GEOGRAPHICAL INFORMATION SYSTEM (GIS) USAGE TOWARDS WORK PERFORMANCE: A PROPOSED CONCEPTUAL FRAMEWORK

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Outline of Presentation

1. Introduction
2. Problem Statement
3. Literature Review: Geographical Information Systems (GIS)
4. Aims
5. Methodology: Semi Structured Interview
6. Preliminary Findings
7. Proposed Framework
8. Discussions
9. Conclusion
10. References
1. INTRODUCTION

Era IR 4.0, Information Systems widely used by organization to understand and manage their operation.

GIS is a system that is designed to capture, store, manipulate, analyze, manage, and present all types of geographical data for daily operations (Parker et al., 2019).

“GIS as Location Intelligent Solutions”

What is GIS?

IR 4.0 with GIS component? Malaysian Context?
2. PROBLEM STATEMENT

1. Too Complex to Use
   - Azemi et al., 2018; Al-Ibbini et al., 2017
   - Al-Mamary et al., 2014

2. Lack of Organizational Support
   - Boonstra, 2013; Standing et al., 2016; Azeta et al., 2016; Said, 2015;

3. Lack of User Engagement
   - Gruber et al., 2010; Zu et al., 2008; Walumbwa et al., 2017

4. Lack of Data Quality
   - Azemi et al., 2018; AbuBakar, 2004; Al-Ibbini et al., 2017

5. Low Work Performance
   - Lo et al., 2016; Crespi et al. 2010; Ammenwerth et al., 2004)
3. LITERATURE OF GEOGRAPHICAL INFORMATION SYSTEM (GIS)
### DEFINITION OF GIS

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<th>LITERATURES</th>
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<tr>
<td>(Hussain, 2016)</td>
<td>An application designed to handle information regarding spatial locations.</td>
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<td>(Parker et al., 2019)</td>
<td>Functions to capture, store, manipulate, analyze, manage, and present all</td>
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<td>types of geographical data</td>
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<td>(Chen, 2017)</td>
<td>It is a fundamental of knowledge and concept in translating information as</td>
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<td>assistance in developing an understanding for humans</td>
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<td>(Chen, 2017; Venkatesh et al.,</td>
<td>As a tool for operations planning and understanding of internal data.</td>
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<td>2016)</td>
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<tr>
<td>(Srivas et al., 2018)</td>
<td>GIS as location intelligence that can give a further understanding of</td>
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<td>business data</td>
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<tr>
<td>(Mierzejowska et al., 2018)</td>
<td>GIS focused on information quality, system quality, and service quality in</td>
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<td>order to give impact towards usage and performance.</td>
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## GIS Characteristics

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<td>(Azemi et al., 2018; Cai et al., 2015; Musungu, 2015)</td>
<td>Information quality, elements of availability, and reliability of information can give a better understanding of individuals in improving work performance.</td>
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<tr>
<td>(Ammenwerth et al., 2004; DeLone et al., 2003; Gruber et al., 2010; Hak, 2017; Zu et al., 2008)</td>
<td>The quality of GIS were referred to reliability, flexibility, response time, maintainability of the applications.</td>
</tr>
<tr>
<td>(Gruber et al., 2010; Zu et al., 2008; Walumbwa et al., 2017; Yavas et al., 2004, Carrillat et al., 2009; DeLone et al., 2003)</td>
<td>Service quality is an antecedent to the user’s satisfaction and has a positive impact on user satisfaction. Meets or exceeds the expectations of the customer will probably determine whether the customer is likely to be satisfied.</td>
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## Task Characteristics

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<td>(Masrek et al. 2008)</td>
<td>Frequency of exceptional events encountered in the work process, the solutions for which call for different procedures, and methods</td>
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<td>(Lo et al., 2016)</td>
<td>Analyzability tasks are predetermined responses to potential problems and well-known useful procedures are available because outcomes are well understood where. Variability task referring to a novel situation that happened and no guidance to be followed.</td>
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<td>(Eldrandaly et al., 2015)</td>
<td>Individuals are defined as users who are recognized as a determinant in the use of IS</td>
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<td>(Blistan, 2015)</td>
<td>It a must for users to have basic knowledge, skills, and experience in using GIS applications.</td>
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<td>(Blistan, 2015; Deventer et al., 2017; Nawaz et al., 2012)</td>
<td>Most users encountered problems with a lack of experience in this area and also with insufficient material and technical equipment</td>
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## Organizational Characteristics

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<td>(Ifinedo, 2008; Staehr, 2010)</td>
<td>Top management support simply means the extent to which top managers provide resources, directions, and authority before and after the implementation of IT systems including enterprise resource planning</td>
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<td>(Eldrandaly, et al., 2015; Yavas, 2004)</td>
<td>Top management and technical support were crucial factors that need to be considered when implementing and utilizing GIS</td>
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<td>(Ifinedo, 2008, Imran et al., 2016)</td>
<td>Organizational members will observe and support the initiative of IS implementation when the top management and technical aspect having everything in place</td>
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<td>(Dong et al., 2009; Al-Emran et al., 2014)</td>
<td>Skills and quality that have in the technical support. technical support might not be limited to only regarding hardware and software, technical support also means there is a person to provide adequate information and knowledge about how to diagnose certain problems and how to resolve them</td>
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## GIS Usage

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<td>(Pundt, 2000)</td>
<td>Spatial visualization displays are helpful in the context of data collection and analysis</td>
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<tr>
<td>(Srivas, 2018)</td>
<td>Display, query, and organize data geographically and solve problems by uncovering and analyzing trends and patterns</td>
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<tr>
<td>(Van Der Merwe et al., 2003)</td>
<td>Able to bring an individual a different set of visuals on how to analyze, react, and process of action to be taken after having an understanding of the data itself</td>
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## Work Performance

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<td>(Lo et al., 2016; Petter et al., 2003)</td>
<td>The ability to innovate new ways of work or ideas through the excellent implementation of systems</td>
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<tr>
<td>(Ammenwerth et al., 2004; Crespi et al. 2010)</td>
<td>Innovation in enhancing organizational productivity and effectiveness, increasingly important as industry or organizations keep able to compete and maintain relevance in the industry</td>
</tr>
<tr>
<td>(Crespi et al. 2010; DeLone et al., 2003)</td>
<td>Productivity and innovation can be considered as indicators in measuring performance.</td>
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This study aims is to propose the conceptual framework that identify the GIS characteristics that impact to work performance.
5. METHODOLOGY:

SEMI STRUCTURED INTERVIEW WITH TWO MANAGERS: ORGANIZATION A & ORGANIZATION B
## 6. PRELIMINARY FINDINGS

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<td>● Lack of data quality</td>
<td>● Not having adequate training</td>
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<td>● Low frequency of data update</td>
<td>● Low management support</td>
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<tr>
<td>● Too complicated for non technical people</td>
<td>● Low technical support</td>
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<tr>
<td>● Response time too long</td>
<td>● Functionality and features too complex.</td>
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<td>● Lack user engagement</td>
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7. PROPOSED FRAMEWORK

Figure 1: Proposed framework showing the relationship between GIS Characteristics, Task Characteristics, Individual Characteristics, Organizational Characteristics and GIS Usage towards Work Performance
8. DISCUSSIONS

- Four (4) antecedents found from previous studies and preliminaries findings which consists of GIS characteristics, task characteristics, individual characteristics, and organizational characteristics may influence GIS usage and impact work performance.

- Key factors that have been identified in work performance were innovations and productivity through excellent implementation of GIS applications.
1. This paper proposes a framework on determinants of GIS usage that can be used to support work performance.
2. The framework demonstrates relationship between GIS characteristics, task characteristics, individual characteristics, organizational characteristics and GIS usage towards work performance.
3. This paper hope to give understanding on area of improvement needed to GIS communities and users of GIS in the context of implementation or enhancement.
10. References


