Master Project 1 Research Topic Proposal

TITLE: Enhancement of Customer Loyalty using Geographic Information Systems and Location Intelligence

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BACKGROUND

Geographic Information Systems (GIS) is defined as the integration of components ranging from hardware, software, the data collected and the users, in order to collect, store, manipulate, analyse the spatial distribution through visual displays with the purpose of decision making and problem solving for businesses (Nyerges and Jankowski 2011).

GIS and Location Intelligence (LI) is an evolving part of geoinformatics that is being broadly utilized across industries. It involves the use of geospatial data to manipulate, visualize and finally analyze the relationships between geographic data and the predefined business metrics. Hereafter, the data it visually represented in an aesthetically pleasing form to provide the businesses with information that is easier to comprehend. As a result, this contributes to the achievement of the respective business metrics through improved decision making. In today's dynamic business environment, businesses can now make intelligent decisions that give them a competitive advantage over competing businesses.

Visualization of these data can be done on dashboards and since over eighty percent of data collected contains some details of location, businesses are able to effectively leverage what is known as "Location Intelligence" (Esri 2014). For instance, finding potential value of target customers based on geographical analysis (Weber & Chapman 2009) improves decision-making as it reduces data redundancy and increases business efficiency (Carmen 2009).

Businesses have only recently realized the true potential of LI; the realization that around 80% of enterprise data is geographically significant (James 2011), speaks volumes of the potential GIS has to businesses and its impact on the bottom line business. The ability of GIS and LI to manipulate, visualize and analyse the relationships between geographic data and predefined business metrics which is then churned out into visually and aesthetically appealing templates like dashboards, allows businesses to gain quick and easy access to valuable data in a timely manner. Through this businesses can make astute decisions in a dynamic business environment giving them a competitive advantage over their competitors.

Previous research has shown that GIS and LI are not relatively new concepts. Cho 2005, confers that this technology was first detected over 40 years ago but its applications and capabilities has only recently been realised. These trends can be practiced by several organisations across industries. These range from the obvious users of real-time data such as disaster recovery industries where this technology is used to identifying and thus divert the emergency and rescue crews to the locations of need. Alternatively, geoinformatics can also be applied to retail industries to provide businesses with access to real-time information to customer purchase patterns thus providing the opportunity to provide effective marketing strategies.

Questions arise whether businesses will be able to effectively embed GIS and LI technologies into their business practices? What information can be obtained that will enhance customer loyalty? Whether this data required is sceptical to privacy protection and ethical issues?

In today's dynamic business environment there is a need for organisations to be able to effectively make efficient decisions in a timely manner. Businesses need to realize how to make the best use of GIS and LI to gain competitive advantage and improve their bottom line in a dynamic and increasingly difficult business environment.

OBJECTIVES

This research aims to provide an insight on how businesses can use geoinformatics to analyze customer behaviors and thus specialize their marketing based on the information obtained. The objective of this research is to identify features present in the GI, which will help in defining customer loyalty. This research further aims to provide a good understanding on how the application of Geographic Information Systems and Location Intelligence can provide businesses with relevant information to make effective decisions to target customers. The concept of GI and LI will be discussed in detail and how it adds value to business through its application and the different system capabilities.

HYPOTHESIS

The following will be addressed are:

- GI information will be obtained to enhance customer loyalty.
- Through embedding, businesses will use business intelligence tools and practices for better decision-making.
- The data required is skeptical to privacy protection and ethical issues.

The more use of GIS and Location Intelligence, the more chances there are that 'the personal data are combined, cross matched and disseminated' (Cho 2005). In particular when the major portion of the business model is based on GIS and LI. Thus the question arises of how sensitive is the customer in sharing real time location information with the business and how ethically aware the business is in using this information? For instance, in the case of Amica Mutual Insurance, that has its policyholders' location information, they might have significant privacy implications that the management needs to be up-to-date with.

METHODOLOGY

In order to conduct this research a literature review was initially performed to evaluate and understanding previous research carried out on GIS and LI. Through this, the relevant research was analyzed to identify the available gaps that will be addressed as part of this research.

ESRI a geographic information systems specialist will be used to demonstrate the impact of geoinformatics on businesses and in particular its impact on providing relevant information to organization's such that they are able to make effective business decisions. An analysis

using open source data available through ESRI Australia will be used in this research to demonstrate the value businesses can achieve through the implementation of Geographic Information Systems and Location Intelligence. ArcGIS is the platform that will be used to demonstrate the capabilities of GIS.

EXPECTED OUTCOMES

A deeper understanding of the topic is expected from this research. In particular, the research will show how businesses can access information from a profound understanding of the analyzed data ensuring effective decision-making and enhanced customer loyalty.

There are numerous benefits of this emerging geoinformatics technological trend. Through the use of open source data, the potential impact on businesses bottom line will be demonstrated. In addition, the various ways in which businesses can implement decisions into their practices will also be discussed. GIS is versatile, in order to maximize its application and reap the benefits of its capabilities GIS needs to be embedded into business intelligence.

GIS and LI is an emerging field of Business Intelligence whose full impact on business efficiency has not been fully realized and will be addressed in this research. Overall, GIS and LI are both emerging technological trends whose effects have yet to be fully exploited as the application in geoinformatics evolves. It is exciting to see how businesses apply these developing technology capabilities into their practices and the impact it will have on improving their competitive advantage in today's dynamic business environment.

FUTURE WORK

Future work on this topic could include the development of a framework to monitor the privacy protection of the data in use and its impact.

PROGRAM OF WORK
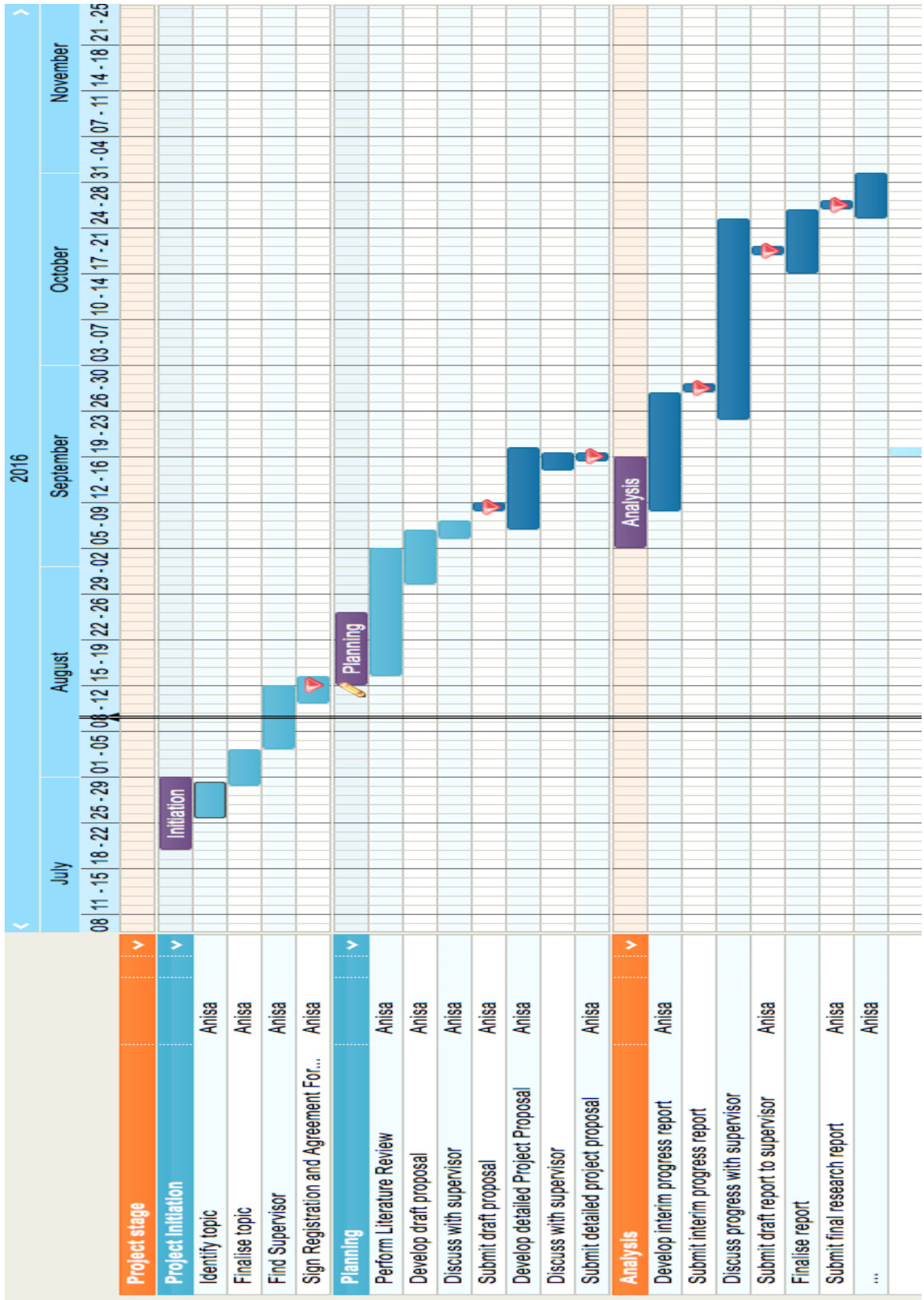
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The ABD team exhibited reliability and passion for what they do. Not only did they complete the project under budget they created not just a house but a place I will call home.