Chapter 6
Digital Preservation Capability Maturity Model (DPCMM):
Genesis and Practical Uses

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ABSTRACT

This chapter provides an overview of the genesis and development of the digital preservation capability maturity model (DPCMM) which covers a range of governance, operational, and data management functions associated with the management of long-term (10+ years) and permanent digital assets. The model is organized into three domains: infrastructure, repository, and services. In addition to providing a useful framework for analysis and planning among archivists, content owners and records managers, using a capability maturity model (CMM) to convey the requirements associated with preservation and access to long-term digital assets provides a familiar construct for information technology (IT) architects and system administrators. Each of the 15 DPCMM components has five incremental stages of capability called digital preservation performance metrics.

INTRODUCTION

Organizations around the world and in different sectors are required to maintain records and information for as long as necessary to meet legal, financial, operational, research, and cultural memory purposes depending on their mission and objectives.

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Some of these information assets, born and living their entire "lives" in digitally encoded formats, must be indefinitely or even permanently retrievable, understandable, and trustworthy.

Digital preservation consists of managed activities and a supporting infrastructure to ensure that electronic records and their associated metadata are accessible, useable, and trustworthy far into the future. The concept of digital preservation capability references the capacity of an organization (or repository) to successfully carry out a comprehensive and viable program for the preservation of long-term digital information. A benchmark of 10 or more years retention for born-digital and digitized materials is commonly used to define "long-term." This period typically encompasses several technology refresh cycles with potential risks related to successful and cost-effective logical and physical migration.

Over the last four decades, risks and serious threats associated with computer technologies have risen significantly for both public and private organizations. This includes exponential growth in the volume of digital content and a growing diversity of file formats and information systems. The stakes get even high for organizations that must ensure long-term access to trustworthy business records and information over successive generations of technologies and custodians.

BACKGROUND

Since the mid-1970s, archivists have recognized that the obsolescence of storage devices and media was a major risk to ensuring future access to electronic records. They also recognized that dependency on computer software to interpret the bits on storage devices/media created an equally compelling risk to access to electronic records of permanent value. Most business information is now "born digital." Therefore, virtually no organization remains immune from the need to proactively address the requirements of long-term information assets managed in digitally encoded formats and systems.

The steady evolution toward reliance on digital information and electronic records requires a higher level of engagement between information management disciplines. The timeline for addressing obsolescence issues is much shorter than the traditional long-term preservation of paper and film. Capturing, tagging, transferring, and transforming digital information to meet long-term records management and archival needs also takes a new level of engagement and support from vendor and IT communities.

In 1990 the Software Engineering Institute of Carnegie Mellon University released the Capability Maturity Model for Software (CMM or SW-CMM) to enable organizations to assess the maturity of their software processes and identify

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