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Investigating the Privacy Policy Adoption among Malaysia E-Government Websites: Towards Conceptualizing the E-Privacy Assessment Framework

Nor Asiakin Hasbullah¹, Nor Laila Md Noor², Wan Abdul Rahim Wan Mohd Isa³, Nor Farizma Manaf⁴

¹ *Computer Science Department, Universiti Pertahanan Nasional Malaysia,
Kem Sg Besi, 57000 Kuala Lumpur, MALAYSIA.
Tel.: +603-90514409, E-mail: asiakin@upnm.edu.my*

^{2,3,4} *Faculty of Computer and Mathematical Sciences,
Universiti Teknologi MARA (UiTM) Malaysia
40450 Shah Alam, Selangor, MALAYSIA.
E-mail: ²norlaila@tmsk.uitm.edu.my, ³wrahim2@tmsk.uitm.edu.my, ⁴farizmamanaf@gmail.com*

Abstract— Malaysia E-government had improved the government services and overcome barriers faced by the public in the offline environment. The government initiatives to safeguard the interest of the public had transcended to include privacy protection. The Personal Data Protection Act 2009 is considered as one of the initiatives that had been successfully passed by the Malaysia Government by April 2010. However, the implementation and governance of the Act is still subjected to minister's decision. This study aims in parallel with the government initiatives by investigating the adoption of privacy policy among the Malaysia's e-government websites. This study is importance towards examining the current level of awareness for the importance for privacy protection being provided for the public, before the full enforcement of the Act. Samples of 154 websites were selected by using convenient sampling from Malaysia government portal (<http://www.malaysia.gov.my>), which comprises of federal and state governments. The evaluation process was done by using personal observation through an adopted indicators of privacy policies from Jamal Maier and Sunder in 2002 by observing the links provided for 'privacy policy statements', 'privacy policy notice' and 'privacy policy'. The study revealed several issues pertaining privacy policy adoption among Malaysia e-government site and highlights few recommendations and future works towards conceptualization of e-privacy assessment framework in Malaysia e-government context.

Keywords— Privacy policy, Privacy protection, Malaysia e-government, Human Computer Interaction, IT Management

I. INTRODUCTION

The existence of e-government has significantly improved and overcome some of the barriers in accessing public services such as distant location, limited operating hours, heavy traffic, long queues and waiting periods. It enables the information and services between government agencies with citizens, legislators and organizations [2]. The Malaysia government had taken initiatives to overcome the problems by providing the service online through e-government website and portal. Although e-government enhance the delivery of government services, there are arising issues such as concerns

for privacy and security protection for personal information [3][4][5] and issues of accessibility [32].

Recently, Malaysia has enacted the Personal Data Protection Act 2009 which governs the protection of public personal data from being misused in commercial transactions [6]. Currently, the Personal Data Protection Act 2009 is still in the process of adoption whilst waiting for minister's decision on implementation and governance matters. Although the federal and state government are not bound to the Personal Data Protection Act 2009 [7], the need of privacy guidelines such as privacy policy statements and notices are important as transparency indicator. Privacy notices should be used by

iii) *WHAT personal data is being collected; whether the personal data will be transferred out of Malaysia: AND whether the personal data will be disclosed to third parties.*

C. Privacy and HCI

Privacy policy is the simplest ways of improving the privacy properties of an IT product [14]. Privacy policy could indicate government transparency in handling citizen's personal data. In general, the four rule of interface methods in HCI that state the important of publishing privacy policy in website are: comprehension, consciousness, control and consent [15]. Through accessibility of this policy, government could declare the manner of data collecting, handling and processing. The transaction transparency from government aligned with the aforementioned HCI rules. However, interactions between user and information system are the main threats to privacy and vulnerabilities associated with privacy [14].

EU has almost half a decade being one step forward in introducing Human Computer Interaction-Privacy (HCI-P) by integrating HCI with privacy through its "Privacy and Identity Management for Europe" (PRIME). The PRIME project has put an emphasis on human-computer interaction (HCI) research on new user interface (UI) solutions and paradigms for privacy-enhancing identity management. However, PRIME technologies will only be successful if they are accepted and applied by the end user [16]. The HCI-P user-testing methodology is considered as an important aspect of privacy in HCI [16].

D. Conceptual Model of Malaysia E-government

There are three participants involve in a typical interaction between citizen and government which are users, services, and databases [29]. From Fig. 2, the arrow indicates the services and transaction flow between government to government (G2G), government to citizen (G2C), government to business (G2B) and government to government employees (G2E). The current e-government application which applicable to government agency are Electronic budget planning and control system (eSPKB), Generic Office Environment (GOE), Project Monitoring System (SPPII), School Management System (SPS) and eConsent. For Government to citizen (G2C), there are two applications open to citizens which are eSyariah and Tele-Consultation. For businesses there are eProcurement and Business Licensing Electronic Support System (BLESS). For government employees there are Human Resource Management Information System (HRMIS) and electronic Guarantee Latter (eGL). There are applications that was designed for all types of users which applicable to government agency, citizen, business and government employees which are eServices, Electronic Labour Exchange (ELX), eTanah, Electronic Local Authorities (ePBT) and eFilling [30][31].

A conceptual model of the Malaysian E-Government is illustrated in Fig. 2.

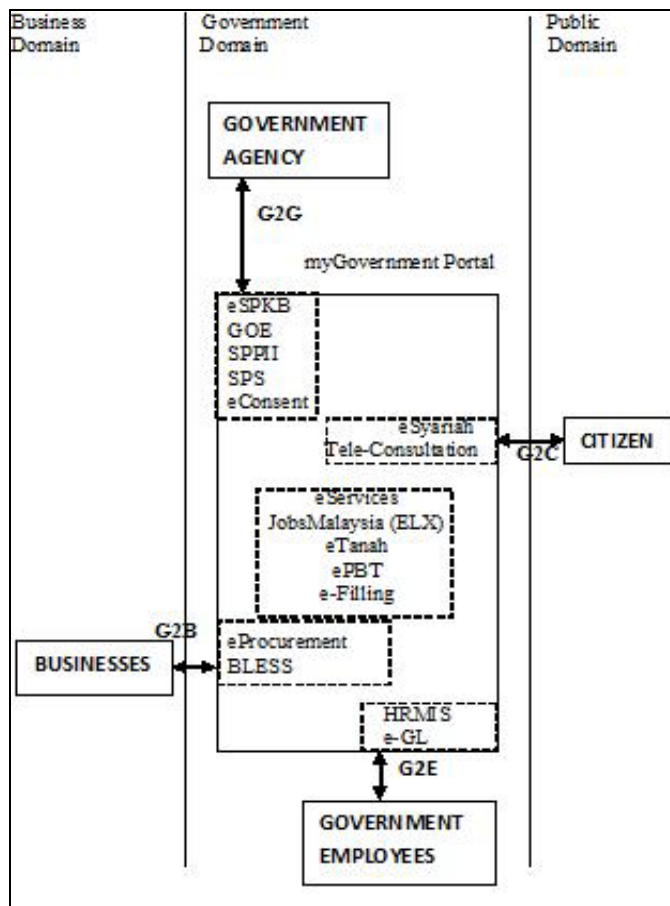


Fig 2: Conceptual Model of Malaysia E-government

From the conceptual model it can be seen that citizens' data can be spread across several applications in the E-government. In order to gain public trust, Government should be transparent in declaring the manner of how data being collect kept, process and transfer through their privacy policy. Transparency could be increased by publishing information (rules and procedures) online [17]. Privacy policy could be seen as a signal of trustworthiness of an organization's [18] [19] [20].

III. RESEARCH METHOD

The availability and accessibility of privacy policy in 154 e-government websites were observed and analysed based on the method adopted by Jamal Maier and Sunder in 2002 [1]. Samples of 154 websites were selected by using convenient sampling from the Malaysian e-government portal (<http://www.malaysia.gov.my>). The website consists of 25 website of federal government and 129 website of state government as shown in Table III. The samples amount is reasonable as taking the consideration of prescribe minimum number of samples which exceed 130 (13 x 10) [cited in 21].

TABLE III
TYPE OF SAMPLE

Type	Frequency	Percentage
Federal	25	16.2%
State	129	83.3%
Total	154	100

Observation on the links provided for ‘privacy policy statements’, ‘privacy policy notice’ and ‘privacy policy’ were made. Table IV depicts of list of policy indicator that was used throughout this study and the analysis made is based on these descriptions.

TABLE IV
ANALYSIS DESCRIPTION OF POLICY INDICATORS [1]

	Disclosure information of privacy policy
<i>P1</i>	Post Privacy Policy
<i>P2</i>	Privacy Policy is one click away
<i>P3</i>	Use cookies to track user behavior
<i>P4</i>	Disclose Web sites is using cookies
<i>P5</i>	Explain what cookies are
<i>P6</i>	Explain how to turn off or decline cookies
<i>P7</i>	Allow third parties to use cookies on web sites
<i>P8</i>	Disclose presence of third party cookies on web site
<i>P9</i>	Provide link to privacy policy of third party
<i>P10</i>	Disclose how data are used for internal transaction processing
<i>P11</i>	Disclose how data are used for internal marketing purposes
<i>P12</i>	Disclose how data are used for outsourced transaction processing by a third party
<i>P13</i>	Disclose how data are used for marketing purposes by third party

The observation was made only to the visible statements made by e-government website. The invisible text files of web browser that exist without knowledge which is cookies are difficult to measure as it need an automated tools to assist in this study. The existences of cookies are sometimes being declared by certain websites however, until to what extend the information being collected is undeclared.

IV. RESULT AND FINDINGS

The results of this study are obtained through observation done on privacy policy posted by e-government websites only. The websites that did not include privacy policy in their website are difficult to analyse as the need of special automated tools that was unable to be provided during this study.

A. Privacy Policies Adoptions for E-Government

The deployments of the analysis description have been compiled through all of the observations. The policy adoption’s total number and percentages are listed in Table V.

TABLE V
POLICIES ADOPTIONS

	E-government		
	Yes	No	Total
<i>P1</i>	86	68	154
	55.8%	44.2%	100%
<i>P2</i>	86	68	154
	55.8%	44.2%	100%
<i>P3</i>	10	144	154
	6.5%	93.5%	100%
<i>P4</i>	10	144	154
	6.5%	93.5%	100%
<i>P5</i>	12	142	154
	7.8%	92.2%	100%
<i>P6</i>	0	154	154
	0.0%	100%	100%
<i>P7</i>	0	154	154
	0.0%	100%	100%
<i>P8</i>	0	154	154
	0.0%	100%	100%
<i>P9</i>	0	154	154
	0.0%	100%	100%
<i>P10</i>	81	73	154
	52.6%	47.4%	100%
<i>P11</i>	0	154	154
	0.0%	100%	100%
<i>P12</i>	0	154	154
	0.0%	100%	100%
<i>P13</i>	0	154	154
	0.0%	100%	100%

From the observation it’s evidenced that almost half of Malaysian e-government website does not post privacy policies. This is supported by the evidence of *P1* and *P2* which indicate that 44.2% from 154 websites does not have privacy policy. For other undeclared indicators the consuming rates are above 90% to 100% which is beyond expectation with only *P10* for ‘Disclose how data are used for internal transaction processing’ with 52.6%.

B. Cross Tabulation Policy Analysis for E-Government Samples

Cross tabulation was done to examine the relationship between the government type which is federal government and state government with the other variables which are listed as *P1*, *P2*, *P3*, *P4*, *P5*, *P6*, *p7*, *P8*, *P9*, *P10*, *P11*, *P12* and *P13*. Only the check points that meet the assumption of chi-square recommended by Pallant for cross tabulation analysis [22] are listed in Table VI.

TABLE VI
CROSS TABULATION FOR GOVERNMENT TYPE

Check Point	Privacy Indicators	Government Type			
		Federal		State	
		Count	% Within Type	Count	% Within Type
P1	Y	23	92.0%	63	48.8%
	N	2	8.0%	66	51.2%
P2	Y	23	92.0%	63	48.8%
	N	2	8.0%	66	51.2%
P10	Y	22	88.0%	59	45.7%
	N	3	12.0%	70	54.3%

The checkpoints are 'Post Privacy Policy' [P1], 'Privacy Policy is one click away' [P2] and 'Disclose how data are used for internal transaction purposes' [P10]. While the checkpoints that did not meet the assumptions are 'Use cookies to track user behaviour' [P3], 'Disclose Web sites is using cookies' [P4], 'Explain what cookies are' [P5], 'Explain how to turn off or decline cookies' [P6], 'Allow third parties to use cookies on web sites' [P7], 'Disclose presence of third party cookies on web site' [P8], 'Provide link to privacy policy of third party' [P9], 'Disclose how data are used for outsourced transaction processing by a third party' [P12] and 'Disclose how data are used for marketing purposes by third party' [P13]. All the declared check points that meet the assumption then are extracted to have cross tabulation in Table VII.

TABLE VII
CROSS TABULATION ON EXISTENCE OF PRIVACY INDICATORS

Check Point	Privacy Indicators	Government Type			
		Federal		State	
		Count	% Within Type	Count	% Within Type
P1	Y	23	92.0%	63	48.8%
P2	Y	23	92.0%	63	48.8%
P10	Y	22	88.0%	59	45.7%

TABLE VIII
CROSS TABULATION ON NON-EXISTENCE OF PRIVACY INDICATORS

Check Point	Privacy Indicators	Government Type			
		Federal		State	
		Count	% Within Type	Count	% Within Type
P1	N	2	8.0%	66	51.2%
P2	N	2	8.0%	66	51.2%
P10	N	3	12.0%	70	54.3%

Most federal government website do 'Post privacy policies' [P1] through their websites with 'Privacy Policy is one click away' [P2] and 'Disclose how data are used for internal transaction purposes' [P10] with 92.0%, 92.0% and 88.0% respectively. In addition, almost half of state government also provided the above mentioned indicators with 48.8%, 48.8% and 45.7%. The entire undeclared check points with 'No' indicators that meets the assumption was then been extracted to have cross tabulation in Table VIII.

Only a few federal government website did not 'Post privacy policies' [P1] through their websites and 'Privacy Policy is one click away' [P2] also 'Disclose how data are used for internal transaction purposes' [P10] with 8.0%, 8.0% and 12.0% respectively. While more than half of state government did not with 51.2%, 51.2% and 54.3%.

V. CONCLUSION

The availability of privacy policies in e-government website is based on the level of awareness for the importance for privacy protection for public for sensitive information. Currently, there is non existence of Malaysia's standard guideline on privacy policy statements being made. This shows the inadequacy for privacy policy guidelines for Malaysia e-government websites. There is a need to improve on the privacy policy protection in Malaysia e-government website and is the importance of better improved data protection privacy transparency to citizens. It may be feasible for e-government website to have privacy policy standards through the deployment of e-privacy framework for each agency to comply with. However, the conceptualization of the e-privacy framework is subjected to current federal and state legislations, government, agencies policies and user specific privacy requirements on different applications and e-government services. Even though, the federal and the state government are not bound under the Personal Data Protection Act 2009 but the existence of privacy policy can bridge trustworthiness between government agency and citizens.

This study provides empirical evidence for the availability privacy indicators in privacy policy statement among Malaysia e-government websites. The results obtained showed a mixed reality of privacy implementation. The availability of privacy policy among the federal government is considered high with almost all of the samples have privacy policy statements in their website. However, there are still rooms for improvement on the contents and indicators of the privacy policies. The availability of privacy policy among the state government websites are considered quite low. There is a need for states e-government to proactive actions on establishing rules and regulations pertaining to the privacy policy protections at the state's level.

There may be a need for future longitudinal studies with similar e-government portal of <http://www.malaysia.gov.my> conducted after the enforcement of the Personal Data Protection Act 2009. There is also a need in the development of automatic tools to detect invisible information gathering in future as it will assist in the digital forensic field. Another area can be explore are in determining privacy adoption framework and measuring privacy adoption through development of HCI research instruments.

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