DDS Government Skills Directory

Giving Government Departments an Understanding of their Staffs' Skills and Experience

Executive Overview for UK Government

dæmon DIRECTORY SERVICES

Company Profile

Daemon Directory Services Ltd. (DDS) is an application service provider supplying cloud services to the UK Government community.

DDS develops and deploys secure collaboration applications that can be used across organisation partnerships. The services include federated user identity management, departmental directories and multi-agency versions of collaboration software such as SharePoint and MS Dynamics CRM.

DDS specialises in working with UK Government agencies and is fully equipped to meet their security requirements.

DDS products have been used in Government for more than 15 years, in which time most of the central Government agencies have used one of more of DDS' products or services.

DDS was a founder partner of the CenturyLink hosted pan-Government Government Wide Service network (GWS) and can supply SaaS services to all government agencies through the GWS (a Crown-wide framework contract).

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This paper introduces the DDS Government Skills Directory; a computer system developed to meet the Government's need for a secure database of staff skills and experience. DDS are the developers and operators of the Government Directory of Business, a personal and organisational directory in use with a number of large government agencies including the DWP and the Home Office.

The Government Skills Directory allows staff to maintain skills and experience information, making this searchable in a controlled and secure way across the organisation. It has been accredited to operate at Government IL3 (RESTRICTED) level and is available to Government customers on a Software-as-a-Service basis (SaaS) through the GWS Crown Framework contract.

As a part of the Coalition Government's agenda for reform, the Civil Service is engaging in a programme of changes to ensure that it is achieving optimal value for money value for money in the way it delivers quality public services.

A restructuring of its staff resources is a central theme of this programme; the objective being to review how staff are deployed in relation to the organisations' needs to ensure that they have the right combination set of skills for the job.

Chris Bloor, Interim CEO for Government Skills described the implications of these reforms in introducing the "Government Skills & Civil Service Learning Organisation":

"The Civil Service is facing its most significant reforms for several years … it is essential that civil servants are able to develop and deploy their skills and knowledge effectively to deliver excellent public services in a more finically constrained environment." [1]

A precursor to getting the best from an organisation's staff requires knowing what skills and capabilities they have. This knowledge then has to be matched to the organisation's needs to ensure that suitably skilled staff are kept where they are most needed and that new staff are recruited with the right skills to fill the skill gaps as they appear.

Having a good understanding of this situation helps management keep staff morale high; demonstrating they value their staff's capabilities; allowing them to focus their development effort initiatives where most needed; helping cut costs by shifting reliance from expensive consultants to in-house teams that have the right skills and experience for the evolving organisational needs.

The problem for the organisation is gaining that understanding; i.e.: "knowing what it [corporately] knows".

The DDS Government Skills Directory tracks staff skills against organisational needs to help make this understanding a reality. It allows users and HR managers to collect and reference information on the corporate skill-base and allow them to plan policies on the basis of hard facts rather than supposition.

This document introduces this system; and explains how such a database can be used to put staff capabilities in the context of the organisation as a whole.

1. Cabinet Office's Strategy Document covering the Government Skills and Civil Service Learning Organisation,

DDS Government Directory

The Government Skills Directory is a directory system that provides organisations with comprehensive information about their business and their staff. Basic functional directory functions can be extended with a set of plugin modules as illustrated in Figure 1 below:
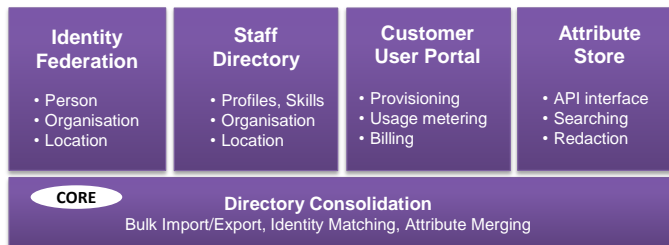
Identity Federation	Staff Directory	Customer User Portal	Attribute Store
• Person • Organisation • Location	• Profiles, Skills • Organisation • Location	• Provisioning • Usage metering • Billing	• API interface • Searching • Redaction

CORE — **Directory Consolidation**
Bulk Import/Export, Identity Matching, Attribute Merging

Figure 1 - the DDS Government Staff Directory components

The **Staff Directory Component** gives organisations a single source of information enabling them to get answers to questions about people, jobs, roles, functions, offices across their own and partner organisations. For example it helps answer questions like:

→ "What's John Smith in HR's extension?"
→ "Who deals with issues on ….?"
→ "What's the address of our Croydon office?"
→ "John Smith sick, who works with him?"
→ "John works in HR, but what's his surname?"

All aspects of the Government Directory of Business are searchable, either as structured field-based searches of 'meta data' fields or as Google-style free text searches.

Using such a directory system makes the organisation more effective and efficient. Having staff able to efficiently look up what functions the organisation covers and where these are done improves individuals' understanding of the organisation and their colleagues.

The directory has a comprehensive scope that covers personal, organisational and now skills information, allowing for comprehensive searching across the organisation as a whole.

The ability of the directory to federate with partner directory sources extends the scope of the information across business domains beyond organisational boundaries.

The easy and intuitive up-date mechanisms within the directory combine a user "self-service" update facility; role-based team-authored content; and automatic import processes (e.g.: from HR and Email systems) to create a single point of directory information about the organisation and its partners. Innovative features like a staff 'information aging' monitor help ensure staff are reminded and encouraged to keep the information they are responsible for up to date.

The directory has a set of import & export processes which allow it to synchronise with other directory systems within the organisation, specifically the network Active Directory and any HR system capable of providing spread-sheet or similar list-style data exports.

Because the directory holds personal information maintaining security is a key concern. All parts of the Government Staff Directory have been penetration tested against security risks, and the system as operated on the GWS network is security accredited to IL3 (RESTRICTED) level.

Additional Components

The additional components to the Government Staff Directory shown in Figure 1 add the following functionality to the basic system:

→ **The Skills Directory Component** adds enriched staff information to the Staff Directory creating a pool of knowledge on the organisations' corporate skills. The information covers each individuals' professional skills, experience, interests, qualifications and projects involved with.

→ **The Application Provisioning Component** provides a way for staff to browse a catalogue of Software-as-a-Service (SaaS) applications packages made available to them, allowing them to request access, open new sites, etc. All subsequent access is monitored so that usage can be metered and billed if required.

→ **The SharePoint Integration Component** gives users the ability to see the organisation's SharePoint team sites listed on directory. It shows the descriptive information and user members of the sites, and uses the Application Provisioning system inbuilt workflow facilities to allow users to request membership of the sites and/or request new sites. This facility works with any collaboration tool the organisation registers

→ **The Federated Identity & Authentication Broker Component** is a key part of the directory system, allowing users from partner networks to get seamless single sign on from their indigenous network to the directory, or any of the applications managed by the Application Provisioning system. Joining the identity federation partnership is straightforward and does not require major changes to the indigenous network.

In summary; having a source of up-to-date information about the organisation as a whole makes staff more productive and saves staff wasting their own and others' time by interrupting them to ask who does what and where. The DDS Government Staff Directory has been selected by some of the largest central government departments, including the Home Office and the DWP.

Using Skills Directory –Business Benefits

The Skills Information

The Government Skills Directory extends the staff profile information of the Government Staff Directory by adding information on the staffs' personal skills and professional experience.

Searching the skills information highlights where skills and experience exists in the organisation, and also where it doesn't. It also identified what key skills and experience would be lost to the organisation if certain teams or staff were to leave.

New skills information fields added to the system cover personal skills, knowledge, professional experience and personal interests as follows:

- → Professional qualifications
- → Past and present positions, projects and related business experience
- → Language and related communication skills,
- → Interests outside of work
- → Membership of civil service professions.
- → Mentoring fields allowing staff to engage in mentoring functions with other staff
- → Projects and teams worked in

Why is Skills information important?

The Skills Directory enables staff to keep their personal skill and experience information as a part of their directory profile information. Because it's held with the other directory information searching for skills is easy and searches can include filters on other personal criteria such as grade, team membership, location, etc..

This fills a gap in the organisation's view of itself; it enables it to find out where key skills lay and who knows about parts of the business. It also identifies what skills might be lost as staff move and change roles.

Key questions that can be answered are noted in Figure 3 below:

Figure 3 - Business questions covered by Skills Directory

The information held in the directory database conforms to government recommendations for the Core Competency Framework (CCF), applicable to both central and local government[1]. The CCF is intended to help organisations to be able to more meaningfully compare staff skills and experience across departmental boundaries, and so help identify the suitability of staff when trying to fill vacancies.

Examples of Use of a Skills Directory

The following examples show how the Government Skills Directory can be used within an organisation.

Example 1

A survey is conducted to find staff Prince2 trained staff; the Government Skills Directory is used with a search starting with anyone with qualifications that include "PRINCE". This is subsequently refined to include other criteria of location and grade to filter the results-set down to staff appropriate for the role. The output from the searches was produced in spreadsheet format and emailed to colleagues for further analysis.

Example 2

A cooperation project with the Japanese Government closes and the team want to say 'Thank you and best wishes' in Japanese as a gesture of friendship in a closing correspondence. The Skills Directory is used to search for any colleagues who have written Japanese skills of a certain level. The information might be objectified with an endorsement from a line manager allowing the choice a staff member to be made with confidence.

Example 3

An FOI request references an old project which is now closed, and the staff who worked on it are now unknown. The Skills Directory is searched using a Google-style search string quoting some key words that would identify project either in the name or description fields. The resulting results lists current and historical projects and their associated staff to contact about the project. Data on projects is maintained even after the project is closed and the staff moved on; some staff may have left but the directory allows those remaining to be identified and contacted for the information needed.

Example 4

An organisation's training department wants to manage training expenditure; it uses the Skills Directory to output a list of the entire organisations' staff professional qualifications. The list is then imported into a spread-sheet and totalled to show where there are proficiencies and gaps; the results being used to better focus the organisation's training budget.

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[1] See the background and context of the Government's CCF initiative, and here for an example of how local authorities are applying it.

Government Skills Directory – Major Functions

Important System Functions

The usefulness of the Government Skills Directory is only as good as the information it holds and the ease with which this information can be extracted. Therefore the system has to be easy to search and easy to update.

The developers have built on their experience with the Government Staff Directory and have built into the system tools and techniques that help both searching and updating. The most important of these functions are explained below.
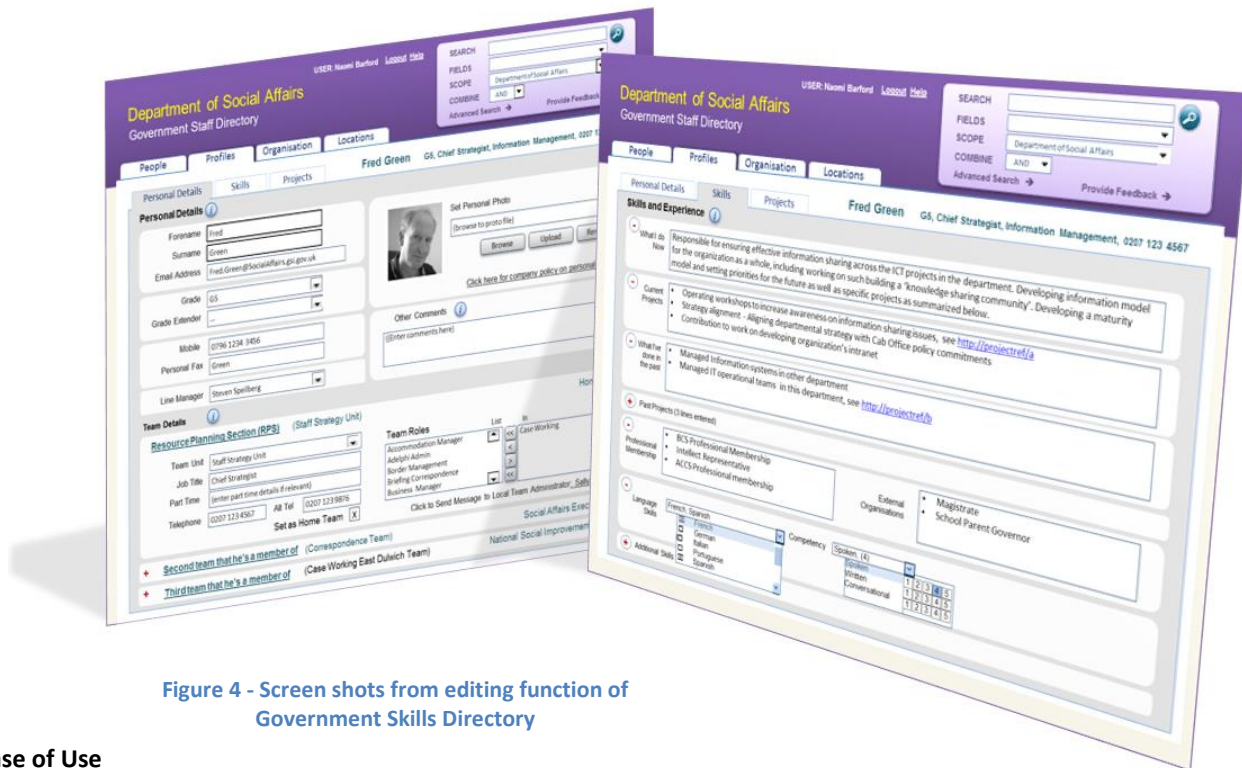

Figure 4 - Screen shots from editing function of Government Skills Directory

Ease of Use

The system is accessible from any user's standard desktop browser with search functions similar to Google.

Users have single sign on to the system and have a predefined role with permission levels defined on their account (e.g.: for team author, group manager or general user). After login users are routed to a personalised homepage from where there can quickly view any areas of the directory they may be responsible for and make amendments that are then immediately visible to the rest of the organisation.

Where the service is operated from a GSi visible platform, (i.e.: the GWS), directory information is visible to users from any GSi connected organisation (albeit in a redacted form – see later for further information).

Keeping the Data 'Fresh'

Keeping directory information 'fresh' is a major problem for organisations and the Government Skills Directory has a number of inbuilt mechanisms to help, namely:

→ Updating personal information is made as easy as possible through the integrated staff single sign on which this encourages staff to keep their profile information up to date.

→ There are automated data integration functions that can regularly import and reconcile personal data from other authoritative sources; e.g.: the network Active Directory and the HR system for more detailed staff information such as grade or pay-band.

→ There is an 'aging' workflow in the system that alerts users when their personal information hasn't been updated for a while, reminding them to update, or at least confirm this information. The system has an innovative option that can be setup so that as personal data ages, searches returning these records are visibly marked to indicate a low 'confidence factor' against the data.

Making Users Responsible

Every update made on the Government Skills Directory is audited, leaving an electronic fingerprint so that it is possible to see exactly when updates were made and by whom. A history of activity is available and any inappropriate additions can always be traced, the user can be identified and appropriate warnings issued. The system includes guidelines for users to manage their content; as with other aspects of the directory, the guidelines can be tailored for each agency sharing the directory.

Endorsing Staff Skills

Where fields hold information that warrants verification (e.g.: proof of qualifications held), there are inbuilt workflow facilities for staff to request line manager or senior colleagues endorsement of the information. Endorsed information helps increase the confidence in the information returned from searches allowing line managers to make more informed choices about who to contact

Delegated users are typically granted authority to update any team or sub-team information they are responsible for across the hierarchy. The resulting system is flexible, intuitive and easy to use and keep up to date. All updates are fully audited changes to ensure that changes to corporate information is properly accountable.

Keeping Data Secure

Because the data held are personal records for a potentially large number of people any such database would need to comply with security conditions governing storage and access.

The system is accredited to IL3 (RESTRICTED) level and conforms to necessary security criteria (e.g.: Data Protection Act, Government Impact Levels and the guidance for aggregated data outlined in the Hannigan Report of Nov. 2011). There are also issues around accessing the data within the organisation and ensuring that any details that are added to the Government Skills Directory are accurate and appropriate.

Protecting Privacy (Redaction)

Personal information is more private that other directory contact information; selected skills and experience fields can be protected to limit the view depending on the viewer's role and permissions. This ability, (called 'redaction') ensures that sensitive data will only be visible to staff who need to see it and not to all staff across the wider organisation.

It is envisaged that this function gives a "2-tier" capability to the directory allowing it be used by HR staff (as defined by an appropriate 'HR' or 'skills administrator' role) who may need to search through data fields where staff availability, qualifications, and data relating potentially to redeployment are protected from general view.

Ensuring that these fields are not generally visible should make staff feel more comfortable about adding information which will improve the quality of the data for the limited staff who do need access to these fields.

Advanced searching – the Thesaurus

The system includes an advanced thesaurus searching capability that ensures that abbreviations and other alias terms are included in the search. NB – this is an optional feature that requires linking and maintaining a thesaurus (an 'alias list').

Flexible & Extensible Data Structures

The data structures that represent information in the directory are highly flexible such that new fields of various types can be easily added by simple configuration changes. This means that new skills and knowledge fields can be added at any stage.

Data is structured in the system by 'agency', meaning that different parts of the organisation can manage data according to need by varying sets of 'business rules' on a per-agency basis. The system takes care of normalising the information when cross-agency searches are carried out.

Linking to Other Systems

It is possible to restrict which fields are editable on the staff profile so that staff are unable to amend their grade or email address, for example. This will allow for organisations to choose to 'protect' certain sets of information that could then be imported in to the Government Skills Directory from other systems or applications which would then be considered 'masters' of the data. This could include links to the Outlook or HR systems.

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Summary of Government Skills Directory Functions

The table below shows the Government Staff Directory specification:

Business Functions	
Personalisation	All users will access a personalised version of the application that will allow them to access the areas they need straight away to make amendments
Self Service	Allows staff to update their own details and take responsibility for their record. Also helps with accuracy and allows for richer profile information.
Skills	Provides a central application to capture skills, interests, qualifications and experiences. These can be approved by line managers to stop exaggeration. Helps ensure that an organisation has the most information available about their workforce. Can be linked to CCF and Learning and Development.
Redaction Engine	Allowing specific viewing permissions to be set up on certain fields to ensure that sensitive data is only visible to staff who need to see it.
People Search	All staff will be able to search the Directory for staff details using both a quick and advanced search features
Organisation Search	All staff will be able to search the Directory for organisation details including team structure, functions lists and organisational hierarchy trees. The trees can also be used to search for team information.
Locations Search	Details about every office within an organisation including a link to Google Maps.
Distribution Lists	Allows staff to set up a distribution list for groups of staff they contact regularly. The search query, for example all G7 staff in a specific building, is set up on the Directory and the results are constantly updated when new information is added or old information is removed from the Directory. This means that distribution lists don't have to be maintained manually.
Multi-Agency / Multi-Network	
Partnership Working	Allows users from different partners agencies and different networks to be authorised users of the same services, providing a fully integrated service for the partner group
Inbuilt Workflow engine	Allows for workflows representing business processes to be set up between main actors in the directory system (e.g.: users and team administrators)
Import and Reconciliation	Allows for imports from other systems holding staff information (e.g.: Active Directory, HR systems etc.) for on-going linking to the directory
Federated Authentication	Works with a federated identity management system for seamlessly authenticating users who come from different organisations.
Simplified User Management	Federation means user authentication is passed through to the host organisations network removing the need for separate user management (adding &removing users, etc.) on the SaaS application
Assured Security	Built for IL3 level accreditation on PSN, CHECK IT assured and operated in ISO27001 context
Procurable as SaaS	The system is procurable by government agencies as a Software-as-a-Service (SaaS) service through the Government Crown Framework contract with Savvis for the Government Wide Service (GWS)

What Next?

You may want to
- Contact the DDS Government Directory Team
- Ask for a demonstration
- Discuss the business implications or talk through the technical architecture

See http://www/daemon.co.uk
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