Governments around the world are increasingly recognising the value of their data, and the tremendous potential benefits that come from opening access to that data. But those benefits can only be realised if the data is truly open. That means it must be flexible enough to allow users to ask their own questions, accessible to everyone (not just the specialists) and released in a way that protects the privacy of the individuals in the data.

We build tools that make it easy to explore and analyse huge volumes of data, making the process simple, secure and rich in meaningful insights.

This is our vision for government open data.

Why Open Data?

As many in government are now realising, the advantages to opening up government data are numerous. Some key benefits include:

> Easier access to government services and information.
> Fostering innovation and enabling new solutions and services to be built.
> Easier interaction and sharing of knowledge between government departments and agencies.

Open Data for Everyone

For government data to be considered truly open, it must meet the needs of multiple levels of users. That might mean:

> Internal government users, both trusted and untrusted
> Trusted and untrusted external parties such as other agencies or researchers
> Industry
> The general public

At WingArc Australia, we want to make data accessible to everyone.

Our tools are designed to meet the needs of all users by providing a powerful, programming-free interface to explore and analyse data. We also support interactive visualisations using charts and maps that users can easily share and embed in reports.

Beyond Pre-Defined Reports

Traditionally, governments have made data available in aggregated form, or though pre-defined reports. While this summary data is clearly valuable, it does limit some of the usefulness of the data.

When building the report or the aggregated table, the data publisher must anticipate the questions that users will want to ask and decide which combinations of figures to release as a result.

"The data held by the Australian Government is a strategic national resource that holds considerable value for growing the economy, improving service delivery and transforming policy outcomes for the Nation."

The Hon Malcolm Turnbull MP
Former Prime Minister of Australia

But what if users want to ask different questions?

As data providers around the world know only too well, the same piece of data can mean something different to each stakeholder, and the questions those stakeholders will want to ask are different. It is impossible for data providers to offer a pre-defined report that can anticipate all possible uses of that data.
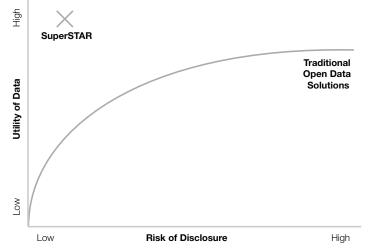
In fact, we believe that the real potential of open data is in enabling innovation. In allowing the users of that data to build new solutions and use the data in ways that we haven't even thought of yet.

Our web portal tools are designed around a self-service model, allowing end users to ask any question they like by making ad-hoc queries against the underlying unit record data, rather than being limited to predefined summary information and views that have been created for them.

Protecting Individual Privacy

One of the reasons why governments have generally released summary data, rather than unit records, has been to protect the privacy of the individuals and organisations in that data. While there is a risk of identification from aggregated data, the risk is much higher with unit records. Merely removing personally identifiable information is not enough to fully anonymise the data, even in aggregated data, as there is still a risk that specific characteristics might allow an individual to be located even without the inclusion of explicit identifiers.

The critical task of protecting privacy is far too important to leave to manual control. Human error can be catastrophic both for the governments releasing the data and the individuals within that data. Aside from the financially costly legal outcome, the damage to public confidence and credibility can be near-impossible to repair. Proven confidentiality routines are therefore essential, and the application of this protection must be automatic.

Traditionally, open data solutions have been forced to compromise. To choose between utility of data and risk of disclosure. Our tools are designed to offering highly useful data with a low risk of disclosure. They sit on top of the unit record data, providing on-the-fly aggregation from the data in those unit records, with confidentiality protection that is robust and automated. And of course we can also disseminate aggregated data.

Our most advanced confidentiality algorithm, perturbation, automatically adjusts the results on-the-fly in a controlled, repeatable way to prevent identification of individuals in the data, while being careful to avoid introducing bias to the results.

High

SuperSTAR ✕

Utility of Data

Traditional
Open Data
Solutions

Low

Low   Risk of Disclosure   High

Inter-Agency Sharing

The considerations identified above in relation to sharing of unit record data apply equally to sharing between government agencies, as it does to sharing with citizens. The ease with which different agencies can share their data and insights is a key metric for measuring the success of government open data.

Our solution supports easy exchange of unit record information between agencies, avoiding the costs associated with multiple handling of the same data by different agencies.

The Future of Government Open Data

Our vision of the future of government open data is of an inter-operable platform allowing agencies to exchange and publish data in a uniform way.

This architecture diagram shows multiple agencies exchanging data in a uniform format. Our Data Aggregator receives data from the individual agencies and transforms/ joins that data into the datasets for internal and external dissemination.

Information is then disseminated through self-service agency or cloud-based applications.
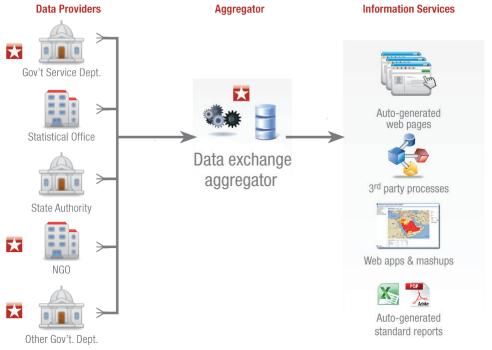
We also provide standards-based JSON APIs allowing third-party developers to interact with the data.

Data Providers

Gov't Service Dept.

Statistical Office

State Authority

NGO

Other Gov't. Dept.

Aggregator

Data exchange aggregator

Information Services

Auto-generated web pages

3rd party processes

Web apps & mashups

Auto-generated standard reports

Key Benefits for End Users

> Common interfaces and tools provide users with a familiar environment for working with government data, regardless of where it originates.

> Standards-based APIs allow programmatic access to data in a standard format.

> Data more up-to-date because our inter-operable systems reduce the time required to release data.

> Built-in feedback mechanisms with role-based security allows citizens, other government agencies and government data providers to interact with the data and share their insights.

> Improved accessibility to a broader range of data without duplication from different sources leads to more informed decision-making.

Key Benefits for Agencies

> Reduced duplication in data collection across agencies and implementation of a single source of truth.

> Easier transfer of data between government agencies whether national or local, enabling better utilisation of existing data.

> Reduced costs of maintenance, improved security, and easier knowledge transfer from agency to agency through a common platform.

> Economies of scale and potentially 'bargain power' through multi-agency agreements.

WingArc 1ST

About WingArc Australia

WingArc Australia is a Melbourne-based software company that has been providing solutions for dissemination of government data for 30 years. Our combination of cutting-edge open data technology, expertise and industry partnerships have enabled us to develop the SuperSTAR suite of open data products targeted at national statistical organisations and government agencies worldwide.

Proven Install Base

Today, national statistical agencies in Australia, New Zealand and across Europe use SuperSTAR to analyse statistical information, and for secure, confidential online dissemination of this information. A number of other government agencies, both in Australia and overseas use SuperSTAR. Examples include the Australian Bureau of Statistics, Tourism Research Australia, and Department for Work and Pensions (UK).

Best Practice Methodology

We are able to transform the management of data throughout its entire lifecycle, from planning, collection and processing to analysis, dissemination and evaluation. This follows the internationally developed General Statistical Business Process Model (GSBPM) designed to guide government and corporate organisations through the business processes required to produce official statistics.

Rich Analysis and Dissemination Functionality

SuperSTAR offers rapid, multi-dimensional manipulation of enormous volumes of unit record data. Complex hierarchical classification support (including multi-parent hierarchies) allows deeper classifications that are better aligned with the needs of different users, resulting in richly captured, meaningful real-world information. Experts such as data scientists and statisticians gain more options in the way they view and compare information to achieve natural results, while the ease of use makes it possible for all users to find the information they need – the cornerstone of true open data. The SuperSTAR suite offers powerful tools for gaining and sharing insight from even the most complex statistical or structured data.

Advanced Confidentiality

At WingArc Australia, we understand the importance of confidentiality when providing access to information. Our SuperSTAR platform features robust on-the-fly confidentialisation, as well as field level security and other access controls. Our disclosure control functionality is in use all over the world: Austria, Australia, Russia, South Africa and the United Kingdom.

We also support standard statistical functions such as relative standard error, weightings for surveys and many statistical and mathematical functions, as well as a comprehensive metadata solution and have full multilingual support across the entire suite.

Company Overview

> Incorporated as Space-Time Research in 1986 at Melbourne University to commercialise research into large database manipulation and interrogation

> Acquired by WingArc1st, Japan's leader in Business Intelliegence and Data Analytics, in 2017

> WingArc Australia Headquarters in Melbourne

> Global customer base

Solution Overview

> Self-service data analytics

> Data dissemination

> Easy to use: anyone can analyse big data sets

> Advanced confidentiality and privacy protection

> Advanced statistical capabilities

> High speed, high performance tabulation engine