ADP CORPORATE DATA MANAGEMENT STRATEGY

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1.0 EXECUTIVE SUMMARY

ADP is a new unique company in which a lot of systems and procedures are not in place yet. This includes the way people access information. Good data management enables staff to save time looking for data and verifying its correctness. It unlocks data which may be trapped in individual PCs or might be on the shared folder and difficult to navigate for anyone other than the data owner. While, vertical software platforms have specific data. Data management enables data access from all such systems whenever ADP staff need it, providing a platform that can integrate the different data silos and give a holistic visualization of most of the data. ADP's corporate strategy is made from input from DBU, TBU, HR, Procurement and Finance. It has been endorsed by Corporate Support and IT.

This data management strategy is based on five principles.

- Productivity
- Information for all
- Integration
- Information Access through GIS
- Business Focus

ADP intends to make staff productive by making them find relevant, accurate unstructured data faster by organizing the structure of shared folders and setting up procedures of how they are used. Al Dhafra also provides cleaned and structured data in relational databases managing entities like well details in systems like EXPRIS. Finally, most corporate data can be spatialized and rendered capable to be management through GIS.

Integrating information from various systems, in an easy to access way, allows them to visualize their data in a holistic context. We intend to do this using GIS technology. Accessing information through a map interface is intuitive to everyone and GIS is an excellent integration technology that can extract spatial and non-spatial data from different databases and IT systems so that the end user sees the big pictures. This integrated data can then be used to create custom web and mobile maps using the ArcGIS Portal technology available through ADNOC OneGIS initiative.

In order for the data management team to develop such a platform, we need to keep business focus as our priority. By focusing on understanding the end-user data requirements and business workflow, we can help them provide a data management solution that fits their needs. This will also allow us to work on automating their workflow, thus further increasing productivity.

2.0 ADP CORPORATE DATA MANAGEMENT STRATEGY BACKGROUND

ADP's special circumstances need a data management strategy which is tailored for it. The strategy must come from business needs and not from a desire to push technical solutions or processes. ADP has a unique culture and environment in the ADNOC Group. The following factors makes ADP stand out:

- New organization
- Size: < 300 staff
- Growth projection: rapid
- Shareholders: ADNOC, KADOC best practices
- Culture: agile, innovation, collaboration, dynamism, unorthodox, positive "can do" attitude

Such circumstances require ADP staff to be creative, efficient, productive, agile, nimble and open while ADP undergoes sustainable growth. Therefore, we need an information management strategy in line with this special ecosystem that will be a catalyst for creativity, collaboration, intuitive access to information, data visualization, automation, workflow optimization and system integration.

Technical Data Management in ADP comprises both sub-surface and surface data. Sub-surface data ranges from single-well information to geologic models. Surface data includes production facilities, information on roadways, topography and cellular network tower locations to cite a few examples. Both types of data when managed through Geographic Information Systems (GIS), add many more synergistic benefits.

Non-Technical Data Management in ADP in divisions such as HR, Procurement and Finance is based on data management in proprietary standard systems such as SAP as well as unstructured data, managed on shared folders.

In this document, we will propose the 5 high-level principles that are at the core of ADP data management strategy and discuss them in context. The detailed implementation of this strategy will be described in a future roadmap document.

This strategy will contribute to ADNOC's corporate data management vision.

3.0 CORPORATE DATA MANAGEMENT CHALLENGES

This strategy considers input from data management challenges from DBU, TBU, HR, Procurement and Finance. Their current situation is summarized in Table 1 below.

Entity	Contacts	DM Systems	Challenges	Desired Outcome
DBU	Sajith Girinathan	EXPRIS GIS Shared Folder	Redundant, unstructured data on shared folders Proper introduction of EXPRIS	Organized folder structure Web GIS apps integrating ADP systems / data EXPRIS adoption
TBU	Srikanth Bodapathi	Shared Folder	Document / Drawing Management Redundant, unstructured data on shared folders	EDMS (Engineering Document Management System) Organized folder structure Database to host real-time data from Haliba field
HR	Hamad Al Zaabi	Shared Folder OneERP/SAP Smart Stream (Employee Details)	Redundant, unstructured data on shared folders Inaccurate employee information	Organized folder structure Accurate employee data in HR systems
Procurement	Arvind Bal Krishnan	Shared Folder SAP TBMS – Tender Board Management System Ariba – Tendering Application	Redundant, unstructured data on shared folders Systems take care of 95% of data	Organized folder structure SAP Phase 1 (March 2020) will take care of remaining data issues in Procurement
Finance	Muhammad Ali Chohan	Shared Folder OneERP – first, most comprehensive user of SAP	Redundant, unstructured data on shared folders Procedures, people, methods need to be defined & followed	Organized folder structure People need to plan their budgets and organize their work to better suit the DM systems

Table 1. ADP Corporate DM Challenges

4.0 FIVE PILLARS OF ADP DATA MANAGEMENT STRATEGY

The ADP data management strategy is based on the following high-level principles which are derived from ADP's special environment and business needs:

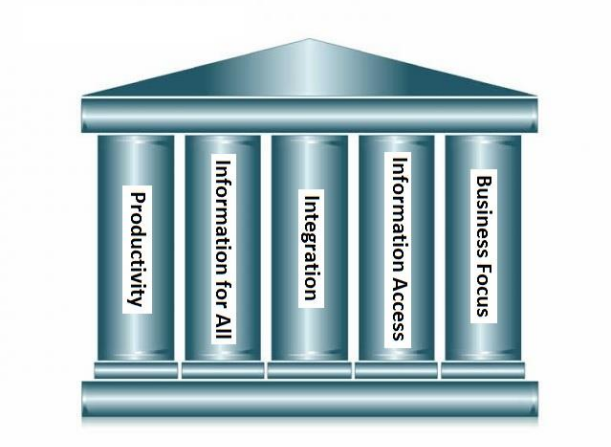


Figure 1. Five Pillars of ADP Data Management Strategy

4.1 PRODUCTIVITY

We shall provide easy access to relevant and authenticated information accessible through automated workflows for business processes allowing us to work efficiently.

4.2 INFORMATION FOR ALL

We shall become the go to source of information in ADP, serving the ADP data needs. Data will not be locked up with specific staff, but will be accessible to everyone who has use for it. We shall provide it through geospatial access to ADP staff by creating and maintaining custom web / mobile GIS applications.

4.3 INTEGRATION

We shall integrate data silos in ADP by combining data into authorized systems. We shall integrate data in existing software applications & systems get synergistic benefits from them.

4.4 INFORMATION ACCESS THROUGH GIS

We shall provide a platform where by ADP staff would use our system rather than being trapped in individual, stand-alone data silos. We shall use GIS as a means to intuitively access information in various systems in ADP.

4.5 BUSINESS FOCUS

We shall work closely with ADP staff to understand their data needs, business workflows and provide innovative solutions for their optimization.

5.0 ADP DATA MANAGEMENT STRATEGY

The ADP data management strategy caters to three categories of data: unstructured data, non-spatial structured data and geospatial data. Unstructured data includes images, media, PDFs, MS Office files, etc. They are haphazardly stored on staff computers and shared folders.

Structured data is typically stored in relational database management systems like MS Access, SQL Server, Oracle, Informix, Sybase, etc. EXPRIS data which is kept in Oracle is an example of structured data.

Finally, geospatial data is data with locational information.

5.1 UNSTRUCTURED DATA

Unstructured data in ADP currently resides on personal computers and common folders on server in a haphazard manner. Duplicated files and multiple versions of a single file adds to the confusion.

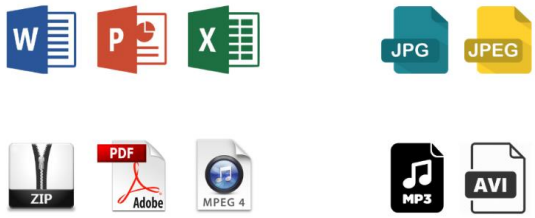


Figure 2. Examples of Typical Unstructured Data

Information access will be available to all users through the new shared folder system network on ADP server. The new folder structure has been designed in such a way so as to enable transparent, logical and easy access to any technical dataset inside the company.

Once the new shared folder structure is up and running, users will be discouraged to store technical files on their PCs – through implementation of IT measures. The new folder system has already been created and internally approved by asset focal points.

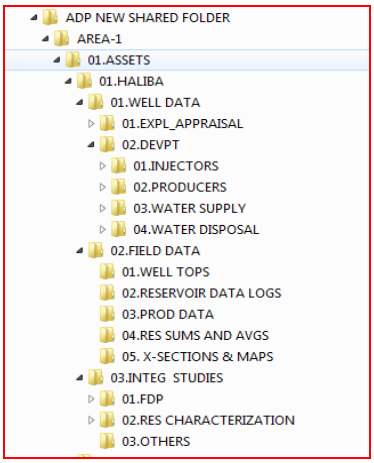


Figure 3. Sample of Unstructured Data Folder Structure

Subsequently, users will be asked to transfer all backlog data from their machines and old common folder to the newly created folder system. Later, access to old folders would be blocked rendering them unusable. All current and upcoming technical data will be henceforth then transferred to the new shared repository.

5.2 STRUCTURED NON-SPATIAL DATA

The ADNOC Exploration Production Information System (abbreviated EXPRIS) is the standard repository for well data from all operating companies within. EXPRIS uses Schulmberger's ProSource software platform for operations.

The ProSource platform essentially has two components:

- The Oracle-based ProSource Enterprise (PSE) and ProSource Logs (PSL) that facilitates preparation / formatting and uploading of sub-surface well data. The access to this rests with the ADP data management team.

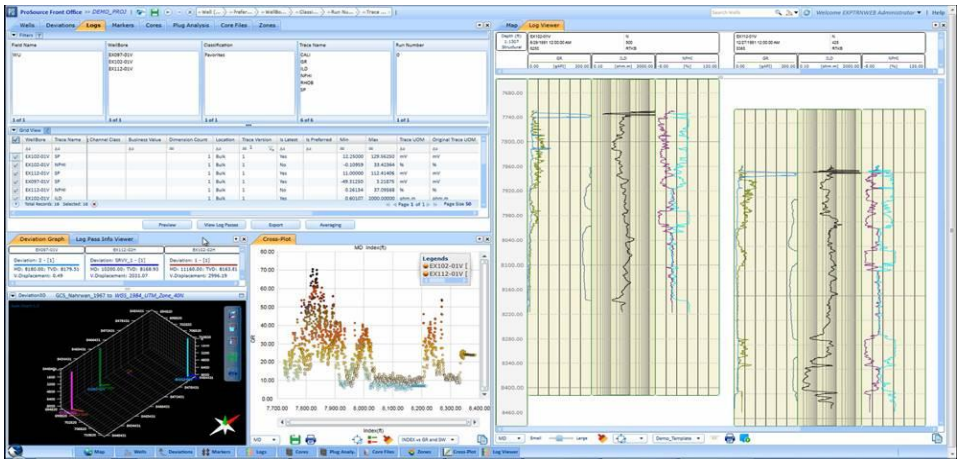


Figure 4. A View of Prosource

- The web-based ProSource Front Office that facilitates browsing, viewing and downloading of well data for carrying out day-to-day technical tasks. This application can be accessed by all technical ADP users. Preparation and uploading of backlog sub-surface ADP well data to EXPRIS is in progress and is aimed for completion by end of 2019. Representative example of how the PSFO dashboard would look like is shown above.

The EXPRIS ProSource Front Office (PSFO) application web-based access will allow users to view, browse and download sub-surface well information at ease, from their desktops.

EXPRIS will allow for visualising multiple sub-surface datasets on one screen which will help users to take effective integrated technical decisions.

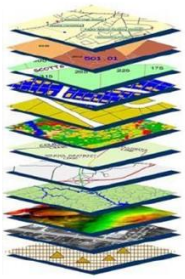
5.3 GEOSPATIAL DATA

In ADP, geospatial data includes:

- Data that is referenced by spatial or geographic coordinates
- Location based component of critical geoscience data (wells, seismic & horizons)
- Spatial features with direct safety/security/environmental aspect
- Location based component of physical assets (infrastructure, pipelines, facilities, etc.)
- Contextual data – cultural, topographic, satellite imagery, fields, prospects, leads, plays, etc.

At ADP, some geospatial data is unstructured and some structured. The latter is stored in an ESRI geodatabase. At least 60% of data in large organizations have been known to have a geographic element to it. Even if it is not GIS data, it can have coordinates or other locational context which allows it to become spatialized and be integrated in GIS. In E&P environment like ADP, the approximate percentage of data with geographic context is close to 80%.

A sample of ADP structured geospatial data that exists in our ESRI geodatabase is shown below:



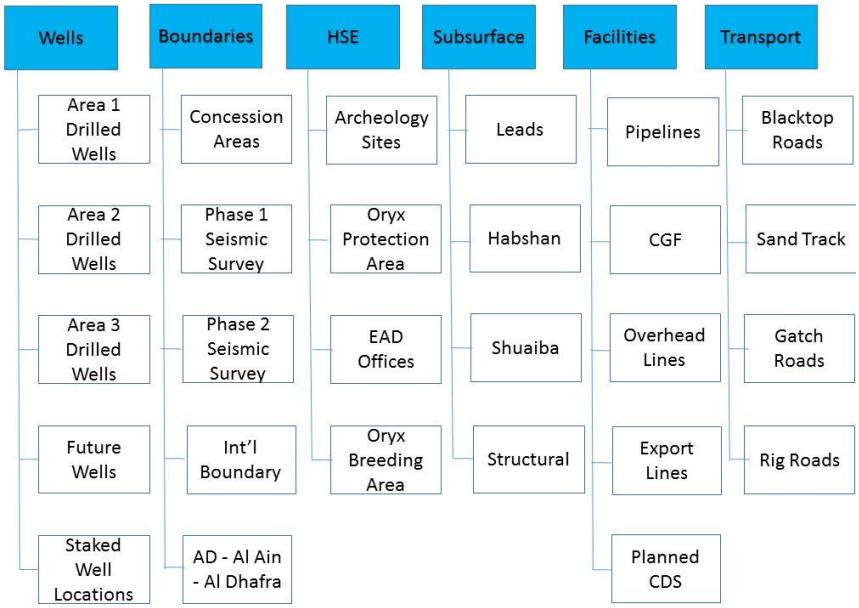


Figure 5. A Sample of Geospatial Data in ADP

As mentioned earlier, geospatial data is mastered in GIS geodatabase. It can also be spatialized from external non-GIS systems and then managed in GIS. Finally, data sets can be derived from either of the two.

Geospatial data can be managed in GIS by spatializing from E&P applications such as these:

Figure 6. Possible Applications That Are Candidates for Spatialization

Geospatial workflow is then based on integrating data from different applications and serving them out to different groups of end users.

The OneGIS initiative which we are working with ADNOC, will provide the tools to create custom web and mobile GIS apps for anyone in ADP. This will bring the power of GIS to all non-GIS users. We shall create apps which are customized to specific groups: subsurface, engineering, operations, drilling, HSE, emergency response, etc. This initiative will also give us the power to integrate with non-spatial systems so that we may spatialize their data and manage it in GIS. This integration will allow GIS to become the platform through which the company intuitively accesses most of its data. This is true for not only the standard DBU software packages shown in Figure 6, but also non-DBU systems like the real-time operational data from Haliba field that will be hosted in Abu Dhabi can also be integrated in GIS.

This platform will allow us to increase ADP staff productivity through GIS automation which has two main aspects. The first is to automate the GIS services by performing daily GIS work automatically through programming. This may include automated cartography, automated coordinate conversion, automated geoprocessing, etc. The second aspect of GIS automation is to study the ADP business processes and get to understand how the business workflow is done manually, then attempt to automate it using GIS. This might include location selection of oil wells, routing of pipelines and site selection for facilities. We get to understand the business workflow by working with specialists by initially providing the services manually. Once the workflow is streamlined and known we can automate it.

6.0 CONCLUSION

The ADP data management strategy is made according to ADP's context and environment. Adopting it will cause ADP staff to work efficiently, having access to a wealth of information. They will benefit from using integrated information from various different systems to make better and faster decisions. By leveraging GIS as a visualization and data integration platform that talks to various databases and information systems, ADP staff will be able to access information naturally and see it in holistic context. Integration thus has benefits which are greater than getting information from each system individually. Lastly, by focusing on the end user needs, data management staff can understand how data is used in business workflows and work with ADP staff for their unique needs. Part of this business orientation will be work flow optimization through automation.

Once the strategy is approved, detailed implementation roadmap of this strategy will be developed after which implementation can begin.

7.0 REFERENCE

- "Geospatial Data Management", BP North America, Tarun Chandrasekhar, https://dl.ppdm.org/dl/936