Getting it right first time with consistent data
Asset Design and As Constructed (ADAC)

Featured in the International Infrastructure Management Manual (IIMM)

Supported by

www.nams.au.com
National Asset Management Strategy Australia
THE BENEFITS

Through membership and effective implementation, ADAC can provide organisations with the following benefits:

- Significant time and resource savings in the electronic processing of as constructed data
- Improved consistency and accuracy of detailed asset data provided to council
- Ability to perform “rule-based” quality control checks on asset data for completeness and integrity
- Beneficial for automated uploading of asset data to GIS, asset management databases and other registers
- Transparent asset registration and valuation processes that deliver improved corporate governance
- Capacity to reconcile individual donated trunk assets with planning scheme requirements and infrastructure agreements
- Potential to “round-trip” asset data and related information to external customers in a consistent format
- Property developers and consulting engineers experience consistent requirements from the Councils they work with.

THE PROJECT

Originally conceived and operated under a regional collaboration model, ADAC has continued to grow in scale and maturity.

The ADAC project is managed by the IPWEA and supported by IPWEA NAMS.AU to facilitate further expansion of the ADAC product at a national level, while maintaining the core principles of collaboration through the strategic reference group (SRG).

BENEFITS OF MEMBERSHIP

ADAC Membership and successful implementation of the ADAC process provides benefits at multiple levels within a typical Council / organisation:

- Access to a network of other ADAC users and forums that can provide support and value-add to asset data processes.
- Opportunity to contribute to the development of the ADAC asset data model and related processes.
- National recognition as an ADAC member.
- Access to an Australia-wide IPWEA NAMS.AU affiliated technical support group to assist you to plan and implement ADAC within your organisation.

ADAC provides a robust data specification that underpins asset design drawings and as constructed plans. Compliant data is captured during design and construction processes and used to populate asset component registers and Geographical Information Systems (GIS). By adopting an XML file format, checking, transforming and loading ADAC data to your systems is consistent and flexible.

Consistent and stable data specifications and formats give industry asset providers lower costs through less variability and consistent processes.

Incorrect, missing or redundant data can cost your organisation significant time delays and money. That’s why ADAC represents a strategic solution through quality data capture and management for government and utilities.

Getting it right first time, with consistent data
GETTING STARTED

From this point on your journey begins online on the website. Open your computer now, login and follow along.

- Visit the ADAC website. Contact IPWEA.
- Watch the ADAC Videos. Review the ADAC XSD files.
- Participate in a free ADAC Webinar. Talk to ADAC Strategic Reference Group Members.

ADAC IN-HOUSE DAY

A day inside the organisation...

Now that you have discovered ADAC it’s time to get started!
Join the ADAC consortium now and we will supply two accredited ADAC implementation consultants free for a day!

AGENDA
- Key Drivers for Business Change
- List of Stakeholders and Responsibilities
- Benefits Realisation Plan
- Process Change Requirements
- System Configuration
- Data Transformation and Load
- Scripted Data Checks

* ADAC in-house day complementary costs cover consultants and IPWEA staff attendance only; travel and accommodation costs may be incurred according to location.
Allow the implementation to begin! Let's drill down further!

Considerations for Implementation Scope

**POLICY & ORGANISATION PROCEDURES**

**Part A - ADAC Project Delivery**

1. **PROJECT INITIATION**
   - Stakeholder Engagement
   - Confirm Project Stakeholders
   - Communicate the Plan
   - Confirm the Scope

2. **PROJECT MANAGEMENT**
   - Establish Project Governance Structures
   - Project Management Group
   - Progress Reporting
   - Executive Leadership Team Presentation

3. **DESIGN / AS CONSTRUCTED PROCESS IMPROVEMENT**
   - Contract Infrastructure Delivery
   - Subdivision Infrastructure
   - Day Labour Infrastructure Delivery

4. **POLICY UPDATES**
   - Conditions of Contract
   - Development Conditions
   - Planning Scheme Amendment
   - Standard Drawings and Specification

5. **CHANGE MANAGEMENT**
   - Stakeholder Analysis (RACI)
   - Industry Briefings
   - Communication Plans
   - Change Plans
   - Collaborative Initiatives

**PROCESSING & DATA MANAGEMENT**

**Part B - ADAC As Constructed Data Automation**

1. **PROCESS AND SYSTEMS REVIEW**
   - Data Structures
   - Asset Systems
   - Data Management Processes
   - Data Capture Process and Tools

2. **CAPABILITY DEVELOPMENT**
   - Data Processing Tools
   - Data Translation Tools
   - ADAC Authoring Tool
   - ETL Tools

3. **CONFIGURATION**
   - Asset Management System
   - GIS
   - ETL Tools

4. **POLICY UPDATES**
   - Development Conditions
   - As Constructed Plan Requirements

5. **CHANGE MANAGEMENT**
   - Acceptance Testing
   - Software Training
   - Bureau Services

Remember at the implementation planning day how I said that we would analyse the implementation scope for your organisation and recognise the gaps where you may need help from the ADAC team? See anything here that we could help with?

*ADAC – Accredited implementation partners can supply a quotation to help you in the areas where it is identified that your organisation needs it. This will be supplied with your implementation scope following the in-house day.*
We are sure there are many questions you may have about ADAC, so we have compiled a list of the most relevant questions and answers.

If your particular query is not answered here, please don’t hesitate to contact us to find out more - email ahain@ipweaq.asn.au

What is ADAC?

ADAC stands for "Asset Design and As Constructed" however it is much more than a product. It has three main pillars that define and guide its operation:

1. First, it’s a non-proprietary data specification and transport format (XML) for the description and transmission of asset design and as constructed data.

2. Second, it’s a national association of asset management practitioners drawn from government and private enterprise that maintain and enhance the ADAC data specification and share tools, experience and knowledge.

3. Third, it’s a governance and management entity that provides strategic planning and technical development training through the Institute of Public Works Engineering Australasia.

Where did ADAC come from?

ADAC was created by collaboration between local governments across south-east Queensland and other states more than a decade ago. Membership has expanded to include State Government Departments and water utilities.

The ADAC SRG mission is to develop a robust framework for the efficient and standardised capture, delivery and use of public works asset data.

The vision is that ADAC will become the industry standard for describing asset design and as constructed data across a range of public and private asset classes.

Who is currently using ADAC?

The ADAC membership includes full-time representatives from Local Government, State Government and Utilities from across Australasia.

Visit the ADAC website to see current members at www.adac.com.au

Is ADAC supported by any national industry bodies?

Yes. The ADAC specification is endorsed by the IPWEA National Asset Management Strategy Committee (NAMS.AU) which provides national leadership and advocacy in the sustainable management of community infrastructure.

ADAC is the only data specification referenced in the International Infrastructure Management Manual (IIMM).
What asset classes does ADAC cover?
The ADAC specification currently covers the widest selection of asset categories available in the market, including:

- Roads
- Drainage
- Open Space
- Water
- Sewerage
- Cadastre / Surface

Work is currently underway to expand the schema to include asset classes for bridges, buildings, coastal infrastructure and pump stations.

ADAC Schema Simplified Snapshot

What are the benefits of implementing ADAC?
ADAC XML provides a common language for describing Asset Design and As Constructed data and a common method of transporting this enables:

**Validation of asset data and streamlining of asset acceptance processes**
- *Ensures you receive the right data in the right format* from your asset delivery entities (e.g. property developers, contract construction firms and internal asset constructors).
- *Allows you to process new asset designs faster and with less effort.* Timeframes from submittal to acceptance of designs and as cons can be improved greatly.
- *Provides a common format for asset delivery entities* to submit asset design and as constructed drawings to different authorities (e.g. Councils, utilities, State government instrumentalities) without the need to maintain specific templates for data and presentation.

**Improvement in asset management data quality**
- Data can be loaded to your asset management and GIS systems: *quicker, cleaner and more cost effectively*.
- Standardisation of data structures promotes *more streamlined internal and external asset reporting*.
- Allows for *scripted validation of data* with Electronic Transform and Load (ETL) tools.

**Opportunities to collaborate and benchmark with similar organisations**
- Provides the opportunity to provide *aggregated regional and industry reporting*.
- Allows *benchmark comparisons of 'like' data* across same industry organisations.
- Facilitates *amalgamation of data sourced from different organisations* (e.g. Dial Before You Dig).

**The ability to collaborate with fellow ADAC members to**
- Work on common issues and ideas.
- Share knowledge and experience.
- Share system integration / configuration development costs.
- Influence the development of ADAC and the emerging field of asset data management standards.
How is ADAC different from other offerings in the market?

- **ADAC has a more extensive data model** giving it the greatest coverage of asset classes and categories currently available in the market.
- **ADAC is developed and maintained by membership** of state and industry specific professionals, not by any one private company.
- **The non-proprietary XML transfer format is incredibly flexible.** This means you do not need to buy a particular software product to use it. You can implement it with almost any asset management / GIS software.
- **The ADAC design architecture supports regional variation** (variances in enumeration and terminology) without the need for software changes.
- **ADAC focuses on standardised data structures rather than presentation.** This allows you to retain symbology and styles at a local level but simplifies the effort and complexity required to provide the data.
- **ADAC is developed by members for members.** The development of ADAC is driven by members’ needs, not the need to generate a profit.
- **ADAC has the support of peak industry bodies.** ADAC is the supported direction of the IPWEA National Asset Management Strategy Committee (NAMS.AU) for as constructed data.

**HOW DOES ADAC WORK?**

ADAC provides a standard specification for describing asset design and as constructed data. This specification is embodied in the ADAC XML schema definition that provides the vehicle for transporting the data.

The ADAC XML schema definition can be used in conjunction with any feature manipulation tool to map data from electronic design and as constructed drawings directly to data fields within asset data registers and / or GIS systems. This feature allows automation of validation and load of data into asset / GIS systems.

Standardised asset data schemas facilitate statutory reporting requirements, allow comparisons of like data with other ADAC compliant data repositories and allow aggregated reporting of asset data for state and federal government assessment. Infrastructure assets and more will happen over the years to come as more utilities join ADAC.

**ADAC Workflow**

**Who maintains and develops ADAC?**

The overall responsibility for ADAC rests with the Institute of Public Works Engineering Australasia (IPWEA).

The ADAC specification is maintained by the members of the ADAC National Strategic Reference Group (SRG) who are responsible for the strategic direction of ADAC. Technical feedback is provided to the SRG through the ADAC Technical Reference Group.

The IPWEA is a not-for-profit professional member organisation that provides governance, quality assurance and advocacy support for ADAC.

**Where is ADAC going in the future?**

The Strategic Reference Group (SRG) vision is to make ADAC the national standard for the description and transmission of asset design and ‘as constructed’ data.

The ADAC Technical Reference Group is developing and reviewing proposals to expand the ADAC asset classes to include bridges, buildings, coastal infrastructure and pump stations.

It is also envisaged that ADAC will be expanded to accommodate asset classes for the Utilities sector (e.g. electricity, gas, telecommunications.)

**How much does ADAC cost?**

The ADAC specification is freely available from our website ([www.adac.com.au](http://www.adac.com.au)). You can download the specification and start using it right now if you choose, but we do suggest that it is more beneficial that an organisation follows our tried and proven roll out plan.

The ADAC joining fees and annual membership subscription rates are built on a sliding scale according to regional population and further information is available on the ADAC website.

Visit the ADAC website for further information.

**What do I get for my money if I become a member?**

Associate membership entitles you to:

- Link to forum on IPWEA national site
- XSD file access
- ADAC support guidelines
- Asset / GIS configuration advice from consortium peers if required
- A one-day, on-site Implementation Planning Workshop provided by the IPWEA
- Documented Implementation Plan
- In-house information day from ADAC accredited software vendor(s)
- ADAC training access through IPWEA
- Advanced Q&A FAQ sheet to assist in your first steps.

**Are there any other products or services I must buy once I join the ADAC consortium?**

No. There are a range of 3rd party software and technical support services that can help you automate the capture and recording of asset design and as constructed data, however if you have the available staff there is nothing you must buy to implement ADAC.
FREQUENTLY ASKED QUESTIONS

Is there ADAC compliant software available?
Yes. Although ADAC is a specification not an application it is supported by a range of 3rd party software tools. A list of ADAC compliant software suppliers is available on our website, with ongoing discussions being held with additional vendors.

How do software and support suppliers become ADAC accredited?
Prospective ADAC software vendors and support providers can apply to the Strategic Reference Group to become Technical ADAC Partners.

The ADAC Technical Reference Group evaluates each application. Where software is involved, the ADAC Technical Reference Group will perform a product review and advise the vendor of any issues that would prevent their application receiving ADAC accreditation.

Given that the ADAC transport format is built upon the open XML standard, it is expected that any changes would be minimal.

How often is ADAC updated?
The ADAC data specification and file transfer format are reviewed annually by the ADAC Technical Reference Group. Recommendations for modifications from ADAC members to the ADAC data specification are reviewed and approved by the ADAC Strategic Reference Group and confirmed by IPWEA.

Example ADAC XML

```
<adac:Pipe>
  <adac:PipeObject>
    <adac:ObjectID>0712500004</adac:ObjectID>
    <adac:Compartments />...
  </adac:PipeObject>
</adac:Pipe>
```

Metadata (data about the data)
- What type of information this is
- Used by programs to determine what to do with the information that follows

Asset attribute data
- Non-spatial data about the asset

Geometry elements
- Spatial data about the asset

How future-proof is ADAC?
The ADAC data specification is designed to allow for expansion of the range of asset categories and types. The transport file format has been designed in XML to promote inter-operation with almost any software and is an open standard.

ADAC is governed and developed by asset management practitioners under the governance of the Institute of Public Works Engineering Australasia (IPWEA).

Is ADAC scalable and portable?
Yes. ADAC is designed to suit small organisations as well as large ones. It can be implemented with simple asset registers or state-of-the-art asset management / GIS systems.

ADAC data is portable because it conforms to an agreed data standard and has widespread third party product support.

Will ADAC replace the traditional plan drawn with a CAD product?
It isn’t necessary to do away with the traditional tools (CAD products) used to prepare an ADAC compliant plan. ADAC is more about the data the plan contains rather than how the data is presented on the plan. This approach represents a change in CAD templates rather than changing the product. A better way to produce the plan (design or as constructed) is to use software tools specifically designed for ADAC. CAD product vendors can now offer ADAC tools as software ‘add-ins’ while others offer purpose built ADAC authoring tools that utilise CAD products as a drawing engine. These tools deliver the same outcomes in terms of the data recorded on the plan but accomplish the task with less effort, less errors and can produce data outputs as XML files.
Does choosing ADAC lock me in to anything?

Choosing ADAC means only committing to a data specification for design and as constructed data. There is no mandatory commitment to software required or to a particular asset management system or GIS configuration. Asset providers can still provide ADAC compliant as constructed data in formats other than ADAC XML.

This allows for organisations to scale the pace and extent of an ADAC implementation to provide a smooth and managed transition from current operations to fully automated ADAC environment.

How would I go about implementing ADAC in my organisation?

As an ADAC member you also have access to a number of support resources including the “Support Guidelines for Implementing ADAC” developed by the ADAC SRG, that includes resource material to develop a strong business case for adopting and implementing ADAC in your organisation.

For new members, an inclusive ADAC implementation planning workshop will help you answer questions such as:

- What is the optimal scope, timing and extent of my ADAC implementation?
- How do I engage key stakeholders to make my ADAC implementation a success?
- How do I map my existing data structures to ADAC?
- What process changes will be necessary to support the implementation of ADAC?

As an ADAC member you also have access to other members’ knowledge and experience via the ADAC Community forum and invitation to group meetings where you can have your issues addressed.

Do I have to change my asset management systems to use ADAC?

No. The ADAC data specification and XML transport format can be mapped to almost any asset management system or GIS data schema. In many cases, there is significant correlation between the ADAC schema and most commercial Asset Management Systems.

Though not mandatory, there are benefits to be realised by aligning asset descriptions and properties with ADAC structures and values that will lower effort in the long-term. Leading asset management software vendors offer ADAC configurations ‘out of the box’ and many leading end to end business management consultancies are ADAC compatible and strongly support the data standardisation concept.

Where do I get additional ADAC resources?

Information on additional ADAC resources is available at our website (www.adac.com.au) or by contacting IPWEA.

The ADAC data dictionary and Mind Maps are freely available by contacting IPWEA and are an excellent tool to engage with your internal stakeholders.

FREQUENTLY ASKED QUESTIONS

- Does choosing ADAC lock me in to anything?
- How would I go about implementing ADAC in my organisation?
- Do I have to change my asset management systems to use ADAC?
- Where do I get additional ADAC resources?

FREQUENTLY ASKED QUESTIONS

- What ADAC support is available to me?

Only members are able to access a range of ADAC support tools and content developed by other members including the “Generic ADAC business case “and “ real time case studies”.

What ADAC support is available to me?

As a member of the ADAC Consortium you have access to other members’ tools for planning and implementation. You also have access to the ADAC Community web forum to discuss issues and ideas with other members.

There are a number of accredited third party service providers available to assist with the planning and implementation of ADAC in your organisation.
Interested in joining the ADAC consortium?

The Institute of Public Works Engineering Australasia invites you to come and join your peers in asset management and GIS data capture.

ADAC is fast becoming the largest recognised data model in Australian Public Works domains.

For more information please contact:

Technical Products Manager
Adam Hain (07) 3632 6804
ahain@ipweaq.asn.au

Institute of Public Works Engineering Australasia
Australian Office

Welcome to ADAC!

On behalf of the NAMS.AU Committee, welcome to ADAC and the commencement of a journey that will make the processing of asset information in your organisation measurably more simple.

‘Asset management’ and ‘sustainability’ are words frequently heard in utilities and public works organisations throughout Australia. The last decade has seen a general awakening to the importance of accurate measurement of assets accompanied by the rise of GIS and Asset Management software to assist industry in the sustainable management of assets.

Spatial systems and instruments are now sophisticated and there are powerful tools designed to capture and manage data. Practitioners recognise the importance of accurate, reliable and complete ‘as constructed’ information for operational, maintenance and asset management forecasting alike.

ADAC is now the supported Data Specification by the NAMS.AU committee and we hope to see it as “the data standard specification” for Australia.

I hope you benefited from this ADAC Strategic Reference Group’s information package to guide and facilitate your ADAC decision-making journey.

IPWEA and NAMS.AU are here to assist on this journey. Should you have any queries or require additional information please contact an IPWEA ADAC representative through the web site links at www.adac.com.au.

Warm regards

Peter Way PSM
Chair, IPWEA NAMS.AU
ADAC is available online at www.adac.com.au via a subscription service managed through IPWEA.

Contact IPWEA today – email ahain@ipweaq.asn.au