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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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• 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

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, floatation, and dating are collected, labeled, 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.

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