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Excavations at Tel Kabri, Israel: A Case Study in Data Management for Archaeological Research

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Excavations at Tel Kabri, Israel
A Case Study in Data Management for Archaeological Research
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Objective
This case study aims to identify data management needs in archaeological research by examining one project’s current practices.

Context
Tel Kabri was a Middle Bronze Age palace near the Mediterranean coast. Excavations started in the 1980s, and apply a range of technologies and methods to gain a holistic understanding of daily life and trade at Kabri.

Modules for Research Data

Types, Formats, and Storage of Data
- Data stored in paper notebooks, databases, and spreadsheets
- Extremely large quantities of raw and processed data

Data Storage, Backup, and Security
- Strict long-term data storage requirements from Israel Antiquities Authority, which pose access issues

Data Sharing & Reuse Policies
- Use of cloud-based applications for data sharing

Repositories, Archiving, and Preservation
- Need to digitize data from 30+ years and standardize formats
- Material will be permanently held by foreign government agency

Methods
An interview instrument, based on the Digital Curation Centre’s Checklist for a Data Management Plan 4.0, was developed and used in an interview with lead staff to focus on understanding the project’s data workflow throughout the data lifecycle.

Archaeological Research Products

Documents
- Field reports
- Articles and presentations
- Lab notes

Data Sets
- Artifact catalogs
- Locus sheets
- C-14 dating results
- Chemical analysis results

Images
- Photographs & orthophotographs
- Technical drawings
- Artifact illustrations

Virtual Archaeology
- Remote sensing data (e.g., LiDAR)
- 3D scans and models
- GIS datasets

Cultural Material
- Pottery sherds
- Mosaics
- Reconstructed vessels

Recommended Data Management Plan

Types, Formats, and Stages of Data
- Data will be imported to software that can manage multiple file types, assign metadata, and provide versioning control

Data Storage, Backup, and Security
- All data will be duplicated and stored in a U.S.-based repository or cloud-based storage service

Data Sharing & Reuse Policies
- Re-use is subject to approval of the PIs and may be requested by contacting the PIs or the Israel Antiquities Authority

Repositories, Archiving & Preservation
- Data in paper notebooks will be digitized
- Data will be stored in open-source formats where possible
- Israel Antiquities Authority will be responsible for storing, archiving, and preserving all materials

Conclusions
Archaeology as a discipline is centered on the importance of context and data preservation. Partnering with archaeologists may allow LIS professionals to pursue a model for global data services that addresses the complexities of collecting data in foreign countries, incorporating legacy data, and preserving multiple data types.

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Data Collection In the Field
- Locus data recorded in Excel, accessed on a tablet and stored in the cloud
- Architectural features are excavated, numbered, and drawn to scale
- Files are synced twice per day using mobiles as hotspots for offsite collaborators to use
- High-resolution images (up to 1,000/day) are taken and later transferred to portable hard drives
- Artifacts are collected, labeled, and sent to onsite lab
- Samples for residue analysis, flotation, and dating are collected, labeled, and transported to the onsite lab

In the Onsite Lab
- Graduate students build excel spreadsheets to catalog artifacts
- Artifacts pre-processed for laboratory analysis

Post-Excavation
- Artifacts processed; packed for storage and preservation
- Selected vessels reconstructed
- Data from across seasons is reviewed, compared, and analyzed

Consultation
Specialists produce additional data from remote sensing, chemical analysis, 3D modeling, and dating.

Publication
- Preliminary field report written and published on institutional website
- Season reports and copies of collected data submitted to Israel Antiquities Authority as required by permit
- Articles written and submitted for publication
- Data made available to other researchers upon request
- Funding applications for the next season submitted