ICT Project Guidance

Design:  
Technical – Data Access using ORMs

Version:

0.1

Author:

Sky Sigal, Solution Architect

## Description

This document describes competing perspectives on the value of ORMs in system development.

## Synopsis

The use of ORMs to manage access to Relational Databases has advantages and disadvantages that should be considered carefully before engaging the use of an ORM to manage data access.

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## Introduction

Background

ORMs facilitate data schema and access development, time and cost to a point that developers are not dependent on specialised assistance from Database Administrators (DBA) or data domain architect.

ORM’s have a good reputation with developers for reducing development time.

ORMs also have a good reputation with security specialists who appreciate that they reduce the risk of developer’s developing code that could introduce SQL injection attack risks.

However, ORMs have a less favourable reputation with database design and maintenance specialists for a number of reasons.

Issues

For one, they are renown for facilitating the development of database schemas by system developers without requiring them having an understanding of the potential impacts to performance of their actions. For another, the sql they generate are optimised in a different way than a human would do, and are therefore harder for DBAs to analyse and provide guidance on. Additionally, ORMs take over the responsibility of defining data schemas to a point that issues may be introduced if a DBA updates the schema separately. This limits DBAs from being able to use their experience to improve outcomes, only report on them. This last point has been the case with e-asTTle who have been unable to pinpoint the cause of the lack of its performance and make constructive suggestions.

ORM developed data schemas also have a poor reputation with maintainers for a number of reasons. For one without applying rigorous development practices when using ORMs they end up facilitating the development of monolithic database schemas comprised of overly complex and highly interconnected models that are hard to change without a risk of impacts that need to be considered and tested for.

Another aspect that limits their maintainability is that without rigorous development practices, the models used in the system -- and therefore database tables developed by the ORM – become highly specific and singular to the use case – as opposed to abstract and reusable across more use cases.

Resolution

**Important:**It is important to note that these issues are not due to the use of ORMs but more the fact developers using them may have have insufficient database design experience.   
We do *not* recommend moving away from the use of ORMs. We recommend instead that developers are provided sufficient training to make less novice database design errors -- or find new ways to work closer with DBAs at the schema design stage.

Appendices

Appendix A - Document Information

### Versions

* 1. Initial Draft

### Images

[Figure 1: TODO Image 2](#_Toc144995112)

### Tables

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### References

**There are no sources in the current document.**

### Review Distribution

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### Audience

The document is technical in nature, but parts are expected to be read and/or validated by a non-technical audience.

### Structure

Where possible, the document structure is guided by either ISO-\* standards or best practice.

### Diagrams

Diagrams are developed for a wide audience. Unless specifically for a technical audience, where the use of industry standard diagram types (ArchiMate, UML, C4), is appropriate, diagrams are developed as simple “box & line” monochrome diagrams.

### Terms

Refer to the project’s Glossary.

##### IT

: acronym for Information, using Technology to automate and facilitate its management.

##### ICT

: acronym for Information & Communication Technology, the domain of defining Information elements and using technology to automate their communication between entities. IT is a subset of ICT.