

WALIS Advisory Committee – Foresighting Workshop Outcomes

Introduction

The WALIS Advisory Committee (WAC) held a foresighting workshop on 19 April, facilitated by Peter Woodgate (CEO, CRC for Spatial Information). The aim of the workshop was to identify key drivers that would impact on the activities of WALIS in the period to 2015. The potential impacts – considering importance and probability – on WALIS activities, were also considered and given a “high”, “medium” or “low” ranking.

This document outlines the key drivers that were discussed during the workshop. It will be used to develop these areas further in workshops that will be extended to include representatives from WALIS Spatial Management Group and WALIS Council. In addition, the CRC SI will use some of these key areas to develop further R & D projects.

Key drivers

Population growth (high-medium)

It is predicted that Western Australia’s population will grow by 40 per cent by 2020, mostly through migration. This will, in turn, impact on the delivery of government services, residential location (urban sprawl) and food and water availability.

There will be increased pressure on the land development process and industry and a need for high-density development and/or pressure to develop marginal or environmentally sensitive areas.

There may also be changes in population due to re-distribution, with more retirees moving southwest, and possibly greater development in the northwest. There will need to be improved integration of the planning process and greater focus on delivering services to the areas of greatest need.

Climate change (high)

Predictions of the impact of climate change include issues such as sea level rise and the transformation of agriculture.

Sea level rise of one metre is predicted to affect some 50,000 properties in Western Australia. Storm surge and the increased incidences of cyclones will have additional effects along the coast, with implications for risk management, insurance and emergency response.

The impacts of climate change are already being felt by the agricultural industry, with drier winters and late season breaks increasing crop risks. It is estimated that for every one degree C rise in temperature, the “growing” isolines move approximately 150 kilometres south. This means, for example, that it will become too hot around Perth for grapes and other types of horticulture.

Climate change will create a need for tighter regulations and increased monitoring and modelling, as well as improved planning and risk management for essential infrastructure and services.

Carbon trading is associated with climate change. It will require accounting/ verification.

Water security (high)

Associated with climate change is the issue of water security. Perth has had water restrictions for the past five years. The increasing population levels, coupled with reduced rainfall have increased pressure on the available water sources. While there are significant groundwater sources, these have also come under pressure from irrigation, scheme supply and the pine plantations. Monitoring has shown groundwater levels have dropped, to the extent that Ministerial conditions requiring groundwater levels at certain minimum heights have been breached every year for the past five

years at least. There is danger from saltwater intrusion into the groundwater sources as well. Alternative water sources include tapping the Yarragadee, piping from the Ord River and desalination plants, one of which has already been built.

There is a need for greater planning and research into alternative sources of water (such as recycling) and modelling, as well as the management of current and future infrastructure.

Education (high)

The spatial information industry is already experiencing a skills shortage, a phenomenon facing all ICT, engineering or science areas. As the “baby boomers” begin to retire, the skills shortage will become more acute and there is limited follow-through from school leavers or graduates. This is partly due to the low profile of the industry – careers in the spatial information industry are not well understood – but also due to the subject choices being made at school. Mathematics and science courses are undertaken by less than a third of students, while geography is no longer offered at all in many schools.

Skills shortages are particularly noticeable in areas such as data management and analysis, whether those undertaking management or analysis have a spatial background or not.

The integration of “generation y” and “generation z” into the workforce is also an important factor, with their increased expectations on information access and delivery and a high degree of competence in using internet-based tools.

Energy (high)

Energy demand will continue to increase, through both increasing population levels and an increasingly affluent lifestyle. Access to energy, in particular oil, will decline, creating a need to develop alternative sources of energy and changing our current lifestyle.

Modifying lifestyle can be achieved through finding alternative ways of getting from home to school/work; improved urban design; changing work practices (e.g. working from home).

It is expected that solar energy will become much more readily available and cost-effective and, given this, it is unlikely to be a high priority for WALIS. Nuclear energy was considered too long-term for consideration, although spatial information would play an important role in planning for this type of energy.

Technology advancement (high)

While it is difficult to predict the precise improvements in technology by 2015, the current trends include miniaturisation, wireless “on-demand” mobile services, 3-D visualisation and re-engineering of datasets. It is expected there will be integration with traditional transaction-based IT systems and trends towards service-oriented architectures, away from monolithic systems.

There will be a high level of private-sector activity in the “scramble” for new market segments and increased public expectation for information availability.

GPS will become ubiquitous, with more systems becoming GIS-enabled during manufacture, coupled with increased public awareness and competence in capturing and using spatial information.

With the increasing number and variety of sensors available, providing increasing volumes of data will bring the problems of analysis, data storage and retrieval. The volume of digital data will increase exponentially and become closer to real time. Information will increasingly accurately reflect the real world in more detail, which means versions of published information will become obsolete faster, possibly leading to more “print on demand” services.

Data integration & interactivity will be a particularly important issue for WALIS.

Environment (medium)

Environmental management is becoming a major user of spatial information. Western Australia is facing increasing environmental damage through salinity, soil acidity, loss of biodiversity and fragmentation of ecosystems, as well as pressures through land development.

In addition, there is pressure between environmental interest groups and those advocating development (for example, a spider versus Rio Tinto).

Environmental management requires greater forecasting, modelling and watching and, in order to effect this, greater accuracy of data and more “real-time” access to data. More accurate analysis of historic data is also required.

Security (medium)

It is recognised that there are increasing security threats with the need for critical infrastructure protection. Local security in terms of design (urban planning) and planning for emergency response are particularly important.

World economic outlook (low)

The growth in India/China has a high effect on Western Australia, however there is little that WALIS can do to influence this, so it was given a low impact rating, as was the maintenance of the world economy and impacts/outcomes of another 9/11.