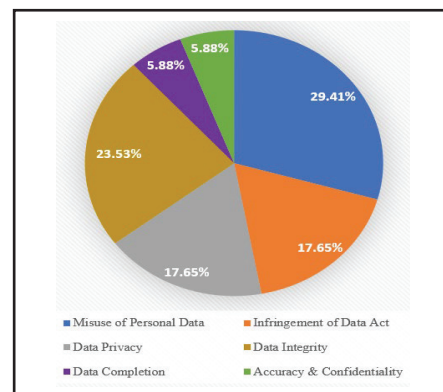


Figure 1 Concerns regarding Open Data

Based on Figure 1, these issues need to be affirmatively addressed to ignite the potential value of data. In addressing the issues, the ODL was introduced as a mediator between data sharing and Open Data. ODL is a type of license that can be used during data sharing that was introduced by the Creative Common License (CCL). Each of the licenses gives different permission to the data. As such, the data owner needs to give the appropriate licenses for the research work or educational material to preserve their work/data. Any of these licenses can be applied according to the data categories and intention of use. In addition, government data are a mix of public records, personal information, copyrighted work, and other non-open data. It is important to be clear about the type of data available, terms of service, and legal restrictions apply [6]. Table 1 shows the details of finding based on the field study employed.

Table 1 Finding based on field study

	Profile	Frequency (N)	Percentage (%)
University Name	UTeM	141	31.9
	UNIMAP	78	17.6
	UMP	97	21.9
	UTHM	126	28.5
Know the importance of Data Sharing	Yes	424	95.9
	No	18	4.1
Know Open Data	Yes	236	53.4
	No	82	18.55
	Not sure	124	28.05
Know about Open Data License	Yes	184	41.6
	No	138	31.2
	Not Sure	120	27.2
Open Data might promote research academics	Yes	320	72.4
	No	6	1.4
	Not Sure	116	26.2
Agreed that MTUN needs an Open Data framework	Yes	396	89.6
	No	4	0.9
	Not Sure	42	9.5

In Table 1, it can be seen that 89.6% were agreed that MTUN needs an Open Data framework and 72.4% believe that Open Data might promote their research academics. The OD-MTUN-ACA framework is proposed as depicted in Figure 2.

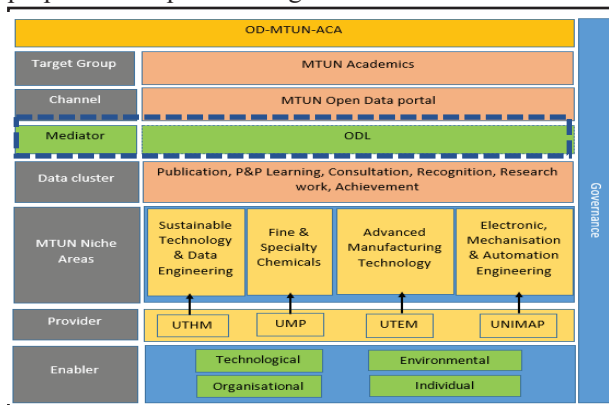


Figure 2 Propose OD-MTUN-ACA

Figure 2 shows the framework developed based on the results of CFA analysis and SEM. Based on the result of CFA, all the components of data sharing met the fitness index whereas result SEM shows that there was a significant effect of ODL mediates between data sharing and Open Data. The framework should be read from the bottom. Enabler acts as factors that influence data sharing. Once the enabler was ready, these data will be supplied by MTUN academics based on its niche areas. The data to be shared were categorised in a cluster. The ODL will be applied before the data is taken to the Open Data channel. The application of ODL on data will give permission on how the data should be used and the restriction towards that data. This framework needs to be supported by the governance to ensure success.

#### 4. CONCLUSION

This study has gone through steps in research and eventually comes up with the OD-MTUN-ACA framework. The participation from the MTUN academics was delighted and encouraging. Thus, with the development of this framework and the introduction of ODL as a mediator between data sharing and Open Data hopes can reduce the concern highlighted by the Legal Officers and at the same time may boost the productivity of MTUN academics specifically in research.

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