

**Bezalel
Academy of
Arts and Design
Jerusalem**



Mount Scopus, P.O.B 24046
91240 Jerusalem, Israel
Tel: +972(0)2-5893333
Fax: +972(0)2-5823094
www.bezalel.ac.il

Final Report

Preparatory research for the establishment of a National Digital Library of Art, Architecture and Design

March, 2010

Report prepared by Rae'ut Stern
Bezalel Academy of Art and Design, Jerusalem

We wish to thank the following people for their contribution to the research, including our Steering Committee, the many archivists and researchers that have advised and joined this initiative, the researchers of our three pilot-studies, and the colleagues at Bezalel Academy, who have all helped.

Israel National Committee for UNESCO

Bar-Elli Daniel	Secretary-General, Israel National Commission for UNESCO
Achituv Niv, PhD	Israel UNESCO Committee for 'Information for All'

Pilot Study Collections

Arch. Kahana Freddy	The Kibbutz Planning Archive (KPA)
Chen Anat	Hechal Shlomo Jewish Art Museum (HSJAM)
Levy-Aldema Yehuda	Hechal Shlomo Jewish Art Museum (HSJAM)
Sraya Maayan	Hechal Shlomo Jewish Art Museum (HSJAM)
Bar-El Ido	Bezalel Fine Art Department Collection (BFADC)

Advisory (Alphabetically)

Adler Elhanan, PhD	National Library of Israel
Amar Ariella	The Centre for Jewish Art of the Hebrew University
Amitay Dudu	Givat Haviva
Avital Efrat	
Avni Haim, PhD	Central Zionist Archives
Bar-or Galia	Ein Harod Museum
Bernstein Ilana	Ein Harod Kibbutz Archive
Caine Moshe	Hadassah Academic College
Cohen-Mushlin Aliza, PhD	The Centre for Jewish Art of the Hebrew University
Cohen Reuven	Shenkar College of Engineering and Design
Drai Dan, PhD	beetv
Ennis Ruth, PhD	Technion
Freundlich Yehoshua, PhD	the Israel State Archives
Hazan Susan, PhD	The Israel Museum
Hermon Sorin, PhD	The Cyprus Institute
Kupietzky Allison, PhD	The Israel Museum
Oren Hadar	Tel Aviv Museum of Art
Rabina Doron	Beit Berl College, Midrasha Schoo of Art
Richler Galya	National Library of Israel
Rimon Hasia	Tel Aviv Museum of Art
Rubinstein Rachel	Central Zionist Archives
Simon Orly	National Library of Israel
Tarazi Ezri	Bezalel Academy of Art and Design
Tractinsky Assaf	The Israel State Archives
Vinitsky Maya	Tel Aviv Museum of Art
Winer Dov	National Library of Israel

IDEA-ALM: Ory Ainy, Debby Lin, Lior Ekron

Bezalel Academy (Alphabetically): Ben Amram Kinneret, Blum Hadas, Brinker Barak, Cohen Sarah, David Lary, Eliav Ruth, Erez Tamar, Ety Levi, Halevi Shai, Levi-Nachman Dane, Levin Shiri, Manor Roni, Naftali Ayden, Szerer Moran, Turgeman Michal, Zaken Elinor, Zfati Ziv, Zeussman Shelly.

CONTENTS

ACKNOWLEDGMENTS.....	1
תקציר	3
EXECUTIVE SUMMARY	8
INTRODUCTION.....	10
RESEARCH STRUCTURE	12
RESEARCH TEAM	12
CONCEPTUAL BOUNDARIES AND BASIC ASSUMPTIONS	13
RESEARCH PROCESS	14
WORKSHOPS	16
AD HOC CHANGES	18
DIGITAL LIBRARIES – ANALYZING THE STATE OF THE ART	19
GENERAL BACKGROUND.....	19
DEFINING THE END USER	29
DIGITIZATION	30
CATALOGUING	39
FUTURE LEADS	52
INTELLECTUAL PROPERTY RIGHTS (IPR)	55
USER INTERFACE	58
CURATORIAL DECISIONS AND CONTENT CONTRIBUTION	61
MANAGING WORKFLOW AND PROCESSES AT THE DIGITAL LIBRARY	61
PILOT STUDIES.....	62
HECHAL SHLOMO JEWISH ART MUSEUM (HSJAM) JUDAICA AND INDUSTRIAL DESIGN ARCHIVING PILOT STUDY... 62	
THE BEZALEL FINE ART DEPARTMENT COLLECTION (BFADC) ART ARCHIVING PILOT STUDY	77
THE KIBBUTZ PLANNING ARCHIVE (KPA) ARCHITECTURAL ARCHIVING PILOT STUDY	85
CONCLUSIONS AND RECOMMENDATIONS	98
BIBLIOGRAPHY	101
REFERENCE WEBSITES.....	104
APPENDIX.....	109

Photographs and images used in this report were provided by the HSJAM, KPA and Bezalel Academy Archive for the sole use of demonstrating ideas in the report. Use of the images for any other purposes requires obtaining permission from the copyright owners.

תקציר

רקע

תוכנית זיכרון עולם של ארגון אונסקו נועדה לעודד מדינות לשמר את מורשתן התרבותית באופן דיגיטלי. האקדמיה לאמנות ועיצוב, בצלאל, נענתה לאתגר והציעה לבחון את התנאים להקמת ספרייה דיגיטלית מקוונת בנושאי אמנות, עיצוב וארכיטקטורה בישראל על בסיס הידע המקצועי הרב שכבר קיים בישראל ומפוזר בין גופים שונים העוסקים בתחום.

ייעודה של ספרייה דיגיטלית זו לשמש כפלטפורמה שיתופית לתיעוד והנגשת אוספים ופריטים אשר נוצרו בישראל או על ידי יוצרים ישראלים במאה העשרים ואילך ואינם מתועדים באופן דיגיטלי או שאינם זמינים באמצעות האינטרנט. ריכוז מגוון אוספים יאפשר טיפול מקצועי ומקיף הן בתכנים המתועדים והן בהיבטים הטכניים הכרוכים בהפעלת והנגשת הספרייה הדיגיטלית. הקמת הספרייה הדיגיטלית תקדם את שיתוף הידע ושיתוף הפעולה סביב הנושאים בהם תעסוק, בין כלל הגופים הארכיונאים בישראל.

לפני כשנתיים הוקמה ועדה בשיתוף נציגי המוסדות המובילים בתחום הארכיונאות והתרבות החזותית בישראל ובהם גנזך המדינה, הספרייה הלאומית, הארכיון הציוני המרכזי ומוזיאון ישראל. ועדה זו בראשות פרופ' יערה בר און, המשנה לנשיא בצלאל לעניינים אקדמיים, יזמה ומלווה פרויקט מחקרי לבחינת התנאים להקמת הספרייה הדיגיטלית. הפרויקט המחקרי נתמך על ידי הוועד הישראלי לאונסקו ותוכנית זיכרון העולם של ארגון אונסקו העולמי ומטרתו ריכוז הידע הקיים בתחום, בחינת הצרכים בשטח ומחקר פיילוט לדיגיטיזציה של פריטים מתוך אוספים ספציפיים. בראש הפרויקט עומד פרופ' מייק טרנר, יו"ר הוועדה הישראלית למורשת עולמית, הקתדרה של אונסקו ללימודי עיצוב אורבני ושימור ואת הפרויקט מרכזת גב' רעות שטרן, חוקרת עיצוב ומרצה בבצלאל.

מבנה מחקר

השלב הראשון של הפרויקט התקיים בין חודשים מרץ 2009 למרץ 2010 ופעל בשלושה מוקדים: ארכיטקטורה, עיצוב תעשייתי ואמנות. בשלב זה נעשו פעולות בכמה מישורים שונים לאיסוף מידע רלוונטי ובהן מחקרי מקרה של אוספים ספציפיים, סדנאות עבודה גדולות ומצומצמות, ראיונות עם אנשי מקצוע, סקירת ספרות רלוונטית, השתתפות בכנסים מקצועיים ואיסוף דוגמאות ומודלים להשוואה.

שלושת האוספים שנבחרו כבסיס למחקר מקרה הינם בעלי מאפיינים שונים מבחינת היקף, סוג תכנים ומצב תחזוקה, דיגיטיזציה וקיטלוג. אוספים אלה כללו את:

- ארכיון אדריכל התנועה הקיבוצית, מר פרדי כהנא
- אוסף מוזיאון היכל שלמה לאמנות יהודית
- אוסף המחלקה לאמנות באקדמיה לאמנות ועיצוב, בצלאל

בספטמבר 2009, אורגנה סדנת עבודה מקיפה בנושא "מורשת היברידית": לקראת שיתוף ידע תרבותי". סדנת עבודה זו הפגישה אנשי מקצוע ממגוון תחומים ומוסדות לדיונים פתוחים סביב שולחן

עגול בהם נבחנו הצרכים הייחודיים של שימור מורשת התרבות החזותית בתחומי האמנות, העיצוב והאדריכלות. כמו כן נדון הפוטנציאל של שיתוף הפעולה סביב סוגיה זו ונעשה ניסיון לשרטט קו מתאר לעתיד העשייה בתחום. בסדנת העבודה השתתפו נציגי גנזך המדינה; הספרייה הלאומית; הארכיון הציוני המרכזי; מוזיאון ישראל; מוזיאון תל אביב; מוזיאון ארץ ישראל; המרכז לאמנות יהודית באוניברסיטה העברית; היכל שלמה; סינמטק ירושלים; ארכיון יד יערי וספריית השלום, גבעת חביבה; ספריית אוניברסיטת חיפה; הפורום לשימור הזיכרון האודיו-ויזואלי בישראל; רשות העתיקות, ב"ס גבוה להנדסה ועיצוב, שנקר; ספריית החומרים, מוזיאון העיצוב חולון; המוזיאון הישראלי לקריקטורה וקומיקס וכן מוסדות תרבות וארכיונות נוספים.

מתוך מחקרי המקרה, סדנת העבודה והראיונות עם מגוון יועצים, זוהו מספר נושאי מפתח לסקירת ספרות ובחינה במחקרי המקרה. ממצאי בחינת נושאי המפתח הובאו לדין בסדנאות מקצועיות אשר התקיימו בדצמבר 2009 (אמנות) ומרץ 2010 (עיצוב תעשייתי) ואליהן הוזמנו יוצרים, חוקרים ואספנים אשר הציגו עמדותיהם ביחס לפרויקט, לממצאים הראשוניים ולשאלות הפתוחות שהוצגו להם.

מתוך כלל הפעולות שלעיל נאסף מידע רב ושימושי בנוגע להקמת הספרייה הדיגיטלית. מידע זה כולל הן את השאלות אשר יש לשאול, הן תשובות לחלק משאלות אלה והן מיפוי של הידע שכבר קיים בקרב מוסדות ואנשי מקצוע שונים בישראל ובעולם.

מבנה הדוח

רצוף בזאת הדוח המלא של שלב המחקר הראשון, המורכב משלושה חלקים מרכזיים:

- סקירת הפעילות בארץ ובעולם בתחום ההנגשה הדיגיטלית של מורשת התרבות החזותית:
 - מוסדות, ארגונים ויוזמות בתחום
 - הגדרת משתמשי הקצה
 - דיגיטיזציה (למשל שיטות לייצור או טכנולוגיות לאחסון דימויים דיגיטליים)
 - קיטלוג (למשל סטנדרטים לקיטלוג או טכנולוגיות לאבחון דימויים חזותיים)
 - זכויות יוצרים
 - החלטות אוצרות
 - ניהול תהליכי עבודה
 - פירוט מחקרי המקרה, ממצאיהם ומסקנותיהם
 - סיכום כללי של שלב המחקר הראשון ובו תמות עיקריות לטיפול אשר עלו מכלל תהליך העבודה וכן המלצות טכניות אשר עלו מן הממצאים.
- נלווה לדוח מאגר קישורים לאתרי אינטרנט שנסקרו לצורך המחקר וניתן לצפייה בכתובת:
http://delicious.com/mow_pilot

עיקרי ההמלצות בדוח

מסקנות אשר עלו מתהליך המחקר וההמלצות שגובשו בעקבותיהן הוכזו לכדי רשימת סוגיות עיקריות המופיעות להלן. פירוט נוסף אודות הסוגיות מופיע בתוך הפרקים השונים של הדוח.

- שיתוף פעולה: היות שהתכנים, הידע והמשאבים בתחום מורשת התרבות החזותית בישראל מפוזרים בין גופים רבים ומגוונים, רק שיתוף פעולה יוכל להבטיח מיצוי הפוטנציאל של הספרייה הדיגיטלית. שיתוף הפעולה צריך להיעשות מתוך הסכמה ובאופן שעונה על מירב הצרכים של הצדדים הנוגעים בדבר. באמצעות שיתוף פעולה ניתן יהיה למשל להגביר את החשיפה של אוספים שונים, לפתח ולחלוק ידע מקצועי ולהקל על נגישות המידע למשתמשים. כמו כן, שיתוף פעולה בין אוספים המבטאים נקודות מבט שונות על אותו תחום תוכן יעשיר את עולם ההקשרים האפשריים ואת ערך המאגר עבור משתמשיו.

צעדים ראשונים לקראת שיתוף הפעולה ננקטו במהלך השלב הראשון של המחקר (הקמת ועדת ההיגוי, התייעצות עם מומחים ממגוון תחומים וקיום סדנאות העבודה). יש להמשיך ולהאיץ את שיתוף הפעולה באמצעות הבניית דרכים למיסוד שיתוף הפעולה בין הגופים השונים בישראל. בנוסף, יש לפתח קשרים ושיתוף פעולה עם מוסדות מקבילים בתחום מורשת התרבות החזותית בעולם.

- תהליכי אוצרות: סוגיית האוצרות זכתה לאזכורים רבים מפי משתתפי הסדנאות השונות ובייחוד בהקשר חלוקת המשאבים המוגבלים לתיעוד וקיטלוג. סביר להניח כי במגבלות המשאבים לא יהיה ניתן לתעד ולקטלג כל אובייקט מישראל ויתכן כי גם אין צידוק לעשות זאת. האפשרות כי משתמשים יעלו חומרים בעצמם למאגר הספרייה הדיגיטלית לא תמנע את הצורך בהחלטות אוצרות משום שעדיין תהיינה יוזמות ופרויקטים ביוזמת הספרייה הדיגיטלית אשר ידרשו בניית סדר עדיפויות. לאור זאת, כבר בשלב מוקדם יש צורך בהבניית תהליכי קבלת החלטות אוצרות (מתי? מי? כיצד? וכדומה).

- ממשק משתמש: האפשרויות הטמונות בתכנון ועיצוב ממשק המשתמש נמצאו כקריטיות עבור הצרכים הפוטנציאליים של תוכן חזותי. היות שמדובר בספרייה דיגיטלית ולא במחסן או מאגר בלבד, הצלחתה תנבע מהיותה שימושית ורלוונטית למשתמשיה. השיפוט של משתמשים בספרייה דיגיטלית מקוונות מושפע לעיתים קרובות מקלות השימוש בכלי החיפוש, מראהו ומאלמנטים נוספים של ממשק המשתמש. מעבר לאיכויות האסתטיות, אשר לעיתים קרובות חשובות לצרכנים של תוכן חזותי, על ממשק המשתמש של הספרייה הדיגיטלית לתמוך בכלים טכנולוגיים מתקדמים לחיפוש תוכן חזותי.

כחלק מניתוח צרכי ממשק המשתמש, הדוח מציע להתייחס לשלושה רכיבים עיקריים (*Three Prominent P's*): תצוגת מידע (presentation of information), אפשרויות התאמה אישית (personalization possibilities) ועידוד השתתפות (user participation). התייחסות רצינית לשלושת המרכיבים הללו תקדם את מעמד הספרייה הדיגיטלית ממאגר מידע לכדי מרחב תרבותי חי ופעיל. אפשרויות עתידיות נוספות אותן ניתן לשקול כוללות למשל שימוש במיקור קהל המשתמשים (crowdsourcing) לביצוע משימות אשר מבוצעות כיום על ידי צוות עובדים.

- מידע לכל: תפיסה ערכית אשר הנחתה את הפרויקט וזכתה להדים חיוביים ולתמיכה גורפת של משתתפי סדנאות העבודה הינה שמירה על גישה חופשית ופתוחה למידע בספרייה הדיגיטלית. זאת, ללא פגיעה בזכויות החוקית של בעלי התכנים היוזואליים. יש להדגיש כי נושא הבטחת הגישה למידע אינו מצטמצם לכדי סוגיות משפטיות בלבד וכולל גם התייחסות למגוון הצרכים הפיזיים, קוגניטיביים ואחרים של מגוון המשמשים.
- מודל עסקי: מימוש הספרייה הדיגיטלית בהתאם לסוגיות שלעיל כפלטפורמה שיתופית בעלת ממשק משתמש איכותי וגישה חופשית למידע דורש משאבים כלכליים רבים. באמצעות בניית מודל עסקי אשר משתמש במאגר המידע כמשאב (ללא פגיעה בגישה החופשית עבור המשתמש הממוצע) ניתן יהיה לכסות חלק מן העלויות הכרוכות בהפעלת הספרייה הדיגיטלית. מימוש מודל עסקי יעיל וחסכון בעלויות ההקמה דורש תכנון מוקדם של כלל התהליך ולא בנייה של נדבך על גבי נדבך.
- גם בהקשר זה, קידום שיתוף פעולה בין גופים שונים חשוב ביותר. גיוס משותף של מימון יוכל לסייע בקבלת תמיכה ממשלתית וכן ייעל את השימוש במימון הזמין.

בנוסף לסוגיות אלה אשר דיון בהן יתווה את ערכי הליבה של הספרייה הדיגיטלית, הדוח מציף גם סוגיות תפעוליות ואספקטים טכניים הכרחיים לתפקוד שוטף ויעיל של הספרייה הדיגיטלית. הללו כוללים:
- כוח אדם: הקמת ספרייה דיגיטלית בקנה מידה לאומי דורשת מינוי בשלב מוקדם של מנהל במשרה מלאה יחד עם צוות בעל הכשרה מתאימה לביצוע המטלות הנדרשות במיקור פנים. מינויים אלה יאפשר מימוש זריז של היוזמות השונות הנדרשות בעת הקמת הספרייה הדיגיטלית וכן יקדם משמעותית את שיתוף הפעולה לאור הפגנת רצינות הכוונות.

מומלץ כי צוות העובדים יכלול מקטלגים מקצועיים בעלי הכשרה בתחום המידענות. מבחינת שליטה בשפות, מומלץ כי לפחות מקטלג אחד ישלוט בשפה האנגלית ברמת שפת אם וכי העבודה על הכלים הלקסיקליים (תזאורוס וכדומה) תעשה בשיתוף עם מתורגמן בעל הכשרה מתאימה). כמו כן יש לשקול את אופן שילוב השפה הערבית בעבודת הקטלוג.

במידה והתיעוד באמצעות צילום יעשה במיקור פנים, בהתאם להמלצות הדוח, הרי שצוות העובדים יצטרך לכלול צלם בעל הכשרה מקצועית בתחום. בנוסף, ניתן לשקול העסקת מעצב ממשק ואדמיניסטרטור עבור אתר האינטרנט של הספרייה הדיגיטלית בהתאם למודל העסקי.

לאור השינויים התדירים בטכנולוגיה רלוונטית יש לייצר עבור הצוות הזדמנויות להשתלמות ורכישת כישורים חדשים באמצעות השתתפות בסדנאות עבודה וכנסים מקצועיים. בנוסף, כפי שאנשי מקצוע אחדים טענו, בתחום זה יש צורך בלמידה מתוך התנסות ולפיכך, שיתוף הפעולה עם ארגונים מקבילים בעולם יוכל לקדם למידה מסוג זה בדמות התמחויות ייעודיות.
- ציוד ייעודי: הציוד הטכני מהווה חלק בלתי נפרד מעבודת הדיגיטיזציה, משתנה תדירות ועשוי להשפיע באופן ניכר על איכות התוצרים. היות שהספרייה הדיגיטלית אינה צפויה לשמש כארכיון פיזי הרי שיש להניח כי תתקיים רק הזדמנות אחת לצילום אובייקט ולפיכך יש להבטיח הפקת דימוי ויזואלי באיכות גבוהה באמצעות ציוד ייעודי אמין, מתקדם ונייד.

- סטנדרטיזציה: על הספרייה הדיגיטלית לאמץ סטנדרטים בין לאומיים הן בתחום הדיגיטיזציה והתיעוד והן בתחום הקיטלוג. זאת, על מנת להבטיח תאימות עם מאגרי מידע בין לאומיים וכן לשם רלוונטיות המידע לטווח הארוך. בדוח הנוכחי מוצגות אלטרנטיבות שונות של סטנדרטים בין לאומיים אך מגבלות הדוח הנוכחי לא אפשרו בחירה של סטנדרט ייעודי. יתכן כי יש לשלב יועץ מקצועי אשר יוכל לגשר על ההבדלים בין האופי האמורפי של תכני עולם האמנות והעיצוב לבין המבניות הקשיחה של עולם הקיטלוג.
- תחום חשוב במיוחד של סטנדרטיזציה מתייחס לתוכן הקיטלוג באמצעות כלים לקסיקליים. שימוש בתזאורוס דו לשוני עם התייחסות מיוחדת להיבטים של תרבות חזותית בישראל עשוי להשפיע באופן מכריע על איכות הקיטלוג. כיום, הכלי הרלוונטי ביותר הינו התזאורוס הרב לשוני של מוזיאון ישראל ויש לקדם שיתוף פעולה בהקשר זה.
- ניהול תהליכים: כחלק מתכנון כולל של הספרייה הדיגיטלית יש צורך בתכנון וניהול שוטף של תהליכים המשכיים המתקיימים בה. הבנת התהליכים נדרשת בשלב מוקדם יחסית היות שלהחלטות רבות בנוגע לכלל הסוגיות שלעיל תהיינה השלכות על תהליכי העבודה והחלטות נוספות תושפענה באופן ישיר ועקיף מתהליכי העבודה.

כוונות עתידיות

שלב המחקר הראשון, המיוצג בדוח הרצ"ב, מיפה את תחומי הידע הנדרשים להקמת הספרייה הדיגיטלית וכן את עיקרי הדרישות הטכניות להקמתה. סדנאות העבודה, הראיונות ומחקרי המקרה האירו סוגיות אשר מן הראוי להעמיק בהבנתן. המשך המחקר יידרש להתמודד לפיכך עם סוגיות כגון: ניהול התהליכים, פתרון סוגיות משפטיות, החלטות אוצרותיות, סטנדרטיזציה, web 2.0 וממשק משתמש. מידע כללי אודות סוגיות אלה מצוי בדוח אך יש להמשיך ולפתח את הבנתן הן על ידי למידה מגופים מקבילים וספרות מקצועית והן על ידי התנסות מעשית וצבירת ניסיון.

מעבר להעמקה בסוגיות אלה, האפשרויות להמשך חשיבה ופיתוח רבות ומאתגרות. במהלך שנת המחקר, צוות החוקרים קיבל פניות רבות מאוספים אשר היו מעוניינים בשיתוף פעולה וקבלת ייעוץ בנוגע לחומרים הדורשים דיגיטיזציה. לאוספים אלה תכנים צרכים מגוונים אך משותף להם הרצון לשתף פעולה לשם שימור והנגשה של מורשת התרבות החזותית בישראל. העמקת ההיכרות עם מגוון האוספים הקיימים, תכניהם וצרכיהם נדרשת לצורך בניית תוכנית עבודה אשר תשלב חזון ארוך טווח עם יעדים ברי מימוש.

מן הראוי כי צעדי ההמשך יתוכננו ויבוצעו בשיתוף פעולה עם מגוון גופים רלוונטיים תוך הסתכלות רחבה על המורשת החזותית בישראל ותוך דיון מעמיק בתפקיד הספרייה הדיגיטלית בהקשר זה.

EXECUTIVE SUMMARY

UNESCO launched the *Memory of the World* Programme due to the perilous state of preservation of, and access to, documentary heritage in various parts of the world.

The Bezalel Academy of Art and Design, Jerusalem, identified a gap in the preservation and documentation of cultural heritage in Israel and had proposed to examine the conditions for establishing a digital library for the arts, design and architecture in Israel.

Conceptual boundaries of the digital library are a joint platform for documentation and digitization enabling access to collections and items that were created in Israel or by Israelis during the 20th century and on, and are neither currently digitally recorded nor are available via the Internet. The platform will promote information sharing and collaboration within Israel and allow for research and data to be available world-wide.

Two years ago a National, open-ended, Steering Committee was established including representatives of leading national archival institutes: the Israel State Archives, the National Library, the Central Zionist Archives and the Israel Museum. Corresponding to the Bezalel Academy proposal, UNESCO has contracted that Bezalel Academy shall undertake the preparatory work and establishes a team of researchers and experts headed by Professor Michael Turner, UNESCO Chair for Urban Design and Conservation Studies, and coordinated by Ms. Rae'ut Stern (M.des), Design Researcher. The team was established as external to the existing academy archive. Professor Yaara Bar-On, Deputy President for Academic Affairs in Bezalel Academy, oversaw the entire project as chair of the joint steering committee.

Three collections were chosen as basis for the controlled pilot study:

THE KIBBUTZ PLANNING ARCHIVE (KPA)

THE HECHAL SHLOMO JEWISH ART MUSEUM (HSJAM)

THE BEZALEL FINE ART DEPARTMENT COLLECTION (BFADC)

In addition, a national workshop and two professional workshops were conducted supplying helpful insights and promoting collaboration.

The following report is based on the research and aims to detail the various questions that must be answered prior to the construction of a digital library, and address the questions that can already be answered at this stage.

Topics discussed in the report include and analysis of the state of the art, a report of the pilot study findings and technical recommendations.

■ ANALYSIS OF THE STATE OF THE ART:

- General Background to digitization of visual culture heritage; worldwide and in Israel

- Defining the end user

- Digitization (e.g. information regarding Imaging, Storage and Equipment)

- Cataloguing (e.g. cataloguing standards, Web 2.0 and CBIR)

- Intellectual Property Rights (IPR)

- User Interface

- Curatorial Decisions and Content Contribution

- Managing Workflow and Processes at the digital library

■ THE PILOT STUDY FINDINGS

Each study offers a deferent research focus. However, core themes were identified as crucial to the future success of the digital library:

COLLABORATION: As content, knowledge and resources are scattered at various institutions, only collaboration can ensure that the potential of the digital library is brought to its fullest. Several steps were already taken to increase collaboration. Future steps to increase collaboration should establish the procedure in which collaboration is regulated,

CURATORIAL PROCESS: will be required for resource allocation. Most probably, it will not be possible to add every visual culture item from Israel to the library, and perhaps not every item should be added.

USER INTERFACE: Beyond pure aesthetics, which are often important for visual consumers, the user interface should be suitable for researching visual content. Technologies supporting such needs are available, constantly improving and should be incorporated.

ACCESS FOR ALL: The idea of access should not be a strict legal or financial issue but also include the concept of access to the varied needs of users.

A BUSINESS PLAN: A digital library with free access and an advanced user interface is costly. Creative and efficient management will enable using the database as part of the sources of income, without charging the average users.

■ TECHNICAL RECOMMENDATIONS

PERSONNEL: the appointment of a full-time manager with appropriate supporting staff. Due to the rapid changes in technology, staff skills will require continual learning capabilities and the opportunities to be continually updated via workshops and conferences.

TECHNICAL EQUIPMENT: Because photographing an item will not be more than a one time opportunity, producing high quality images with reliable, portable equipment is crucial.

STANDARDIZATION: Both digitization and cataloguing standardized tools and processes should be promoted as they will ensure interoperability and long term relevance. Especially important is the use of a bilingual thesaurus with specific reference to visual culture in Israel.

PROCESS MANAGEMENT decisions should be based on a broad understanding of the complex system built.

Some of the topics were identified but not researched due to research constraints but are presented to allow for decision-making of the next stages. Further research should advance the understanding of issues that were not in the scope of the current report such as copyrights and user interface.

Future possibilities are vast and exciting, for that reason, a proposal to continue to the next phase of the initiative is already underway.

1. INTRODUCTION

1.1. UNESCO launched the *Memory of the World* Programme in 1992 following a growing awareness of the perilous state of preservation of, and access to, documentary heritage in various parts of the world. The *General Guidelines to Safeguard Documentary Heritage* published by the *Memory of the World* Programme (2002) states that

*"The programme recognises documentary heritage of international, regional and national significance, maintains registers of it, and awards a logo to identify it. It facilitates preservation and access without discrimination. It campaigns to raise awareness of the documentary heritage, to alert governments, the general public, business and commerce to preservation needs, and to raise funds".*¹

1.2. Adhering to these aspirations, the Bezalel Academy of Art and Design, Jerusalem², as Israel's senior Arts and Design academic institution, identified a gap in the preservation and documentation of cultural heritage in Israel, especially at the semi-public and semi-private collections and proposed to examine the conditions for establishing a digital library³ for the arts, design and architecture in Israel, building on the professional knowledge existing in Israel.

1.3. Corresponding to this proposal, UNESCO has contracted⁴ that the Bezalel Academy shall undertake the preparatory work for the establishment of a national digital library of art, architecture and design by the following actions:

1.3.1. Undertaking research of the classification of local "drawings, objects and paintings", including the determining of relevant periods and styles to be used as well as finding aids after the definition of the user characteristics.

1.3.2. Conducting a controlled pilot study, including scanning, photographing or digitization where necessary.

1.3.3. Evaluating the study and the final proposal for the archive, including the preparation of a national standard and finding aids.

1.4. Understanding its role as a force in the cultural heritage of Israel since 1906, Bezalel Academy maintains a high involvement in social and cultural endeavours outside the school. The current decision to collaborate with the UNESCO- *Memory of the World* initiative coheres to the academy's commitment to the advancement of the visual culture in Israel and its documented heritage. Bezalel Academy views its role in this initiative as an agent, supplying knowledge and experience towards a goal

¹ *Memory of the World: General Guidelines* (Revised edition 2002) / prepared by Ray Edmondson. Paris: UNESCO, 2002. 72 p., 30 cm.(CII-95/WS-11rev)

² For the historical background of Bezalel Academy see appendix 8.2

³ The initial wording "Digital Archive" was replaced to the commonly used term "digital library" referring to "A collection of information resources in electronic format" as appears in the glossary of the society of American Archivists.

⁴ Contract 4500057877 Signed March 3rd 2009

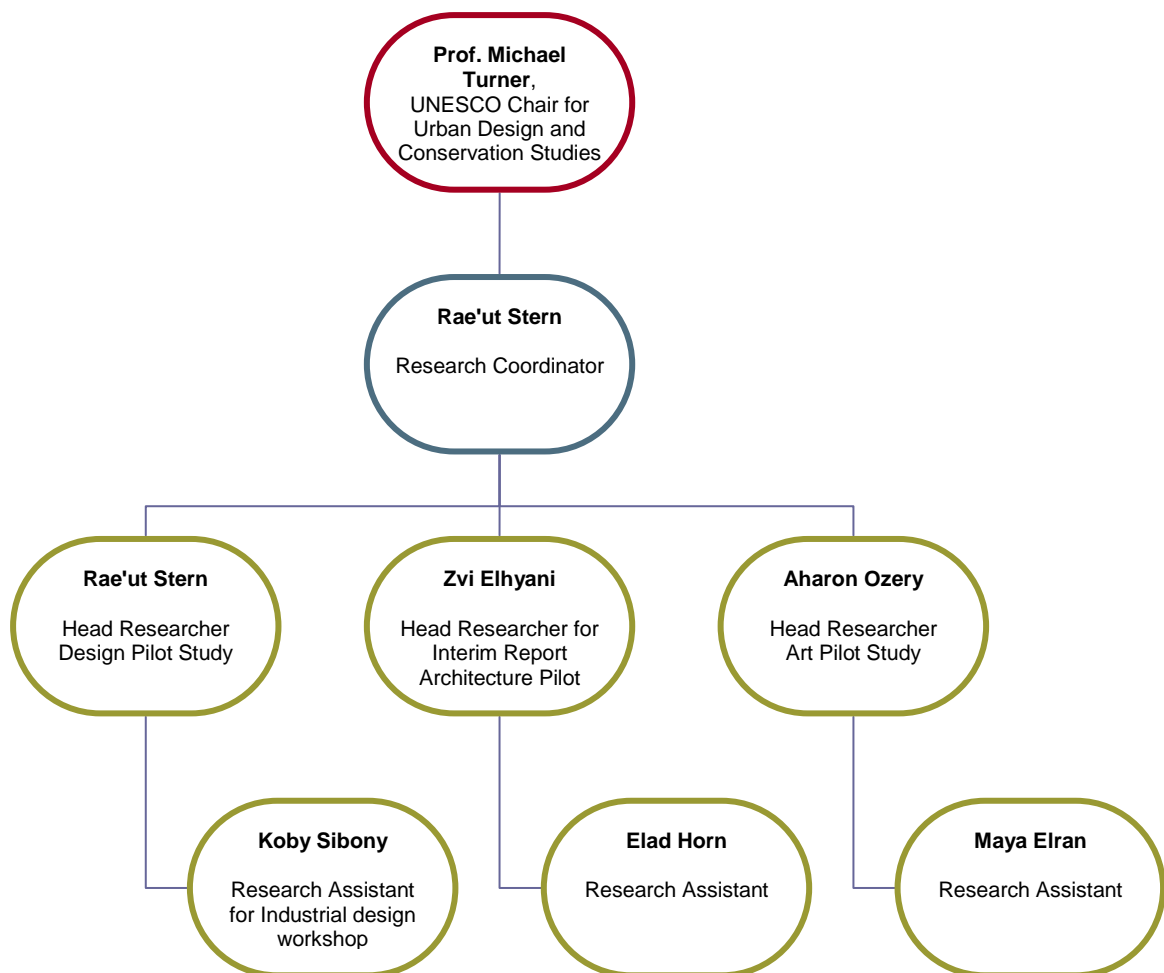
meant to benefit the entire creative community, educational institutions and future generations.

- 1.5. **Following is a concluding report of the actions taken by Bezalel Academy in the preparatory work to the establishment of a national digital library. The report aims to detail the various questions that must be answered prior to the construction of such a project, and address the questions that can already be answered at this stage. The structure of the report was planned to separate the major topics relevant to different readers while providing a coherent understanding of the entire process and the final conclusions and recommendation.**

2. RESEARCH STRUCTURE

2.1. RESEARCH TEAM

2.1.1. Executing the preparatory work required assembling a team of researchers and experts. The team⁵, headed by Professor Michael Turner, UNESCO Chair for Urban Design and Conservation Studies, was established as external to the existing academy archive in order to gain a broad prospective and fresh point of view. The work was coordinated and integrated into the current report by Ms. Rae'ut Stern (M.Des.) who also headed the Industrial Design HSJAM Pilot study. Excluding the research assistants, all researchers were at some point active lecturers at the academy with prior experience and knowledge in their field of research. The members of the team appear in the following diagram:



2.1.2. Professor Yaara Bar-On, Deputy President for Academic Affairs in Bezalel Academy, oversaw the entire project as chair of the joint steering committee. The committee included members of leading national archival institutions: the Israel State Archives, the National Library, the Central Zionist Archives and the Israel Museum.

⁵ More about the research team in appendix 8.1

2.2. CONCEPTUAL BOUNDARIES AND BASIC ASSUMPTIONS

2.2.1. Declaring conceptual boundaries was crucial for defining the research objectives. The boundaries were defined through the vision of the future digital library and its scope, as described below:

- Devising a joint platform for documentation and digitization will enable access to collections and items that are neither currently digitally recorded nor are available via the Internet. This platform will be proposed after evaluating the existing mechanisms, in use or available, with special reference to the EU MINERVA/MICHAEL project of documentation that is currently being adopted by the national institutions.
- Concentrating a wide range of collections allows professional and comprehensive handling both of the contents and the technical aspects involved in the documentation. This has focused the efforts in identifying the hybrid approach and integrative platform.
- The gap in documentation identified by Bezalel requires focusing the resources towards a scope, roughly sketched to include items that were created in Israel or by Israelis during the 20th century and later.
- The digital library will promote information sharing and collaboration around these issues between all the visual culture institutions and archives in Israel.

2.2.2. In conjunction with this vision, core assumptions were agreed upon as a basis for the entire project:

- Creating a national digital library requires collaboration as a core value of the activity, and a common denominator whereby many different media and disciplines can communicate. The collaboration should be obtained by consensus and must be capable of integration with other data systems
- In the foreseeable future lack of resources will continuously limit the ability to collect physical objects and archive them in their original state. Consequently, the justification of digital imagery and access shall increase and the needs for high quality digital representation expand.
- Accumulated knowledge regarding digitizing and archiving of visual content is available within Israel and internationally. This knowledge must be collected, analyzed and localised prior to drawing any conclusions or initiating further research.
- Efforts must be made to ensure free and easy access to the accumulated cultural heritage data.

2.3. RESEARCH PROCESS

2.3.1. Achieving the objectives of the research within the predefined time line required executing action items 1 and 2 ⁶ simultaneously. This decision enabled extending the amount of time dedicated to processing each stage of the research. Additionally, early findings that surfaced from the collected data considerably influenced the work on both items. The methods and tools used to accomplish each objective as described in the action items, alongside preliminary findings were as following:

2.3.2. ***Action Item 1: Undertaking research of the classification of local 'drawings, objects and paintings' including the determining of relevant periods and styles to be used as well as finding aids after the definition of the user characteristics.***

The first step towards gaining an understanding of the above issues was surveying the available literature both in official sources and in unofficial, online sources. Based on the basic information gathered and in line with the above assumptions (i.e., accumulated knowledge in digitization and archiving of visual content is available and collaboration is a core value), peers and experts in the fields such as Information Science, Archival Informatics and Museology were consulted and interviewed. According to the experts interviewed and the collected data it became apparent that the issues defined in the action item are only a small part of the complete picture and there are a few other related issues that must be addressed in a pilot study of this field. They include:

- Cataloguing and metadata issues.
- Digitization standards including photography, scanning and born digital data.
- Defining the unique user needs in the field of visual content

These issues were added to the objectives of the research as inherent elements of the state of the art. The information was also collected using available literature and expertise as well as by participation in relevant conferences and workshops in which relevant knowledge was shared.

2.3.3. ***Action Item 2: Conducting a controlled pilot study, including scanning, photographing or digitization where necessary.***

2.3.3.1. Prior to choosing the specific collections used for the pilot study, requirements from the collections chosen were defined as including a wide variety of types of materials and contents. Thus, enabling the research to confront a wide selection of challenges. Three collections were chosen⁷ as basis for the controlled pilot study based on the above requirements:

⁶ as they are listed above in paragraph 1.3

⁷ The reasons for choosing each collection are described in the dedicated section in the report.

- **The Kibbutz Planning Archive (KPA)** a semi-private initiative by Architect Freddy Kahana, through the auspices of Yad Tabenkin the Kibbutz Research Institution.
- The **Hechal Shlomo Jewish Art Museum (HSJAM)** a Judaica collection owned by the Jewish Heritage Centre at Jerusalem
- The **Bezalel Fine Art Department Collection (BFADC)** a local, spontaneous collection of various kinds of art work made by students and professors over the years.

2.3.3.2. Each researcher was instructed to follow a process with a few basic steps:

- (1) Gaining a thorough acquaintance with the collection including content, physical status and legal status.
- (2) Identifying mutual benefits
- (3) Researching and analyzing similar collections and historical references
- (4) Defining modes of implementation and specific parts of collection to be digitized.
- (5) Simultaneous implementation and scrutiny

2.3.3.3. The tools and methods used to collect data in stages (1)-(4) included a literature survey, observations, visits to other collections, interviews with people related to the collection itself or similar collections in Israel and abroad.

2.3.3.4. In stage (5) the items chosen were digitized and catalogued under critical analysis of the process. These actions were executed with the assistance of Bezalel Archive staff, Mr. Shai Halevi who digitized materials from the BFADC, Ms. Moran Szerer who assisted in the cataloguing of materials from the KPA and Ms. Ziv Zfati who assisted in the cataloguing of materials from the HSJAM.

2.3.3.5. In stage (6) the conclusions from the process were derived, discussed and documented. In both the Design and Art studies, some of the conclusions were presented at the professional workshops organized by the research team, to which active and influential experts from each field were invited.

2.4. WORKSHOPS

2.4.1. National Workshop

- 2.4.1.1. On September 6th, 2009 The Bezalel Academy hosted at the Jerusalem campus a national workshop on the topic of: *"Hybrid Heritage": Towards sharing cultural knowledge*. This was held under the aegis of the Israel National Commission for UNESCO. Representatives of over twenty leading institutes and organizations in Israel took part in the workshop and voiced their knowledge, experience and standings in regard to creating a national archive of art, architecture and design.⁸
- 2.4.1.2. The participants represented a wide variety of institutes and organizations that deal with preservation of cultural heritage. In addition to the Steering Committee institutions (the Israel State Archives, the National Library, the Central Zionist Archives, and the Israel Museum) other organizations participated including the Tel Aviv Museum of Art, the Centre for Jewish Art, the Hebrew University, the Haifa University, The Israel Antiquities Authority and many others.
- 2.4.1.3. The workshop included sixteen speakers divided into three sessions. After each session a round table discussion was held and great efforts were made to encourage expression in a positive and attentive atmosphere.
- 2.4.1.4. During the workshop several dominant themes were voiced repeatedly. These themes included descriptions of the activity in the field of archiving and preservation in Israel as slowly gaining momentum, yet still of no consequence and insufficient funding. In that context a central archive for the art, architecture and design is considered necessary and justified. In addition, collaboration was regarded as a basic requirement for the success of the initiative and can bring together knowledge and resources. However, critical comments warned that collaboration will not be easily obtained and the establishment of a central physical archive may face many difficulties in that sense.
- 2.4.1.5. The workshop had an extremely positive effect in activating a professional discussion and enabling more collaboration within the archiving community as well as the many of art design and architecture institutes. The workshop was filmed and photographed, and the thoughts and ideas that were brought up in the workshop are embedded in this report.
- 2.4.1.6. Due to the public interest in the research activity presented at the workshop, two of the researchers were invited to speak at the EVA/MINERVA Jerusalem conference on digitization of cultural heritage that took place November 11th 2009

⁸ For further information about the workshop and the participants, see Appendix 8.3

2.4.2. Professional Workshops

2.4.2.1. Art Workshop

On December 17th 2009 The Bezalel Academy hosted, at the Art Gallery in Tel Aviv, hosted 12 prominent Artist, researchers, collectors and educators to discuss the concept of a digital library and the questions and findings of the pilot study.

The participants represented a variety of leading institutes in the field of Art such as the Midrasha School of Art, the Tel Aviv University and the Givon Gallery.

The dominant themes voiced in the discussion included a consensus regarding the need of collaboration to establish a digital library, the need to use the digital library as an educational platform and the benefits of creating an interactive platform, enabling addition of content and social professional interaction.

2.4.2.2. Design Workshop

On March 9th 2010 The Bezalel Academy hosted, at the Art Gallery in Tel Aviv, twenty prominent designers, researchers and educators from the field of Industrial design to discuss the concept of a digital library and the questions and findings of the pilot study.

The participants represented a wide variety of leading institutions in the field of industrial design such as the Shenkar College of Engineer and Design, The Hadassah College, The Avni Institute of Art and Design, The Tel Aviv Museum of Art, The Periscope Gallery of Design, The Holon Institute of Technology and the Material Library at Holon.

The dominant themes voiced in the discussion included a consensus regarding the need of a visual resource such as a digital library, and the present as a crucial time to establish such a library when most of the potential content contributors are still alive and the early roots of the profession can still be traced back and documented. Another prevalent topic in the discussion was the decisive importance of the user-interface to the success of the library as an active resource that regenerates itself beyond being a sheer repository.

Beyond the various thoughts contributed by the participants, which appear in the report, a positive outcome of the workshop was the support many of the participants offered to provide in terms of consultation and involvement.

2.5. AD HOC CHANGES

2.5.1. Due to the dynamics of the research adjustments were made to the goals and focus of the data collected during the year. A major influence on the advancement of the project resulted from a collective acceptance of the major institutions to adopt a specific software system. The Academy, in alignment with leading archives in Israel,⁹ has recently purchased this new system to run and maintain the archive.

2.5.2. IDEA@ALM is a system for the collection management, preservation and exposure of heritage assets in archives, libraries and museums at cultural heritage institutions and research centres. The System handles diverse types of physical, digital and logical information regardless of their origin, format, structure or language with unique multi-lingual support. As well as many other attributes¹⁰, advantages of the system include:

- Support of industry standards and interoperability protocols (ISAD [G], ISAAR, RAD2, EAD, Dublin Core, MARC export and Z39.50) offering resource-sharing capabilities and connectivity with other systems.
- Full-text search within linked textual documents or files such as PDF or Word.
- Digital collection support to link and view all popular types of digital objects including text files, images, audio and video files.
- Interoperability with other platforms such as Google publishing to expose the online catalogue items directly to Google.

2.5.3. The change has enabled better handling of the database and its further enlargement. The consequences of this change to the current research were mainly in the issue of cataloguing standards. Since IDEA@ALM supports leading descriptive metadata standards such as Dublin Core or MARC and enables connectivity with other systems, the need to research specific standards has been reduced.

⁹ Such as Yad VaShem and the Israel Museum

¹⁰ As can be found at the company website <http://www.idea-alm.com/site/content/t4.asp?Sid=50&Pid=228>

3. DIGITAL LIBRARIES – ANALYZING THE STATE OF THE ART

When reviewing the action items required for the current report it was apparent that two types of data ought to be collected – existing knowledge about creating digital libraries and hands-on experience in doing so. For that reason, the report includes the following section that has a broad review and analysis of internationally accumulated knowledge, standards and examples of the building stones of a digital library – institutions, users, digitization, cataloguing, intellectual property rights and user interface. Following this section are the reports of the separate pilot studies that were based on this acquired knowledge and in turn brought up new and specific questions. Due to the scope of the report, conclusions and recommendations are elaborated in the relevant sections. The highlights and general conclusions and recommendations appear at the end of the report.

3.1. GENERAL BACKGROUND

3.1.1. Worldwide digitization of visual culture heritage

Gaining an understanding of the potential and the difficulties of creating a digital library for visual culture heritage required an examination of existing projects around the world. An initial survey of leading examples was conducted online at an early stage of the research. Examples were found using a variety of search strategies starting from leading visual culture institution websites, link recommendation, various key words and recommendations made in library and archiving professional websites. Other examples were added to the compiled list throughout the course of the research as they were mentioned in the interviews, lectures and literary references.¹¹

A Limitation to the search was the dependence on the English language; therefore, most of the examples are from English speaking countries or websites that have translated their content and search keywords into English.

The terms used in various digital libraries were not confined to "Digital Library". Other terms used are different combinations of the words Digital/Online/Web alongside Library/Collection/Gallery. However, all cases comply with the following description: free, online access to viewing images and data from at least one collection.

Analyzing the compiled list of web sites did not suggest a certain pattern or trend but rather demonstrated a wide array of attempts made by a range of institutes that varied in many parameters (such as scope, technology, additional information and user interface). However, the digital libraries found can be sorted into five major categories as presented below (Libraries, Educational Institutes, Museums, National Initiatives and International Initiatives).

¹¹ A reference list to websites mentioned in this document appears in the reference list. Other websites that were of relevance yet are not mentioned here can be found at the list compiled during the research process at http://delicious.com/mow_pilot

3.1.1.1. **Public Libraries**

One may claim that the transition to a digital library is natural evolution for a physical public library that holds a certain collection. An ample amount of examples for this claim exists. For instance, The New York Public Library's Digital Gallery provides free and open access to over 700,000 images digitized from the New York Public Library's collections. The collection includes illuminated manuscripts, historical maps, vintage posters, rare prints and photographs.¹²

An additional large digital library is the British Library Online Gallery. The national library of the United Kingdom offers access to one of the world's largest and most comprehensive research collection. The Library's physical collections include 150 million items from which thousands were digitized. Types of content include manuscripts, rare books, musical texts, maps illustrations, drawings, paintings and photographs.¹³ An interesting European example can be found at the Munich Digitisation Centre of the Digital library at the Bavarian State library providing one of the largest and fastest growing digital collections in Germany, with over 260,000 titles available online.¹⁴

Examples for smaller scale collections can be found at the National Library of Ireland, where photographic collections are available online,¹⁵ or at the Toronto Public Library Digital Collections.¹⁶

3.1.1.2. **Academic Institutions**

Affluent, higher-ranking academic institutions often boast a large, diverse mega-collection, a result of years of research, donations and acquisitions. A leading example of institutions that have digitised their collections and made them accessible online is at Yale University. The Yale University collection enables cross-collection search that retrieves results from over 300,000 images in selected digital collections managed by the library.¹⁷ Comparable is the Harvard University Library Visual Information Access (VIA) system, which is a union catalogue of visual resources focusing on artistic and cultural materials.¹⁸

Many academic Institutions that run research centres and professional libraries have invested in digital libraries accessible to all online. Especially in the United States of America, state university libraries hold collections with historical relevance to that specific state or region. Other collections are often affiliated with a professional research expertise of the institute.

¹² See <http://digitalgallery.nypl.org/nypldigital/index.cfm>

¹³ See <http://www.bl.uk/onlinegallery/index.html>

¹⁴ See <http://www.digital-collections.de/index.html?c=startseite&l=en>

¹⁵ See http://digital.nli.ie/cdm4/index_glassplates.php?CISOROOT=/glassplates

¹⁶ See <http://digitalcollections.torontopubliclibrary.ca/webDC/begin.do>

¹⁷ See <http://www.library.yale.edu/libraries/digcoll.html>

¹⁸ See http://via.lib.harvard.edu/via/deliver/advancedsearch?_collection=via

Examples for regional digital libraries can be found at the Cleveland State University, supporting the Cleveland Memory Project,¹⁹ and the University of Georgia where the Digital Library of Georgia is based.²⁰ The University of London maintains a large database named British History Online with a variety of materials from an historical perspective.²¹

Academic collections of specific topics are often the result of extensive research or a donation of a special collection. The State University of New York at Buffalo offers access to a unique collection of Universal Design products from the School of Architecture and Planning. The Division of Rare and Manuscript Collections, Cornell University Library, is home to the Andrew Dickson White Architectural Photographs Collection of roughly 13,000 photographs of architecture, decorative arts and sculpture²² from the nineteenth and early twentieth century. Andrew Dickson White (1832-1918), was the first president of Cornell University and established the collection by donating several thousand images from his personal architectural library.

3.1.1.3. Museums

Museum digital collections offer some of the most relevant examples of visual culture collections. The vast majority of content offered by digital collections of visual culture is Fine Arts. Content related to Architecture is offered at some of the collections and Industrial Design is even less present.

As expected, digital collections are often found at salient museums' websites. As the following examples show, museum collections are often characterized by images of better quality (since the digitization and photography is based on the original item) and offer additional context information (as part of a virtual exhibit) or learning experience (as part of the user interface).

The Musee d'Orsay offers a unique browsing experience in the interlinked database with the application "Discovery". Some of the images are presented in the visual context of artist, date, art movement and theme in which they were created. Other items are presented with additional historic information.²³

The Finnish National Gallery offers access to over 34,000 works from the collection.²⁴ Besides the National Gallery's own acquisitions, the collection includes donated collections of different sizes.

¹⁹ See <http://www.clevelandmemory.org/>

²⁰ See <http://dlg.galileo.usg.edu/?Welcome>

²¹ See <http://www.british-history.ac.uk/Default.aspx>

²² See <http://cidc.library.cornell.edu/adw/adw.asp>

²³ See <http://www.musee-orsay.fr/en/collections/discovery.html>

²⁴ See <http://kokoelmat.fng.fi/wandora/w?lang=en&imagesize=0&action=gen&>

The New York Museum of Modern Art (MOMA) offers an elaborate collection accessible in various modes such as image browsing or calendar search.²⁵

3.1.1.4. **National Initiatives**

Beyond governmental support of various projects as described above, many countries initiate national scale digital libraries. The Virtual Museum of Canada (VMC) exhibits a rich collection of Canadian heritage online. The initiative is meant to expose stories and treasures entrusted to Canadian museums and share them in creative, appealing ways. The Canadian Heritage Information Network, an agency of the Department of Canadian Heritage, created the Virtual Museum and over 1,300 member museums provide content to the Virtual Museum as a collaborative site.²⁶

Gallica is an online encyclopaedic digital library service created by Bibliothèque nationale de France (BnF), a national library focusing on research. The collection focuses primarily on works about France, in the French language, and published in France, and includes a variety of materials such as academic journals, newspapers, images and sound recordings.²⁷

3.1.1.5. **International Initiatives**

As the number of databases and the size of institutional investment in documentation of cultural heritage grew in the past decade, International organizations have realized a need to mend the gap between the databases and improving access to a large amount of data for fewer portals. With Israel's association with the European Framework, a natural bias has been towards adopting European standards.

3.1.1.5.1. Europeana is a thematic network funded by the European Commission, aiming to make Europe's cultural and scientific resources accessible for all. Originally known as the European digital library network (EDLnet) it is a partnership of 100 representatives of heritage and knowledge organisations and IT experts from throughout Europe. The representatives contribute to the work packages that are solving the technical and usability issues. The content is provided by a list of partners (such as museums, galleries, archives, libraries²⁸) and it links to 6 million digital items as images, text, sound and video, presented at an item level.²⁹ In 2010 a new version of Europeana is planned to be

²⁵ See <http://moma.org/explore/collection/index>

²⁶ See <http://www.museevirtuel-virtualmuseum.ca/index-eng.jsp>

²⁷ See <http://gallica.bnf.fr/?lang=en>

²⁸ For the full list of partners see <http://www.europeana.eu/portal/partners.html>

²⁹ For the prototype search engine see <http://eculture.cs.vu.nl/europeana/session/search>

implemented with added functionality and access to over 10 million digital objects.

The Europeana group consists of a number of projects run by different cultural heritage institutions. These projects will be contributing technology solutions and content that will create the fully operational Europeana.eu. Among others, the group includes APEnet which aggregates content from Europe's national archives; ATHENA which aggregates museum content and promotes standards for museum digitization and metadata; CARARE which aggregates content for the archaeology and architectural heritage; European Film Gateway (EFG) which aggregates cinema related material; EUscreen which contributes television material to Europeana; JUDAICA Europeana which looks at the Jewish contribution to Europe's cultural heritage; and The European Library which aggregates the content of national libraries.

3.1.1.5.2. The Multilingual Inventory of Cultural Heritage in Europe (MICHAEL) is a European multilingual catalogue of digital cultural resources accessible online. MICHAEL Service provides access to digital resources from museums, libraries and archives. The database is based on national inventories of digital resources that have been created by the project partners. The service is available in multiple languages and each national inventory includes descriptions of digital collections and the websites, CD-ROMS and other products and services.³⁰

3.1.1.5.3. MINERVA³¹ is a European Commission project that established a network of ministries and national institutions to discuss correlate and assimilate activities related to the digitization of cultural and scientific content. The MINERVA objective is to create a common European platform that will prevent duplication of efforts and encourage exchange of knowledge towards recommendations and guidelines on digitization, metadata, long-term accessibility and preservation.

MINERVA has an active Israeli workgroup.

3.1.1.5.4. WORLD DIGITAL LIBRARY³² was a co-initiated project by the Library of Congress, UNESCO, and five partner institutions - the Bibliotheca Alexandrina, the National Library of Brazil, the National Library and Archives of Egypt, the National Library of Russia, and the Russian State Library. The project mission was to enable access, free of charge and in multilingual format to significant primary materials from countries and cultures around the world. The project

³⁰ See <http://www.michael-culture.org/en/association>

³¹ See at <http://www.minervaeurope.org/home.htm>

³² See at <http://www.wdl.org/en/>

prototype was solicited through a consultative process that involved UNESCO, the International Federation of Library Associations and Institutions (IFLA), and individuals and institutions in more than forty countries. The project website was launched during April 2009 with content about every UNESCO member state.

Dr. Susan Hazan³³, Curator of New Media and Head of the Internet Office, The Israel Museum, points out the pragmatic characteristics of the World Digital Library which include an emphasis on the quality of content added to the database rather than the quantity. Also, unlike Europeana that offers linkage to external content providers for the actual display of the collections, the World Digital Library draws the high resolution objects directly into its architecture, resuming responsibility for the consistency of metadata.

3.1.2. Digitization of visual culture heritage in Israel

3.1.2.1. Based on the survey of digitization of cultural heritage worldwide, a similar survey was conducted in Israel in an attempt to understand how far behind the situation is, and what are the major gaps. Towards the end of the research period, a government decision was made to allocate a large budget for preservation of cultural heritage. This initiative will be discussed as the operational aspects of this decision are elaborated.

3.1.2.2. Archives

According to Dr. Yehoshua Freundlich, the Israel State Archivist, nearly five hundred national, municipal, publicly owned or private archives exist in Israel. Most of the content of the archives is textual and estimated to be over 1200 km long. The archives work under continuous budget restraints and cuts, therefore much of the infrastructure and personnel are unsuited to the actual needs of preservation and research.³⁴

Digitization of visual content is underway at some of the larger archives and is progressing due to the above constraints. Digitized collections can be found for example at national archives such as Yad Vashem,³⁵ the State Archives,³⁶ and the Jewish National & University Library.³⁷ Other semi-public archives that are undergoing a digitization process include for example the HaShomer HaTzair Institute for Research and

³³ Hazan, S. (2010) When is a library NOT a library? *Digital Library Futures*, (pp 8-9), IFLA Publications Series of K.G. Saur Verlag, Munich. <http://www.musesphere.com/images/IFLA-when-is-a-library-not-a-library.pdf>

³⁴ Lecture given at the World Union of Jewish Studies, August 6th 2009

³⁵ See <http://www6.yadvashem.org/wps/portal/photo?lang=iw&homepage=true>

³⁶ See <http://www.archives.gov.il/ArchiveGov/otsrot/Gallery/>

³⁷ See http://jnul.huji.ac.il/eng/digi_intro.html

Documentation³⁸ and the Pinhas Lavon Institute for Labor Movement Research.³⁹

Online access to many of the archives is currently limited to general information and collection listings, yet the content that has been digitized is often not available online.⁴⁰ According to Mr. Assaf Tractinsky, Head of the Information and Cataloguing Department at the State Archives, a plan to create a national portal for Israeli archives is in its early stages and may take several years before it becomes available.⁴¹

3.1.2.3. Museums

3.1.2.3.1. According to the Israel Ministry of Culture and Sport, 200 institutes in Israel view themselves as museums, 53 of which are accredited⁴² by the ministry. Most of the accredited museums have websites; however, few of them enable online access to items from the collection.

3.1.2.3.2. The Israel Museum, founded in 1965, has, in a short period of time, become Israel's leading cultural institution and a prominent encyclopedic museum. The museum collections include nearly 500,000 objects of fine art, archaeology, Judaica and Jewish ethnography, representing the history of world culture.

3.1.2.3.3. According to Dr. Allison Kupietzky, Collections Database Manager at the Israel Museum, the museum is currently undergoing a major process of digitization of the permanent exhibit. The museum website search engine "IMAGINE" enables access to 5000 items and 8000 more are in the process of being added.⁴³ Each item includes a visual image and basic descriptive information and many of the objects include additional information and references.

3.1.2.3.4. The process of digitization will considerably improve the access to items of Israel's cultural heritage, however it should be noted that the items digitized are items that were chosen to be part of the museums' physical collection and represent the top tier of canonized cultural heritage. Other items that are relevant to the cultural heritage but do not match the requirements of the museum are obviously not included. Such items can be, for example, commercial products, student works or architectural plans that have value as part of a social or historical research beyond their merit as individual works.

³⁸ See <http://www.givathaviva.org.il/>

³⁹ See http://yeda.amalnet.k12.il/LavonInstitute/RightMenu/InstituteCurator/haverut_truma.htm

⁴⁰ For example see the Ancient Acres digitization project by the Antiquities Authority at http://www.antiquities.org.il/akko_heb.asp

⁴¹ Lecture given at the World Union of Jewish Studies, August 6th 2009

⁴² A list of the accredited museums and their online presence and access can be found in appendix 8.6

⁴³ Lecture given at the 6th Jerusalem Conference on the Digitization of Cultural Heritage EVA/MINERVA, November 10th, 2009

- 3.1.2.3.5. Items of relevance to the visual culture of Israel beyond those chosen by the Israel Museum are currently not collected systematically by any other institute or museum on a large scale.
- 3.1.2.3.6. Two other prominent museums – the Tel Aviv Museum of Art and the Eretz Israel Museum - do own artifacts with great relevance to the visual culture, however those are top-tier items as well and do not represent a broad variety of artifacts. Neither museum offers online access to its collections. Tel Aviv Museum has lately announced the acquisition of the Arie Sharon collection and the establishment of an architectural archive
- 3.1.2.3.7. Beit HaTfutsot, The Nahum Goldmann museum of the Jewish Diaspora, holds a vast collection of photography, genealogy, films, Jewish music and Judaica. This information has been consolidated into the Digital Database System, a program that enables a comprehensive search of these Jewish resources. However, this database is not available online.⁴⁴

3.1.2.4. Academic Institutes

- 3.1.2.4.1. As archives often evolve from research demands, some of the educational institutes dealing with visual culture heritage have started developing independent collections for their needs. Many of these collections have not been digitised, as is the case of the Ziffer House for Documentation and Research Centre of Israeli Visual Arts, affiliated to the Tel Aviv University.⁴⁵ Another example is the Centre for Jewish Art of the Hebrew University.
- 3.1.2.4.2. Examples for collections that deal with visual content and are undergoing digitization include the Steven Spielberg Jewish Film Archive at Hebrew University of Jerusalem⁴⁶ and The Digital Archive for Theatre in Israel at the Haifa University.⁴⁷
- 3.1.2.4.3. In 2005 The Shenkar College of Engineering and Design founded the Shenkar Design Archive and Research Center with the stated objective of preserving the history and culture of graphic design. The Center enables the college students, lecturers and researchers access to documentation of Israeli historical works of the graphic designers and educators involved in teaching design. The archive contains articles and references regarding design alongside video interview with prominent designers and documentation of historical research of the Hebrew typography.
- 3.1.2.4.4. Mr. Ruben Kohn, founder and head of the Shenkar Design Archive and Research Center, presented the database used and developed

⁴⁴ See <http://www.bh.org.il/>

⁴⁵ See http://arts.tau.ac.il/index.php?option=com_content&task=view&id=239&Itemid=377&lang=en

⁴⁶ See <http://www.spielbergfilmarchive.org.il/main.htm>

⁴⁷ See <http://digitool.haifa.ac.il/R/%5C%5Clib.haifa.ac.il>

by the center at the National Workshop that took place in Bezalel. The database includes a variety of content that was intentionally collected by the research team aiming to represent the leading graphic designers in Israel. These include video interviews with the chosen designers, images of their work and accompanying text, all catalogued in a manner that enables crossing information according to period, creator, theme and other categories addressed by the researchers.

3.1.2.4.5. The Shenkar initiative is collecting and digitizing valuable information in the field of Graphic design. In a media interview Mr. Kohn stated that the research centre aims to broaden the scope of the database to deal with fashion and other disciplines of design.⁴⁸ However, as in the case of the Israel Museum, the data is meticulously collected and currently includes only the top tier of canonized cultural heritage. Designers and works that are not prioritized by the research team constructing the archive are not yet digitized or even collected. In addition, the collected data is available only to authorised users from within the academy and not yet available to the public.

3.1.2.4.6. Another notable collection is the Midrasha School of Art at Beit Berl College. Mr. Doron Rabina, head of the Midrasha School of Art participated at the Art Professional workshop and reported that the Midrasha library has decided to digitize their collection of Israeli art and collection of teaching materials (30,000 items). The database will rely on the library system ALEF and due to copyright issues, the collection will be available to permitted users only.

3.1.2.4.7. The Digital Library of the Archive at Bezalel Academy of Art and Design was established at 2006, as part of the commemorative celebrations of the school 100 anniversary. The digital library initially dealt with work done by student and staff but it soon became apparent that many collectors in Israel seek a home for their collection or assistance with digitization and with making their collections available online. In spite of the limited resources of the archive some of these collections were digitised and the continual demand for such services has brought Bezalel to seek an extensive solution.

Throughout 2009 the search for a solution has taken two parallel paths. One path has been taking on the preparatory work for the establishment of a national digital library of art, architecture and design with the assistance of the UNESCO-Memory of the World programme. The outcomes of this preparatory work are summed in this report and the knowledge accumulated will hopefully have long

⁴⁸ Klein, M. (7.11.2008) Graphic Memory. The Jerusalem Post, Metro pp. 24-25.

term consequences and create a steady base for a large scale digital library.

3.1.2.4.8. The second path has been a large financial investment in upgrading the infrastructure of the database by changing the archiving system to a large scale, advanced system IDEA@ALM.⁴⁹ This change has enabled gaining hands-on experience in managing an advanced flexible database.

3.1.2.4.9. According to Ms. Moran Szerer, of the Bezael Archive, as of February 2010, the digital library had digitized and catalogued 69,043 Images of 36,565 items. These included 11,678 items of student work, 1409 items of external collections and 23,478 items of art and design history. In addition, there are approximately 60,000 additional digital images that remain to be catalogued.

⁴⁹ The previous system "Digitools" had not been sufficient for the need of the archive. For additional information about IDEA@ALM see paragraph 4.3 above or <http://www.idea-alm.com/site/content/t4.asp?Sid=50&Pid=228>

3.2. DEFINING THE END USER

3.2.1. Creating any kind of service must include a discussion regarding the target users of the service and other potential users that can benefit from it. Kupietzky⁵⁰ describes three types of database users in the museum world. With slight adjustments, these types are relevant for the discussion regarding a digital library of visual culture heritage:

- Low level User: Characterized as a passersby with a short attention span and need of guided assistance to reach specific information in a clear and organized manner.
- Medium level User: Characterized as semi-guided searches with a longer attention span and often more focused than the low level searches.
- High Level Users: Characterized as focused in-depth researchers, applying complex queries aimed at developing new understandings beyond the data itself.

3.2.2. In both professional workshops, a heated discussion evolved from the issue of predetermined users. Nearly all participants agreed that the digital library database should address the needs of as many types of users as possible. Nevertheless, when confronted with the forces of reality (e.g. time and budget constraints) the positions split in to two prevalent positions. The first position, often voiced by active designers preferred addressing an average, low level user with the minimal skills expected from a high school student. The second position, often voiced by participants with academic research background, stressed the great need of profound, validated data for research which currently is difficult to obtain.

3.2.3. The current report cannot be the platform on which such an issue can be decided. It should be noted that in spite of the participants stated desire to create an omnipotent digital library, reality often offers its constraints. Therefore, a pragmatic analysis should be completed at an early stage of the project. That way, the most important and pressing user needs are be address first, and other user needs can be added later on.

3.2.4. Besides the data consuming users, an additional type of data user, often overlooked, is the administrative data team. Often, database management can be greatly assisted by catering to certain administrative need. For example, planning an intuitive, quick cataloguing interface can shorten process duration and enhance cataloguing capacities. Including copyright information in the metadata can assist the legal functions and automated procedures.

⁵⁰ Kupietzky, A. (2007) Step 5: Standardizing Data in the Most Efficient Manner. [Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process.](#) (p.55) Englewood, Colorado: Libraries Unlimited.

3.3. DIGITIZATION

3.3.1. McKenna and De Loof (2009[a] p.6) define "Digitisation" as the process of transformation of original (analogue) material into digital form. There are three types of digitisation:

- **Reproduction**

Digitisation aimed at reproducing the original material in digital form as accurately as possible. This category includes images, sound and video.

- **Retrieval**

Digitisation aimed at finding and retrieving original material for increased usage of the material rather than accurate reproduction. This category includes scanned and indexed documents, for example contracts, letters etc.

- **Procedural**

Digitisation aimed at capturing information from analogue (paper) museum catalogue systems in order to implement automated collection management.

3.3.2. The current study is aimed at the establishment of a digital library that will not have a physical collection aside it. Assuming the items will only be available once for visual documentation, reproduction digitization, the first type, is required. Such digitization demands that the highest possible forms of visual documentation are used and constantly updated.

3.3.3. Dealing with visual content, often 3D, requires special consideration of image capturing equipment, creation process and preservation. These will be discussed in the following paragraphs.

3.3.4. Digitization Equipment

3.3.4.1. The digitization process often resembles a production line with repetitive procedures. The current goal of a digital library focuses on visual culture content and imagery. This production line requires fitted equipment for the task of visually documenting 2D and 3D creations of art, architecture and design.

3.3.4.2. According to the UKOLN "Good Practice Guide for Developers of Cultural Heritage Web Services",⁵¹ a good baseline for creating a digital file that will be long-lasting would be to scan (or reproduce) the original only once for all purposes so the complex and expensive preparation work will not need to be repeated. The guidelines also recommend that the original reproduction would act as a digital master from which all other versions (e.g. compressed versions for online access) can be derived. This digital master file should be created at the highest suitable resolution and bit depth that is both affordable and practical.

⁵¹ UKOLN (2004) The Digitization Process. [Good Practice Guide for Developers of Cultural Heritage Web Services](http://www.ukoln.ac.uk/interop-focus/gpg/DigitisationProcess/). <http://www.ukoln.ac.uk/interop-focus/gpg/DigitisationProcess/>

- 3.3.4.3. Regarding digitization execution, the UKOLN guide⁵² recommends using an in-house digitization unit when the digitization process needs to be phased in small portions over a long period of time. Outsourcing the visual documentation process is recommended when originals cannot be scanned successfully in-house (due to high costs of equipment) or when the intended product is beyond the experience and abilities of the staff or equipment.
- 3.3.4.4. A basic list of equipment for use in an in-house digitization unit was compiled from various online sources⁵³ and interviews with photography professionals: Mr. Moshe Caine⁵⁴, Ms. Hadar Oren⁵⁵ and Mr. Shai Halevi⁵⁶, all experienced at archive photography. The list includes primary visual documentation equipment (camera, scanners, etc.), studio gear, post-production software, and storage and backup hardware.
- 3.3.4.5. Primary visual documentation equipment can be separated into *contact* (flatbed scanners, transparency scanners) and *no-contact* equipment (cameras, book scanners and overhead scanners). Generally speaking, photographic materials are usually scanned on a flatbed or a transparency scanner while bound books and oversized flat materials such as maps and architectural plans require a digital camera or an overhead scanner.
- 3.3.4.6. Calimera Guidelines for digitization⁵⁷ recommend that flatbed scanners should only be used for unbound printed material or documents. Bound items require a book cradle or digital camera and the scanners should be at least as large as the largest item anticipated to be scanned in order to avoid folding and "mosaicing" the scans.
- 3.3.4.7. Purchasing a transparency scanner would be a good investment if 35mm media composes a large part of the collection. Using a transparency scanner can reduce some of the effort of placing slides and negatives in holders or securing them with tape to the scanner bed.⁵⁸
- 3.3.4.8. Digital cameras play a pivotal role in visual documentation and are mainly used for 3D objects such as bound books, furniture or buildings. Cameras can also be used to record events, exhibits or creators at work. The technical definitions required from the camera itself vary as

⁵² UKOLN (2004) The Digitisation Process. Good Practice Guide for Developers of Cultural Heritage Web Services. <http://www.ukoln.ac.uk/interop-focus/gpg/DigitisationProcess/>

⁵³ For list of online resources providing guidance on digitization issues see the list compiled at http://delicious.com/mow_pilot/digitization+experts

⁵⁴ Mr. Moshe Caine (M.A), Lecturer at the Department of Photographic Communications, was interviewed April 6th 2009.

⁵⁵ Ms. Hadar Oren, the Tel Aviv Museum Photographer was interviewed during September 2009.

⁵⁶ Mr. Shai Halevi, former Bezalel archive photographer was interviewed March 31st 2009

⁵⁷ Calimera (2005[b]) Guidelines for Digitization.

<http://www.calimera.org/Lists/Guidelines%20PDF/Digitisation.pdf>

⁵⁸ UKOLN (2004) The Digitisation Process. Good Practice Guide for Developers of Cultural Heritage Web Services. <http://www.ukoln.ac.uk/interop-focus/gpg/DigitisationProcess/>

technology rapidly evolves. A professional, well maintained camera will have considerable effect on the photographic result; however, it should be noted that the professional skills of photographer using the camera will have significant effect as well.

- 3.3.4.9. Regarding audio-visual content, the Calimera Guidelines for digitization⁵⁹ stress that equipment is needed for capturing digital output from conventional film and video. Video recording equipment is used for capturing moving images and will be required for content creation projects resulting in “born digital” material. Video output can also become a powerful tool for presenting a continuous view of all sides of an object, or for showing a 3D space.
- 3.3.4.10. Studio gear includes a basic studio set of supplementary lighting (flash, fill lights, light booms and soft-boxes), camera mounting (camera tower stand or tripod and copy stand), a stand for holding the material to be photographed⁶⁰ (or still-life tables) and backdrops. The backdrops should include standard black, white and gray colours that can be easily eliminated with editing software. From the HSJAM pilot study it was concluded that silver, a material commonly used for Judaica artifacts, is best photographed with a blue backdrop. If a digitization process is planned to include many silver items, it may be advisable to purchase a blue backdrop as well. If some of the visual documentation work is done outside the digitization unit, it is preferable to have portable gear that can be taken to the visual documentation site.
- 3.3.4.11. Post-production software is necessary for editing the digital files (colour corrections, cropping etc.) and resizing them if necessary. Specific software will be needed for editing photographs and for editing audio-visual content. At the British Tate collection digitization project basic image-processing tools were incorporated in the image management system, as a time saving alternative to routing the images through Adobe Photoshop before import. Once in the database, adjustments were made to the colour, tone, orientation and overall look of the images. On the whole, the images from the digital camera needed little if any changes made and were very objective and true to the original.⁶¹
- 3.3.4.12. Beyond the basic equipment, designated devices and technology can be used to provide more data or improve visualization. The British Tate, for example, uses X-ray, infra-red and ultra-violet photography for paintings and sculptures, as part of the conservation process and is invaluable in revealing detail invisible to the naked eye. Other attempts made by Tate

⁵⁹ Calimera (2005[b]) Guidelines for Digitization.

<http://www.calimera.org/Lists/Guidelines%20PDF/Digitisation.pdf>

⁶⁰ The British Tate collections digitization project for example placed works on a copy-stand that can travel up and down to capture A0-sized works down to postage stamps. See

http://www.tate.org.uk/collections/in_production.htm

⁶¹ See http://www.tate.org.uk/collections/in_production.htm

included special image treatment, such as use of a variable light dome for visually documenting brushstroke textures, a time-lapse film for documenting the process of an installation, and a 3D examination of Henry Moore's large stone Recumbent Figure.

3.3.4.13. The Stanford Computer Graphics Laboratory has developed a hardware and software system for digitizing the shape and color of large fragile objects under non-laboratory conditions. The system employs laser triangulation rangefinders, laser time-of-flight rangefinders, digital still cameras, and a set of software for acquiring, aligning, merging and viewing scanned data. In 2009, a full-resolution 3D model of Michelangelo's David was created, totaling nearly a billion polygons.⁶² As such technologies develop and become available they may require financial resourcing for equipment, staff and storage.

3.3.4.14. Swift changes in available technology, demand constant re-evaluation of active digitization projects.⁶³ Acquiring further equipment for advanced visual documentation is often costly and may become outdated within a short period of time. On the other hand, it can provide added value to the collection and enhance research possibilities. Finding the balance between digitization requirements, budget constraints and technological advancement should be a constant task for the project management.

3.3.5. Imaging

3.3.5.1. Photographic Technical Guidelines

The prevalent recommendation in most of the resources⁶⁴ reviewed for the current report is to create image files of the highest, yet efficient, quality the photographic equipment can produce without compression. The large image will become the master image from which compressed copies can be made.

The key term, resolution, is expressed in dots per inch (DPI) and relates to the density of information captured by the visual documenting equipment. Generally speaking, the higher the DPI the more detail is being captured. The amount of resolution required to get a useful image of an item is determined by the size of the original, the amount of detail in the original and the eventual use for the data. There are also upward limits on resolution such as file size (increasing resolution will boost the file size) and preventing the capture of redundant information. Postcards for example are often printed on poor quality paper, and if they are scanned at too high a resolution the texture of the paper will be captured

⁶² See <http://graphics.stanford.edu/projects/mich/>

⁶³ Schneider, A. K. (2003?) L.A. art ONLINE: Learning from the Getty's Electronic Cataloguing Initiative. Electronic Cataloguing Initiative. Getty Institute.

<http://www.getty.edu/foundation/funding/access/previous/index.html>

⁶⁴ For example Kupiezky (2007), McKenna & De Loof (2009[b]), Calimera (2005[b])

and can obscure the content. In addition, at some point increasing the resolution will no longer add value to the information content of the digital output.⁶⁵

The purpose for which the digitised images will be used will define the quality of the image required. Print quality is recommended by Dr. Kupietzky⁶⁶ at up to 600 dpi, screen usage with zooming capabilities at 300 dpi, and online views at 72 dpi. High resolution images should be stored as an archive resource for further use in a systematic form. Compressed size images are meant for fast access on a daily usage by the average user.

McKenna and De Loof, in their Recommendations and Best Practice Report,⁶⁷ provide advice for file formats and quality for the various common media types used in three use environments -a collection management environment (where metadata is created), a service environment (where users are given meaningful access to a single piece of metadata) and a discovery environment (where users are given access to a set of metadata from many objects).

Parameter	Use Environment		
	Master	Service	Discovery
File Format	TIFF	JPEG; PNG	JPEG; PNG
Colour Quality	8 bit greyscale 24 bit colour	8 bit greyscale 24 bit colour	8 bit greyscale 24 bit colour
Resolution (dpi)	600 (photographs) 2400 (slides)	150-200	72
Maximum dimension (pixels)	[not applicable]	600	100-200

Images recommendations⁶⁸

The Calimera Digital Preservation Report⁶⁹ also found that a lossless format such as TIFF (Tagged Image File Format) is preferable, but

⁶⁵ UKOLN (2004) The Digitisation Process. Good Practice Guide for Developers of Cultural Heritage Web Services. <http://www.ukoln.ac.uk/interop-focus/gpg/DigitisationProcess/>

⁶⁶ Kupietzky, A. (2007) Step 5: Standardizing Data in the Most Efficient Manner. Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process.(p.57) Englewood, Colorado: Libraries Unlimited.

⁶⁷ McKenna, G. De Loof C. (2009[b]) ATHENA Recommendations and best practice report regarding the application of standards, including recommendations for a harvesting format and fact sheets for dissemination.(p.6) eContentplus. www.athenaeurope.org/getFile.php?id=538

⁶⁸ McKenna, G. De Loof C. (2009[b]) ATHENA Recommendations and best practice report regarding the application of standards, including recommendations for a harvesting format and fact sheets for dissemination.(p.6) eContentplus. www.athenaeurope.org/getFile.php?id=538

⁶⁹ Calimera (2005[a]) Guidelines for Digital Preservation. http://www.calimera.org/Lists/Guidelines%20PDF/Digital_preservation.pdf

commented that if storage space is very limited, the PNG (Portable Network Graphic) file format can provide an alternative lossless format.

3.3.5.2. **Photographic Content Guidelines**

While technical guidelines are quite common and recommend specific equipment and file formats, guidelines regarding the content of visual heritage imagery are scarce. In the many websites and books reviewed for the current report, advice regarding "How" to photograph images was usually overlooked. Occasional tips were given when faced with specific issues such as at the JISC Digital Media article on Digitizing Difficult Objects.⁷⁰

The quality of the visual content of a digital library is crucial to its functionality and can be addressed beyond technical issues of file format and storage. For example, standardising the photography of functioning objects can save planning time and prevent loss of information and using the correct equipment for visually documenting buildings can prevent perspective distortion. For that reason, leading cultural heritage institutes in Israel⁷¹ that have had some experience with digitisation were approached by the research team regarding their photography content standards. All institutes responded that they do not use or know of official guidelines and the quality of the content relies on the professional skills and judgment of their photographer.

According to Ms. Ariella Amar⁷², the Centre for Jewish Art has been working with a freelance photographer for a number of decades. Other photographers replace him occasionally, yet his accumulated knowledge and work patterns are invaluable to the institute. The photographer's accumulated knowledge has not been documented and made available. Similar situations exist in the other institutes and the photographers reported that their expertise is a combination of general professional training and work experience retained in the form of oral law.

Due to the great variety of visual content to be photographed, it is nearly impossible to create a complete set of guidelines. However, the absence of any guidelines decreases the option of creating uniformity and efficiency where possible. For that reason, the HSJAM Pilot study aimed to address the issue of photographic content and provides extensive critique of common problems in photographic visual documentation of 3D objects.⁷³

⁷⁰ See at <http://www.jiscdigitalmedia.ac.uk/stillimages/advice/how-do-i-digitise-difficult-objects/>

⁷¹ The Israel Museum, the Tel Aviv Museum, Yad Va Shem, the Centre for Jewish Art of the Hebrew University

⁷² Ms. Ariella Amar, (M.A.), Head of the department for synagogues and ceremonial art at the Centre for Jewish Art of the Hebrew University was interviewed August 2ed 2009.

⁷³ See paragraph 4.1.5.1.4

3.3.5.3. Visualisation and Virtual Content Guidelines

The term *visualization* describes the use of computer graphics to present and analyze information.⁷⁴ 2D visualizations are a key element in graphic design and 3D visualizations are often used in Industrial design and architecture projects as prototype models and in many cases (such as student work or competition entries) the born digital file remains the sole evidence for the project itself.

The visualization of information presents a pressing issue. In parallel to photographic images it would be expected that the highest form of visual documentation will be used as a Master file for visualization files as well. However, as opposed to the de facto status of Tiff or Jpeg image files, 3D vector graphics visualization files are often reliant on the specific software (and version) used to create them, and the conversion to other formats results in considerable loss of information such as dimensions, material and interior mechanisms.

McKenna and De Loof⁷⁵ addressed vector graphics and recommended using SVG (Scalable Vector Graphics) File Format, which is a relatively new format standardized by the world wide web consortium. SVG files can be used for illustrations in books, magazines, articles and other scalable objects, but do not provide a proper solution for 3D visualization files. Currently, projects that were created in 3D visualization software such as 3DMAX or SolidWorks at Bezalel Academy Archive are flattened into an image file (whether tiff or jpeg) and archived without the born digital information that accompanied them. If the original visualization files were to be saved alongside the flattened images, it would still be problematic to view them due to the frequent changes in software. As the fields of industrial design and architecture constantly enhance their already common use of 3D visualization software, a better solution for presenting 3D data is required.

Virtual Reality (VR) is the simulation of a 3D environment, enabling interaction with the users so they can move around the space.⁷⁶ VR can enable viewing and experiencing an exhibit, a building, an installation or any other spatial structure in an intuitive mode. In 2009 the annual school exhibit at Bezalel Academy was photographed⁷⁷ using equipment that enables photography of 360° degrees around a single shooting point, producing an all-around image of the space captured.⁷⁸ EPOCH,

⁷⁴ Kupietzky, A. (2007) Publication and Copyrights. Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process.(p.84) Englewood, Colorado: Libraries Unlimited.

⁷⁵ McKenna, G. De Loof C. (2009[b]) ATHENA Recommendations and best practice report regarding the application of standards, including recommendations for a harvesting format and fact sheets for dissemination.(p.6) eContentplus. www.athenaeurope.org/getFile.php?id=538

⁷⁶ Kupietzky, A. (2007) Publication and Copyrights. Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process.(p.84) Englewood, Colorado: Libraries Unlimited.

⁷⁷ See at <http://chili-media.co.il/prj/bezalel/>

⁷⁸ The project was executed by Chili Media. See at <http://chili-media.co.il/index.html>

The European Network of Excellence in Open Culture Heritage provides a list of other interesting VR and visualization tools.⁷⁹

Future developments of virtual simulations such as heptic technologies may have great relevance to the 3D content of a visual culture digital library. The current report was limited in the possibility to fully address these issues. However, discussing, incorporating and developing applications of advanced technology will be crucial to the success of a digital library as a relevant resource beyond mere data storage.

Dr. Sorin Hermon of the Cyprus Institute was approached and invited to participate in the National Workshop as a keynote speaker.⁸⁰ Dr. Hermon's expertise is knowledge transfer, particularly knowledge about culture and cultural heritage, design of cognitive technologies adapted for the research, education and communication of Cultural Heritage, such as visualization, collaborative and knowledge management tools. Dr. Hermon has expressed his willingness to cooperate in future projects, and the field of visualization would be appropriate for such collaboration.

3.3.6. Storage

3.3.6.1. Creating a digital database requires investing effort in preserving the digital media, whether born digital or converted to a digital form. Digital media expire at least once or twice a decade in two ways. One shape of expiration is the format in which the data is encoded and the other is the physical media on which the data is stored.

3.3.6.2. Because digital formats evolve, a certain format may become obsolete within a few years and the content becomes not viewable. Thus, it is crucially important to choose a file format that enables the best image quality, and has a feasible future as a popular format. It must be a widely used format for ensuring the possibility of migrating this format to newer formats when necessary.

3.3.6.3. An additional solution for format expiration would be to maintain the possibility of viewing the data in its old format by preserving the software and even hardware. However, this is a temporary solution that cannot be relied upon in the long run. In the future it may be possible to use technology emulation which is the recreation of obsolete systems on future computers. Currently this solution is underdeveloped, costly and, in reality, not feasible.

3.3.6.4. Regarding the storage of physical media, it should be noted that CD's and DVD's, often used in small archives, cannot be relied upon as means of storage and can only function as secondary backup to saving the file on a server or hard drive. Degradation occurs in digital media as in other

⁷⁹ See at http://www.epoch-net.org/index.php?option=com_content&task=view&id=216&Itemid=332

⁸⁰ Hermon, S. (6.9.2009) Digital Libraries in the Digital Era: A Challenging Venue For Information Sharing. Presented at the "Hybrid Heritage: Towards sharing cultural knowledge" National Workshop. Bezalel Academy of Art and Design, Jerusalem

archive materials due to fluctuations in temperature and humidity levels, and for that reason a media refreshing process should be budgeted and planned at fixed intervals.

3.3.6.5. The refreshing process and a quality control procedure are recommended as means of prevention by Calimera organization.⁸¹ Additional advice by Calimera on the same issue regards viewing storage as process. Due to the changing nature of digital formats and the short lifespan of digital media, storage cannot be a one-time project, but rather an ongoing routine or continual regime.

3.3.6.6. At the British Tate collections, for example, master images are archived onto DVD and a version of the archival image is also kept on a secure server, allowing easy access. Two copies of the DVDs are kept; one on-site and other in a cold store at another location. Preservation-quality materials are used including special jewel-case inserts and acid-free storage boxes.⁸²

3.3.6.7. A basic thumb rule provided by UKOLN "Good Practice Guide for Developers of Cultural Heritage Web Services" recommends that "more than one copy should be stored on more than one media type and in more than one geographical location, thus providing a degree of protection against data corruption, media failure and physical damage to equipment".⁸³

3.3.6.8. As the storage issue was of highly technical nature, the current report chose not to address it fully. Further research and decisions would be required as the project evolves and specific solutions for the local needs should be thought through. Additional topics for future discussion should include the costs involved of disaster recovery procedures and risk management.

⁸¹ Calimera (2005[a]) Guidelines for Digital Preservation.
http://www.calimera.org/Lists/Guidelines%20PDF/Digital_preservation.pdf

⁸² See at http://www.tate.org.uk/collections/in_production.htm

⁸³ UKOLN (2004) The Digitization Process. Good Practice Guide for Developers of Cultural Heritage Web Services. <http://www.ukoln.ac.uk/interop-focus/gpg/DigitisationProcess/>

3.4. CATALOGUING

3.4.1. The main term used to discuss cataloguing is *metadata*, often described as data about data. McKenna and De Loof⁸⁴ define metadata as:

"Structured information about any kind of resource, which is used to identify, describe, manage or give access to that resource."

3.4.2. A resource is the entity that the metadata is about. The idea of a resource should not be restricted to texts and multimedia objects but rather include anything described and given access to such as texts (electronic or paper-based), physical objects, multimedia (image, sound video, etc.), organizations, places, events, concepts or collections of all the above.

3.4.3. Some resources are surrogates for another resource. For example, a digital image or photograph of an artwork, a virtual reality representation of a place, and a video of a building are all digital surrogates. It is necessary to distinguish between a resource and its surrogate when creating metadata for the two entities. To prevent confusion, metadata for a surrogate should not describe the original resource. An original artwork might be out of copyright, but a photograph of it might not be.⁸⁵

3.4.4. McKenna and De Loof⁸⁶ divide the use of metadata into three use environments, which are summarized in their ATHENA report. The three use environments include a collection management environment, a service environment and a discovery environment.

- **The collections management environment** is where metadata is created. The information recorded comes from a number of sources, such as collections, management activities of the organisation, descriptions of the object itself, connections to events during its existence, and connections to persons, organisations and places during its existence. The activities in this environment usually take place at the collection holding organisation, within their own systems, and with a great deal of human effort.
- **The Service environment** is where users are given meaningful access to a single piece of metadata describing an object or other piece of cultural material. Delivery usually includes a digital proxy for the material. Metadata here is a subset of the metadata in the collections management environment and should ideally be harvested from there. This environment should also provide a means for collecting a user's response

⁸⁴ McKenna, G. De Loof C. (2009[a]) [ATHENA Report on existing standards applied by European museums](http://www.athenaeurope.org/getFile.php?id=396). eContentplus. (p.9)
www.athenaeurope.org/getFile.php?id=396

⁸⁵ Baca, M. (2008). Glossary. [Introduction to Metadata: Revised Edition](http://www.getty.edu/research/conducting_research/standards/intrometadata/glossary.html) (Revised ed.). Los Angeles: Getty Publications.

http://www.getty.edu/research/conducting_research/standards/intrometadata/glossary.html

⁸⁶ McKenna, G. De Loof C. (2009[b]) ATHENA Recommendations and best practice report regarding the application of standards, including recommendations for a harvesting format and fact sheets for dissemination. eContentplus.
www.athenaeurope.org/getFile.php?id=538

to the object, which could feed back information into the collections management environment.

- **The Discovery environment** is where users are given access to a set of metadata from many objects. Delivery is usually part of the result set of a search together with a thumbnail view. Users choose a content they want to look at in the service environment.

3.4.5. In all the environments, three basic kinds of metadata are commonly referred to⁸⁷:

- **Descriptive metadata** assists users to locate resources, to distinguish one resource or group of resources from one another, and to discover the subject or contents.
- **Administrative metadata** helps collection administrators manage resources for such purposes as data migration, rights management and preservation.
- **Structural metadata** documents relationships within and among resources and enables users to navigate complex resources, such as the pages and chapters of a book.

3.4.6. *Metadata Schemes* are metadata elements organized in categories for a specific purpose. Various metadata schemes have been developed for describing different types of objects. In spite of the proliferation of schemes, there is a degree of consistency that supports interoperability. For example, most schemes provide for a creator or contributor name, date, title and identifier.

3.4.7. To assure interoperability between systems and databases, some metadata schemes were further developed and are maintained by standard organizations (such as ISO) or organizations that have resumed this responsibility (e.g., the Dublin Core Metadata Initiative) and are called *Metadata Standards*.

⁸⁷ NISO National Information Standards Organization (2007), *A Framework of Guidance for Building Good Digital Collections*, 3rd edition, NISO Press. (p.3)
<http://www.niso.org/publications/rp/framework3.pdf>

3.4.8. There are a number of standards typologies that shed light on different aspects of their nature. Anne Gilliland⁸⁸ provides a typology of data standards and their relationships with each other:

Type	Examples
Data structure standards (metadata element sets, schemas). These are "categories" or "containers" of data that make up a record or other information object.	The set of MARC (Machine-Readable Cataloging format) fields, Encoded Archival Description (EAD), Dublin Core Metadata Element Set (DCMES), Categories for the Description of Works of Art (CDWA), VRA Core Categories
Data value standards (controlled vocabularies, thesauri, controlled lists). These are the terms, names and other values that are used to populate data structure standards or metadata element sets.	Library of Congress Subject Headings (LCSH), Library of Congress Name Authority File (LCNAF), LC Thesaurus for Graphic Materials (TGM), Medical Subject Headings (MeSH), Art & Architecture Thesaurus (AAT), Union List of Artist Names (ULAN), Getty Thesaurus of Geographic Names (TGN), ICONCLASS
Data content standards (cataloging rules and codes). These are guidelines for the format and syntax of the data values that are used to populate metadata elements.	Anglo-American Cataloguing Rules (AACR), Resource Description and Access (RDA), International Standard Bibliographic Description (ISBD), Cataloging Cultural Objects (CCO), Describing Archives: A Content Standard (DACS)
Data format/technical interchange standards (metadata standards expressed in machine-readable form). This type of standard is often a manifestation of a particular data structure standard (type 1 above), encoded or marked up for machine processing.	MARC21, MARCXML, EAD XML DTD, METS, MODS, CDWA Lite XML schema, Simple Dublin Core XML schema, Qualified Dublin Core XML schema, VRA Core 4.0 XML schema

3.4.9. A common typology, according to McKenna and De Loof⁸⁹ :

- **De facto**

Standard not formally recognised by a standards-setting body, but widely used and recognised by the sector using it as a standard. Some of Microsoft products have become de facto standards (e.g. Word for

⁸⁸Gilliland, A. (2008). Setting the Stage. Introduction to Metadata: Revised Edition (Revised ed.). (Baca, M eds) Los Angeles: Getty Publications.

http://www.getty.edu/research/conducting_research/standards/intrometadata/setting.html

⁸⁹ McKenna, G. De Loof C. (2009[a]) ATHENA Report on existing standards

applied by European museums. eContentplus. (p.9)

www.athenaeurope.org/getFile.php?id=396

Windows). De facto standards are not necessarily the best solution to a situation but are often the most economically successful.

- **De jure**

Standard formally recognised by a standards-setting body (e.g. ISO). De jure standards are often developed by the common consent of a group of interested parties. They take a significant amount of time to develop and gain acknowledgment, sometimes leading to them to be outdated by technological developments.

3.4.10. Another typology of standards regards the environment in which they were produced and used (some standards begin as one type and then evolve in to another type):

- **In-house**

Standards developed and used in a particular organisation, for a particular purpose. An example of this is a local place name terminology.

- **Community**

Standards developed by a set of organisations in the same sector for use within that sector.

- **National**

Standards developed for use within a single country and recognised at a national level.

- **International**

Standards recognised and used throughout the world, nearly always approved by an international standards setting body.

3.4.11. As a rule of thumb, standards supported by consensus, continual support and acknowledgment are preferred. In any case, the decision as to which metadata standard to adopt and implement cannot be independent of factors such as the context of the organization's purpose for creating the collection, the available resources, the intended users and usage and common approaches within the particular field.

3.4.12. Once a standard is chosen and observed, the its use for creating and delivering metadata will provide many benefits such as maximizing interoperability between systems, ensuring that metadata is reusable in more than one system and avoiding dependency on a single system supplier or a limited set of staff familiar with the system.⁹⁰

3.4.13. Most of the available standards in the field of visual culture heritage that are listed below were created for museums. The requirements put forth by museums are different from those of a digital library (managing exhibits, loans, storage of a physical collection vs. a digital collection). However, when

⁹⁰ McKenna, G. De Loof C. (2009[b]) [ATHENA Recommendations and best practice report regarding the application of standards, including recommendations for a harvesting format and fact sheets for dissemination.](http://www.athenaeurope.org/getFile.php?id=538) eContentplus.
www.athenaeurope.org/getFile.php?id=538

cataloguing visual cultural heritage, problems addressed by museums are often relevant to digital libraries as well.

3.4.14. **Data Structure Standards for Visual Culture Heritage**

3.4.14.1. In the art and cultural heritage fields, the most advanced type of data standards are those that specify a set of categories or data elements that can be used to create a structure for a fielded format in a database. These data structure standards are also known as metadata element sets. Following are a few leading examples of such metadata standards used in context of visual culture heritage.

3.4.14.2. **Dublin Core Metadata Element Set (DCMES)**⁹¹

The Dublin Core metadata standard is an element set for describing a wide range of networked resources and an international Standard (ISO 15836:2009).⁹² The standard includes two levels: Simple and Qualified. Simple Dublin Core includes fifteen elements;⁹³ Qualified Dublin Core includes three additional elements (Audience, Provenance and Rights Holder), as well as a group of element refinements (or "qualifiers") that refine the semantics of the elements for resource discovery.

The semantics of the DCMES have been established by an international, cross-disciplinary group of professionals composed of librarians, computer scientists, text encoders, the museum community and other related fields of scholarship and practice.

Although the DCMES was originally developed for describing textual document resources, DCMES metadata can and is in fact applied to other resources as well with varying success.

McKenna and De Loof⁹⁴ address the specific needs of museums that are not met by common metadata schemas. DCMES is the frequently used metadata schema in both the service and discovery environments. However, there is a common view within the museum community that a DCMES derived metadata schemas does not deliver a rich enough view of museum content. The importance of a museum object, especially outside the area of fine art, is often not covered adequately. DCMES-based systems compress museum metadata into limited subset of elements. For example the SPECTRUM metadata schema offers several date-related elements (object production date; field collection date; content - date; associated date; associated event date) that would not be individually categorized in the simple DC date element.

⁹¹ Hillman, D. (2005) Using Dublin Core. [Dublin Core Metadata Initiative Website](http://dublincore.org/documents/usageguide/).
<http://dublincore.org/documents/usageguide/>

⁹² See at http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=52142

⁹³ See at <http://dublincore.org/documents/dces/>

⁹⁴ McKenna, G. De Loof C. (2009[b]) [ATHENA Recommendations and best practice report regarding the application of standards, including recommendations for a harvesting format and fact sheets for dissemination](http://www.athenaeurope.org/getFile.php?id=538). eContentplus.
www.athenaeurope.org/getFile.php?id=538

3.4.14.3. **Categories for the Description of Works of Art (CDWA)**⁹⁵

The CDWA describes the content of art databases by articulating a conceptual framework for describing and accessing information about works of art, architecture, other material culture, groups and collections of works, and related images. CDWA includes 532 categories and subcategories. A small division of categories are considered as core and were agreed upon as representing the minimum information necessary to identify and describe a work.

CDWA is a product of the Art Information Task Force (AITF) that was formed in the early 1990s with support of the J. Paul Getty Trust. It aimed to encourage dialog between communities that provide and use art information - art historians, art repositories and information providers - in order to develop guidelines for describing works of art, architecture, groups of objects, and visual and textual surrogates.

CDWA provides a framework to which existing art information systems can be mapped and upon which new systems can be developed. Great attention is paid to the differences between information intended for display and information intended for retrieval. Information for display is assumed to be in a format and with syntax that is easily read and understood by users. Certain key elements of information must be formatted to allow for retrieval, often referred to as indexing in CDWA. Such indexing is meant to be a conscious activity performed by informed catalogers who consider the retrieval implications of their indexing terms, rather than automated method.

CDWA Lite is an XML schema to describe core records for works of art and material culture based on CDWA and CCO. CDWA Lite records are intended for contribution to union catalogs and other repositories using the Open Archives Initiative (OAI) harvesting protocol.

3.4.14.4. **Visual Resources Association VRA Core (4.0)**⁹⁶

The VRA Core is a data standard for the cultural heritage community that was developed by the Visual Resources Association's Data Standards Committee. It consists of a metadata element set (units of information such as title, location, date, etc.) as well as an initial blueprint for the hierarchy between the elements. The element set provides a categorical organization for the description of works of visual culture as well as the images that document them.

Motivation for developing Core 4 XML Schema drew upon the wish to separate sub-elements for display from index values and to accommodate collection-level and item-level cataloging. These two improvements can have a substantial influence on the user's access to accurate, relevant information.

⁹⁵ See at http://www.getty.edu/research/conducting_research/standards/cdwa/index.html

⁹⁶ <http://www.vraweb.org/projects/vracore4/>

3.4.14.5. In spite of the available standards trying to create the perfect model, an ATHENA Standard Survey⁹⁷ found that adaptations are made to metadata schemas at many institutes. The figures gathered from 119 institutes (museums, archives, libraries, general heritage institutes and Resource discovery services) show that just over 50% of information systems have made alterations to the standard metadata scheme they chose to use.

3.4.14.6. As the number of available online collections grows and the different collections are catalogued with different standards and personalized modifications, the need for interoperability becomes more crucial. Ashby McKenna and Stiff⁹⁸ define Interoperability as:

“The ability of the systems, procedures and culture of an organisation to be managed in such a way as to maximised opportunities for exchange and re-use of information, whether internally or externally”

3.4.14.7. One solution for the lack of homogeneity can be found in the use of a *crosswalk* which is a chart or table (visual or virtual) that represents the semantic mapping of fields or data elements in one metadata standard to fields or data elements that have a similar function or meaning in another metadata standard . Crosswalks enable converting data between databases that use different metadata schemes and enable heterogeneous databases to be searched simultaneously with a single query as if they were a single database (semantic interoperability). This is also known as field mapping.^{99 100}

3.4.14.8. In the Bezael Academy Archive the cataloguing standard was based for historical reasons on the DCMES . However, many alterations were made to set throughout the years. Since the IDEA@ALM system supports DCMES and enables alterations and additions, it is important to make sure that the element set is retuned to enable communication with other databases, at least by use of crosswalks. Future research and decisions will be required upon establishment of the digital library as it may be a good opportunity to establish a strong foundation. The assistance of a professional consultant may be required.

⁹⁷ McKenna, G. De Loof C. (2009[a]) ATHENA Report on existing standards applied by European museums. eContentplus.

www.athenaeurope.org/getFile.php?id=396

⁹⁸ Ashby, H. McKenna, G. and Stiff, M. ed.(2001) SPECTRUM Knowledge: Standards for cultural information management. (p.63) Cambridge: Museum Documentation Association

⁹⁹ Baca, M. (2008). Glossary. Introduction to Metadata: Revised Edition (Revised ed.). Los Angeles: Getty Publications.

http://www.getty.edu/research/conducting_research/standards/intrometadata/index.html

¹⁰⁰ A useful metadata standards crosswalk focusing on the areas of overlap is provided by the Getty Institute and can be found at:

http://www.getty.edu/research/conducting_research/standards/intrometadata/crosswalks.html#endnote1

3.4.14.9. In the long run, the efforts put in to consistently documented records across multiple repositories will advance the access to content by maximizing research results. However, standardizing data elements and establishing a common data format will not achieve a high rate of descriptive consistency on the part of catalogers, nor will it promote a high rate of retrieval on the part of end-users. Standards which deal with the content filling the units of information with data are necessary to guide the choice of terms or words (data values) as well as the selection, organization and formatting of those words (data content).

3.4.15. **Data Content Standard for Visual Culture Heritage**

A leading example for Data Content Standard that provides guidelines for the format and syntax of the data values is the **Cataloging Cultural Objects (CCO)**.¹⁰¹ CCO is a manual for describing, documenting and cataloging cultural works and their visual surrogates. The primary focus of CCO is art and architecture, including but not limited to paintings, prints, sculpture, installations, manuscripts, photographs, built works and other functional objects from the realm of material culture.

The CCO was built in order to assist in the cataloguing of cultural objects. Unlike textual and fine art resources, the unique and often distinctive descriptive values of cultural objects have not been dealt with according to clear guidelines. Building upon existing standards, the CCO provides guidelines for selecting, ordering and formatting data used to populate elements in a catalogue record.

The Bezalel Academy Archive has not yet dealt with the recommendation of the CCO. A future Digital library should address the issues brought up in the guide.

3.4.16. **Data Value Standards for Visual Culture Heritage**

In comparison to content standards, data value standards have received more attention. These standards include a group of tools, referred to by Marie-Véronique Leroi and Johann Holland¹⁰² as *Terminology* which they claim is the most generic and clear word to describe the different common types of resources, namely: Lexicon, Dictionary, Folksonomy, Glossary, Classification, Taxonomy, Thesaurus, Controlled vocabulary, Terminology and Ontology.¹⁰³

3.4.16.1. **Union List of Artists Names Online (ULAN)**¹⁰⁴ was created by the Getty Institute and as a simple vocabulary assists in standardizing common terms as artist and place names. For example, many artists have one or

¹⁰¹ See at <http://www.vrafoundation.org/ccoweb/index.htm>

¹⁰² Leroi, M.V Holland, J. (2009) [ATHENA Report on Identification of Existing Terminology Resources in Museums](http://www.athenaeurope.org/getFile.php?id=398). eContentplus. www.athenaeurope.org/getFile.php?id=398

¹⁰³ For a list of definitions and examples for these types of resources, see report at www.athenaeurope.org/getFile.php?id=398

¹⁰⁴ See at http://www.getty.edu/research/conducting_research/vocabularies/ulan/

more variant names. Giovanni Bologna is an Italian variant name for artist Jean Boulogne (commonly known as Giambologna). Unless all of those names are included when cataloguing the artist's works—ideally by loading the ULAN into the database—numerous online searches will be unsuccessful.¹⁰⁵

3.4.16.2. Other relevant vocabularies are the more complicated form of thesauri. A thesaurus is a set of controlled terms for the detailed subject indexing of (originally) printed documents. The defining characteristic of a thesaurus is the network of relationships among its terms, beyond being a table of information.¹⁰⁶ These are semantic relationships, based on logical connections among the meanings of the terms. The following chart includes the three term types as described by Dr. Kupietzky¹⁰⁷ and the Getty foundation.¹⁰⁸

Term Description	Term Type	Example
Parent-Child relationships	hierarchical term	Poland-Levov-Levov Ghetto
Equivalent relationship	alternate term	Lwow, Lviv
Related term relationship	associative or see- also term	Lemberg

3.4.16.3. **Art and Architecture thesaurus (AAT)**.¹⁰⁹ The Getty institute assembled, during the 1990's, a museum thesaurus of 85,000 terms. The thesaurus was constructed to support lexicon-cataloguing capabilities in databases and was freely distributed. The thesaurus was successful and enabled a shared language platform by which museums could communicate. The thesaurus was further translated by a number of European institutions to their local language.¹¹⁰ By 2009, the AAT contained around 34,000 records for concepts, including 131,000 terms, plus descriptions, bibliographic citations and other information.¹¹¹

3.4.16.4. **Thesaurus of Geographic Names (TGN)**¹¹² was assembled by the Getty Institute as well. It is a structured vocabulary containing over 1,000,000

¹⁰⁵ Schneider, A. K. (2003?) L.A. art ONLINE: Learning from the Getty's Electronic Cataloguing Initiative. Electronic Cataloguing Initiative. Getty Institute.

<http://www.getty.edu/foundation/funding/access/previous/index.html>

¹⁰⁶ Calimera (2005[d]) Multilingualism.

<http://www.calimera.org/Lists/Guidelines%20PDF/Multilingualism.pdf>

¹⁰⁷ Kupietzky, A. (2007) Step 5: Standardizing Data in the Most Efficient Manner. Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process. (p.9) Englewood, Colorado: Libraries Unlimited.

¹⁰⁸ See http://www.getty.edu/research/conducting_research/vocabularies/aat/faq.html

¹⁰⁹ See at http://www.getty.edu/research/conducting_research/vocabularies/aat/

¹¹⁰ Kupietzky, A. (2007) The Challenges. Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process. (p.4) Englewood, Colorado: Libraries Unlimited.

¹¹¹ See at http://www.getty.edu/research/conducting_research/vocabularies/faq.html

¹¹² See at http://www.getty.edu/research/conducting_research/vocabularies/tgn/

names and other data related to places. The TGN includes all continents and nations of the modern political world, as well as historical places. A special emphasis in TGN is put on places important for art and architecture.

3.4.16.5. **Thesaurus for Graphic Materials (TGM)**¹¹³ is offered by the US library of Congress as a tool for indexing visual materials by subject and by genre/format. The TGM includes more than 7,000 subject terms and 650 genre/format terms to index types of photographs, prints, design drawings, ephemera and other pictures.¹¹⁴

3.4.16.6. **Iconclass**¹¹⁵ is a subject-specific library classification system with a hierarchically ordered collection of definitions of objects, people, events and abstract ideas that serve as the subject of an image. The system was developed in the Netherlands and used by art historians, researchers and curators to describe, classify and examine the subject of images represented in various media.

The alphabetical index component of the system can be viewed as a terminology guide. It includes 14,000 keywords used for locating the notation and its textual correlate needed to describe and/or index an image. The index supports the classification system with 28,000 hierarchically ordered definitions divided into ten main divisions and used to index, catalogue and describe the subjects of images represented in works of art, reproductions, photographs and other sources. In addition, the system includes a bibliography component with 40,000 references to books and articles of iconographical interest.

3.4.16.7. **CIDOC Conceptual Reference Model (CRM)**¹¹⁶ is an object-oriented ontology for the mediation and interchange of heterogeneous cultural heritage information and an international standard (ISO 21127:2006).¹¹⁷ Ontology is a formal representation of a set of concepts within a domain and the relationships between those concepts. Ontologies are the main kind of resource used for the Semantic Web or Knowledge management as a knowledge representation. The concepts are linked together by hierarchical relationships in one hand and semantic relationships in another hand.¹¹⁸

In other words, CIDOC CRM describes in a formal language the explicit and implicit concepts and relations relevant to the documentation of cultural heritage. The aim of CIDOC CRM is to serve as a basis for

¹¹³ See at <http://www.loc.gov/rr/print/tgm1/>

¹¹⁴ The TGM can be downloaded at <http://www.loc.gov/rr/print/tgm1/downloadtgm1.html>

¹¹⁵ See at <http://www.iconclass.nl/>

¹¹⁶ See at <http://cidoc.ics.forth.gr/>

¹¹⁷ See at

http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=34424

¹¹⁸ Leroi, M.V Holland, J. (2009) ATHENA report on Identification of Existing Terminology Resources in Museums. eContentplus. www.athenaeurope.org/getFile.php?id=398

mediation of cultural heritage information and provide the semantic link required for transforming disparate, localized information sources into a coherent and valuable global resource.¹¹⁹

3.4.16.8. The above terminology tools offer both opportunity and limitation to a digital library for the arts, design and architecture in Israel. The opportunity lies in the possibility of using the ready-made tools as they are or translating them in to Hebrew or any other chosen language. The limitations of the tools lie in their lack of proficiency in Israeli visual culture. For that reason, local Israeli terminology tools with relevance to visual culture content were reviewed.

3.4.16.9. **IMAGINE Thesaurus**¹²⁰ is by far the most advanced and relevant terminology tool, focused mainly on Jewish material culture. The thesaurus was developed by the Israel Museum, Jerusalem, with standards garnered from the VRA and the AAT. The thesaurus is hierarchal, bilingual and bidirectional with integrated images and contains over 50,000 edited terms.

The Israel Museum uses the lexicon for three main functions: to unify terminology in its database system, to enable efficient searches and to aid in the translation of data. At present, the thesaurus is available in Hebrew and English. Arabic, Russian and other languages are planned to be translated as well. The thesaurus includes 10 tables and 35 sub-tables. The sub-tables build the hierarchical element of the thesaurus and synonyms function as alternate terms.

A nationwide project to share the IMAGINE thesaurus with the 54 museums of Israel is supported by the Department of Museums of the Ministry of Education.

3.4.16.10. **Jerusalem Virtual Library**¹²¹ of the Academic Database on Historic Jerusalem is a monolingual search engine, trilingual web site, image capable, hierarchical thesaurus with tree browsing ability and Online accessible. The virtual library has an advanced thesaurus data retrieval mechanism that equates one word to many. In addition, it has a unique index of keywords set up in a tree format. The terms vocabulary has monolingual control (English), yet the website titles are trilingual (Arabic, Hebrew, English).

3.4.16.11. **Jerusalem Index of Jewish Art**¹²² is a thesaurus created and managed by the Centre for Jewish Art at the Hebrew University of Jerusalem. The index is composed enables archival descriptions in fields of ancient and modern Jewish art, ritual objects, illuminated manuscripts and ritual

¹¹⁹ Crofts, N. Doerr, M. Gill, T. Stead, S. and Stiff, M. (2006) Definition of the CIDOC Conceptual Reference Model. ICOM/CIDOC CRM Special Interest Group.

http://cidoc.ics.forth.gr/docs/cidoc_crm_version_4.2.1.pdf

¹²⁰ See at <http://www.imj.org.il/Imagine/collections/aboutImagine.html>

¹²¹ See at <http://www.jerusalem-library.org/>

¹²² See at http://cja.huji.ac.il/home_page.html

architecture. The estimated size of the thesaurus is less than 5000 keywords.¹²³

3.4.16.12. **Israeli National Library Name Authority File (NNL10)**¹²⁴ currently contains about 267,000 name authority records for persons, corporate bodies and uniform title headings. It does not contain records for series or subject headings. Records are in four scripts: Latin (approx. 179,000 records), Hebrew (66,000 records), Arabic (10,000 records) and Cyrillic (12,000 records). Many of the records were initially created in pre-MARC format, often in upper case. Automated conversions and upgrades over the years have improved this data greatly, but not all records have been individually checked for coding accuracy.

3.4.17. Discussing the local terminology tools brings up the important question of database language. An early research assumption regarding English as the cataloguing language has turned out more complicated from the literature review.

3.4.18. Kupietzky¹²⁵ points out that the popular idea during the last decade, that the world would adapt one language for all computer programs (English being the first candidate), has not proven accurate. It is increasingly evident that regardless of users' abilities in English as a second language, they will still prefer to operate within their native language if the opportunity is available.¹²⁶

In fact, in some cases globalization has taken the form of bilingual databases. American museums, for example, aim for databases that can support both Spanish and English, Canadian museums call for French and English, and Israeli Museums require Hebrew and English.

3.4.19. Creating a bilingual database means accepting information in two parallel columns that relate one to the other. The bilingual database system should support both a primary and secondary language simultaneously, enabling entries and searches in either language.

3.4.20. This realization has several implications on future work regarding the digital library. A more advanced analysis is required to assess the various possibilities (e.g. collaboration with IMAGINE), their costs and consequences. Investing in a bilingual system and thesaurus may save much time, effort and funds in the long run and increase the relevance of the digital library to both local and international users.

¹²³ Kupietzky, A. (2006) March 2006 Update Thesauri and Multilingualism WP3 Minerva Israel. <http://filelibrary.unitedapps.com/1/file1048.pdf>

¹²⁴ MALMAD - Israel Centre for Digital Information Services. <http://libnet.ac.il/~libnet/z39.htm>

¹²⁵ Kupietzky, A. (2007) Step 2: Choosing a database system. Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process. (p.25) Englewood, Colorado: Libraries Unlimited

¹²⁶ Marlow, J. et al., (2007) Multilingual Needs of Cultural Heritage Web Site Visitors: A Case Study of Tate Online. International Cultural Heritage Informatics Meeting (ICHIM07): Proceedings, J. Trant and D. Bearman (eds). Toronto: Archives & Museum Informatics. <http://www.archimuse.com/ichim07/papers/marlow/marlow.html>

3.4.21. If the bilingual option is not be feasible, it would be advisable to consider employing staff with proficient knowledge of English or whatever language is chosen. De Groat¹²⁷ suggests considering using translation tools such as Google Translate or Babel Fish in small projects to add a translation to existing data (while marking it as automated translation). De Groat claims that even though the data would not come out completely accurate, the gain is bigger than the loss. For larger batches however, a tailored solution would be necessary.

¹²⁷ De Groat, G. (2009) Future Directions in Metadata Remediation for Metadata Aggregators. <http://www.diglib.org/pubs/dlfpubs.htm>

3.5. FUTURE LEADS

3.5.1. Web 2.0 and Social Tagging

3.5.1.1. Beyond the straightforward standards of cataloguing, considerable attention should be given to the new possibilities created by new technology and social change. In that sense, the glossary at the end of "Introduction to Metadata"¹²⁸ offers a number of definitions that contribute considerably to the understanding of the near future of cataloguing:

- **Web 2.0**

A phrase used loosely by the Web development community to refer to a perceived second generation of Web technologies and applications. Wikis, folksonomies, gaming, podcasting, blogging, and so on, are all considered Web 2.0 applications.

- **Tagging**

In the context of the Web, the act of associating terms (called tags) with an information object (e.g., a Web page, an image, a streaming video clip), thus describing the item and enabling keyword-based classification and retrieval. Tags—a form of user-generated metadata—from communities of users can be aggregated and analyzed, providing useful information about the collection of objects with which the tags have been associated.

- **Social Tagging**

The decentralized practice and method by which individuals and groups create, manage, and share terms, names, and so on (called tags), to annotate and categorize digital resources in an online "social" environment. A folksonomy is the result of social tagging. Also referred to as collaborative tagging, social classification, social indexing, mob indexing, folk categorization.

- **Folksonomy**

An assemblage of concepts, represented by terms and names (called *tags*), the result of social tagging. Note that a folksonomy is not a true taxonomy.

3.5.1.2. The synthesis of these terms expresses a new rising force in cataloguing information - the users themselves. By various technical means databases are finding new ways to incorporate information provided by users for two reasons. The first reason is aggregating the users' acquired knowledge for improvement of the database (by contribution and critique). The second reason is creating an emotional affiliation to the database by personal involvement.

¹²⁸ Baca, M. (2008). Introduction to Metadata: Revised Edition (Revised ed.). Los Angeles: Getty Publications.
http://www.getty.edu/research/conducting_research/standards/intrometadata/index.html

- 3.5.1.3. By using a crowd of users (hence *crowdsourcing*) as opposed to certified professionals, the ability to control and validate the information lessens. The ability to add a tag often is not limited to a controlled list or vocabulary, and users add tags according to personal associations beyond strict descriptive value.
- 3.5.1.4. The importance of addressing web 2.0 and associated issues was clear from the very early stages of the research and mentioned at all discussions, interviews and workshops. Beside librarians, an overwhelming positive response was voiced by all interviewees and workshop participants to the involvement of users in the tagging of information. The concerns brought up by the opposing voices regarded the ability to validate the information provided by users. These concerns were dismissed in all discussions by suggestions for technical and visual solutions that create a clear differentiation between information provided by digital library experts and users. At both professional workshops (art and architecture) the participants supported use of tags, picture annotations and viewer comments because they were perceived as an additional layer of relevant information. This layer however is not meant to replace professional cataloguing which was demanded as the core of provided data.
- 3.5.1.5. Successful examples for use of tagging can be found at websites such as "flickr"¹²⁹ where users can tag and add annotations to photographs. The Library of Congress has created their own space within flicker and has uploaded several thousands of its 14 million pictures, alongside their institutional website. At Flickr, the Library of Congress welcomes the public's contribution of names, descriptions, locations, tags, and also their general reactions, as assistance in identifying the images when the information regarding the images is limited.¹³⁰ In "LibraryThing"¹³¹ where users can add descriptive keywords to books (such as angst to "The Catcher in the Rye").¹³²
- 3.5.1.6. Google has implemented use of crowdsourcing for improving metadata in the "Google Image Labeler"¹³³, a feature of Google Search that pairs two anonymous users to a game in which they label images and help improve the quality of Google's image search results. The players view the same set of images while providing as many labels as possible to describe each image. Points are granted when a player's label matches the partner's label, and the number of points depends on how specific

¹²⁹ See at <http://www.flickr.com>

¹³⁰ Hazan, S. (2010) When is a library NOT a library? Digital Library Futures, (p. 14), IFLA Publications Series of K.G. Saur Verlag, Munich. <http://www.musesphere.com/images/IFLA-when-is-a-library-not-a-library.pdf>

¹³¹ See at <http://www.librarything.com/>

¹³² Smith, G. (2008) Tagging: People Powered Metadata for the Social Web (Voices That Matter). Berkeley, CA: New Riders Press.

¹³³ See at <http://images.google.com/imagelabeler/>

the label is. The random assignment of users and their inability to communicate while playing is a form of verification that the words ascribed by both users to the picture are relevant descriptions of it.

3.5.1.7. *Relevance Feedback* is another form of user contribution, when a user responds with relevant/not relevant response to a search result, thus refining the results.

3.5.1.8. The form in which these ideas of social tagging and user involvement can be implemented should be further discussed as the project evolves. Yet in order to fulfil the potential of user contribution to the metadata of an object, these issues must be discussed while the database architecture is still taking shape, rather than wait for later stages of web design.

3.5.2. Content Based Image Retrieval

3.5.2.1. CBIR (Content Based Image Retrieval) or QBIC (query by image content) or CBVIR (content-based visual information retrieval) uses visual content-based search rather than keyword indexing. The image is retrieved using inherent characteristics of the image such as colour, texture or shape. For example, a tan or brown coloured oval shape can be recognized as a human face.¹³⁴ The technology used for CBIR originates from fields such as statistics, pattern recognition, signal processing, and computer vision.

3.5.2.2. Current CBIR systems generally make use of lower-level features like texture, color, and shape. Some systems, such as implemented in Google's Picasa¹³⁵ face-matching technology take advantage of very common higher-level features like faces. Google's Goggles¹³⁶ enable online image analysis for recognizing books, artwork, landmark and more. Some CBIR systems are designed for a specific domain, such as certain kinds of medical diagnosis.

3.5.2.3. As technology helps organize digital picture archives by their visual content, much attention should be given to the great potential in automatically adding an additional, non textual metadata layer. This layer will not only save cataloguing time and effort but also offer links invisible to the human eye (via image analysis). CBIR can also contribute considerably to the user experience as discussed below.¹³⁷

¹³⁴ Datta, R. Joshi, D. Li, J. and Wang, J.Z. (2008) "Image Retrieval: Ideas, Influences, and Trends of the New Age," *ACM Computing Surveys*, vol. 40, no. 2, article 5, pp.1-60.

¹³⁵ See at <http://picasa.google.com/support/bin/answer.py?hl=en&answer=156272>

¹³⁶ See at <http://www.google.com/mobile/goggles/#landmark>

¹³⁷ See paragraph 3.7

3.6. INTELLECTUAL PROPERTY RIGHTS (IPR)

- 3.6.1. The scope of the current report was not meant to address legal and rights issues involved in digital libraries. However, the issue of IPR and copyrights was found to be linked to the other issues and the importance of proper management of copyrights cannot be overstated. Beyond protection measures, copyrights management via cataloguing can inform users of the usage rights, enable specific searches, prevent mistakes and so reduce legal work.
- 3.6.2. The following section will provide a general background to the discussion. Towards an establishment of a digital library, a full review and analysis a comprehensive research and legal advisory will be required.
- 3.6.3. Intellectual Property refers to a list of types of legal control over human creations such as music or artwork and contains types such as copyrights, patents and trade marks. A copyright is the exclusive right of creators with regard to the use of their original works and includes the right to control the reproduction, copy, display, performance and any other use of a work.¹³⁸
- 3.6.4. For the work of an online digital library, IPR poses two major concerns. The first is establishing copyright and the second is securing it.
- 3.6.5. Establishing copyright.
- 3.6.5.1. This stage requires clearing the ownership of rights to make digital copies, securing the rights to the material and figuring out the costs of doing so. This factor should be taken in to account in the selection process, and must be considered from the planning stage onwards.
- 3.6.5.2. Licensing schemes exist to support proper use of Intellectual property. The ATHENA Report on Existing Standards Applied by European Museums¹³⁹ found that many of organization surveyed were aware of such schemes, especially Creative Commons, yet did not use them in significant numbers.
- 3.6.5.3. Beyond the use of international licensing schemes, local legislation should be reviewed for specific implications as Creating a digital surrogate can be viewed by different legal systems as either an act of archiving process, an act of copying or an act of creating new content.
- 3.6.5.4. Once a scheme is chosen, effective part of establishing copyrights is recording and managing them with use of metadata. Although many institutes do not use their cataloguing system for copyright management,

¹³⁸ Kupietzky, A. (2007) Publication and Copyrights. Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process. (p.88) Englewood, Colorado: Libraries Unlimited.

¹³⁹ McKenna, G. De Loof C. (2009[a]) ATHENA Report on existing standards applied by European museums. eContentplus. www.ATHENAeurope.org/getFile.php?id=396

many guidelines recommend doing so.¹⁴⁰ Rights metadata has the distinction of being the only legally enforceable type of metadata.

3.6.5.5. Many metadata schemes have designated elements for legal information. If a scheme lacking these is used, external scheme or a locally defined element set should added.

3.6.5.6. Rights metadata is a rapidly evolving area and should include data regarding whether the resource is published or unpublished, and whether the creator or rights holder is known. Contact information for rights holders is useful as well but rather as index information not to be published online. If this information is the same for all the materials in a collection, documenting it in collection level metadata is adequate. Otherwise, it should be recorded at the object level.

3.6.5.7. An example for useful application of IPR information as metadata can be found at aggregation initiative to which data is collected. The ATHENA Report on Existing Standards Applied by European Museums¹⁴¹ that many institutes encountered problems related to having part of the content in their collection lacking intellectual property rights. Organizations would have to negotiate permissions and licenses in order to contribute such material to Europeana. Separating such content can be easily done if the data is marked appropriately.

3.6.6. Securing copyright.

3.6.6.1. This stage requires deciding what rights to the digitized images are intended to be imposes and in with what tools. These decisions should be made in the planning stage and can affect web design. For instance, Income generated from high resolution copies as apposed to free viewing of low resolution can be a factor with policy makers and funding bodies.¹⁴²

3.6.6.2. Providing online access to works can be viewed as an open invitation to make copies and use the content. For that reason, many institutes implement precaution steps for the prevention of misuse of the provided content.¹⁴³ For that reason. The user should be informed how to obtain permission for restricted uses and how to cite the material for allowed uses, preferably with the presented metadata.

3.6.6.3. The main tools and strategies for securing copyrights include:

¹⁴⁰ For example Calimera (2005[c]), Baca (2008). NISO (2007)

¹⁴¹ McKenna, G. De Loof C. (2009[a]) [ATHENA Report on existing standards applied by European museums](http://www.ATHENAeurope.org/getFile.php?id=396). eContentplus.
www.ATHENAeurope.org/getFile.php?id=396

¹⁴² NISO National Information Standards Organization (2007) Metadata Principle 4, [A Framework of Guidance for Building Good Digital Collections](http://framework.niso.org/node/27), 3rd edition, NISO Press.
<http://framework.niso.org/node/27>

¹⁴³ Kupietzky, A. (2007) Publication and Copyrights. [Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process](#). (p.88) Englewood, Colorado: Libraries Unlimited.

- Enabling access to low resolution images that enable viewing the image on the screen but not using it for print. McKenna and De Loof¹⁴⁴ recommend resolution of 150-200 dpi for that matter.¹⁴⁵
- Using visible and digital watermarks that clearly inform the user of the copyright ownership and makes reuse complicated.¹⁴⁶
- Enabling sample-only access to video and audio recordings.
- Preventing download with specific software or web design.¹⁴⁷
- Restriction of display to registered authorized users.

3.6.6.4. All these methods have pros and cons and must be considered in relation to the aims and objectives of the project and the institution. According to the ATHENA report¹⁴⁸, the most commonly used tools by museums are low resolution images and watermarks. In cases where copyright issues were not fully resolved, museums reported using workaround solutions such as restricting the quality of images to thumbnails or selling of publishable quality images and passing fees to copyright holders.

3.6.6.5. In addition, organizations may wish to encourage the re-use of their content, for educational purposes. This can be achieved by the use of a Creative Commons license¹⁴⁹ which explicitly state the ways in which digital items may be re-used.

¹⁴⁴ McKenna, G. De Loof C. (2009[b]) ATHENA Recommendations and best practice report regarding the application of standards, including recommendations for a harvesting format and fact sheets for dissemination.(p.6) eContentplus. www.ATHENAeurope.org/getFile.php?id=538

¹⁴⁵ See paragraph 3.3.5.1

¹⁴⁶ Many commercial stockphoto websites use this option. For examples see www.gettyimages.com

¹⁴⁷ See for example at the National Gallery - <http://nationalgallery.org.uk/paintings/edouard-vuillard-madame-andre-wormser-and-her-children>

¹⁴⁸ McKenna, G. De Loof C. (2009[a]) ATHENA Report on existing standards applied by European museums. eContentplus.

www.ATHENAeurope.org/getFile.php?id=396

¹⁴⁹ See at <http://creativecommons.org.il/>

3.7. USER INTERFACE

3.7.1. At the national workshop, Dr. Sorin Hemon¹⁵⁰ of the Cyprus Institute raised an important question regarding the justification of the efforts and resources invested in digital libraries, both at a national and international level. The philosophical aspects of the thus question cannot be addressed currently, yet there is a practical aspect to it. An online accessible digital library differs from a physical or non accessible digital collection by offering easy and open access to content for users online. At the first stage, what matters is not the benefit the users make of content but use of it in it self. Without arriving to the website, staying at it and returning to it, the initial justification for creating the database diminishes. *Gallica* project exemplified this Idea. The project was launched in 1997 and had become a success by 2004 when the number of document searches exceeded one million per month¹⁵¹.

3.7.2. For that reason, the success of the database may depend greatly on the quality of digitisation and cataloguing, but may just as well rely on the offered user interface. This notion becomes specifically relevant, as many of our interviewees mentioned, when a large part of the consuming users are themselves creators in the visual realm. Whether designers, artists, architects, or any other users, looking for visual information arrive at the database, the interface should cater to their needs of obtaining visual information in an appropriate manner.

3.7.3. Basic recommendations for web design often stress the importance of issues such as ease of navigation, inclusive and accessible design, multilingual command and content. Further ideas that emerged from the interviews, workshops and throughout the course of research can be divided into three prominent concepts, or -

Prominent P's: Presentation, Personalization, Participation.

3.7.3.1. Presentation

This concept comprises ideas of information visualization. In spite of the aspiration to implement high standards of digitization, less impressive visual information can receive a boost by creating a clever interface and using visual content presentation tool. For example, the British History Online¹⁵² website enables easy navigation on a detailed yet understandable time line. An interesting IBM project Eternal Egypt¹⁵³ enables navigation in a virtual exhibition by numerous ways such as connection maps, topics or sites. The items are presented using 3D views,

¹⁵⁰ Hermon, S. (6.9.2009) Digital Libraries in the Digital Era: A Challenging Venue For Information Sharing. Presented at the "Hybrid Heritage: Towards sharing cultural knowledge" National Workshop. Bezalel Academy of Art and Design, Jerusalem

¹⁵¹ See http://www.bnf.fr/en/professionals/a.gallica_digital_library_charter.html

¹⁵² See at <http://www.british-history.ac.uk/period.aspx?tme=8>

¹⁵³ See at

http://www.eternalegypt.org/EternalEgyptWebsiteWeb/HomeServlet?ee_website_action_key=action.display.home&language_id=1

Virtual environments, animations, zoomable images and 360 degree views. An additional useful resource for understanding user requirement in the world of design can be found at commercial websites that are used by visual content consumers. Interesting examples can be found at NotCot¹⁵⁴ and Muji rhythm¹⁵⁵ websites.

3.7.3.2. Personalization

This concept comprises ideas of addressing the specific needs of a user. Several strategies can be implemented; tailoring a few different routs and formats for different kinds of users (e.g. researchers, browsers, students) or enabling the user to open an account in which settings can be changes and items saved at a personal collection. Using personalization will enable exposing the user to content based on personal preferences and can also become an educational tool. The British Creative Spaces¹⁵⁶ website is connected to nine UK national museums and galleries, allowing the user to explore and comment on collections, upload own content, and build and share collections.

3.7.3.3. Participation

This concept comprises ideas of interaction and user involvement. The user is invited to participate in a variety of activities promoting experiences with educational, creative or even social value. Offering activities can enhance the user experience and enable new ways of using the database. The British Victoria and Albert Museum¹⁵⁷ offers a list full of activities related to present and past exhibits such as designing tiles inspired by William De Morgan or creating a textile pattern. The Dutch Rijksmuseum offers many Webspecials.¹⁵⁸ An interesting recent addition to this list is a Rijkswidget¹⁵⁹ – an iPhone application that enables users to view different painting from the Rijksmuseum's 1000 masterpieces every day. The application enables the user to rotate or zoom in on the image.

3.7.4. An additional aspect of the user interface demanding attention is the growing use of social networks by users and the time they spend at the network hubs. For that reason, Dr. Susan Hazan¹⁶⁰ recommends that cultural institutions try to seamlessly interface into these spaces in order for their content to be delivered to users in those sites where today's users are at home and active.

3.7.5. The scope of the current report did enable thorough investigation of the user interface topic. Further research will be required in order to fully understand

¹⁵⁴ See at <http://www.notcot.org/>

¹⁵⁵ See at <http://www.muji.com/rhythm/>

¹⁵⁶ See at <http://bm.nmolph.org/creativespaces/>

¹⁵⁷ See at http://www.vam.ac.uk/collections/periods_styles/todoonline/index.html

¹⁵⁸ See at <http://www.rijksmuseum.nl/webspecials?lang=en>

¹⁵⁹ See at <http://www.rijksmuseum.nl/widget?lang=en>

¹⁶⁰ Hazan, S. (2010) When is a library NOT a library? *Digital Library Futures*, (p.1), IFLA Publications Series of K.G. Saur Verlag, Munich. <http://www.musesphere.com/images/IFLA-when-is-a-library-not-a-library.pdf>

the role of user interface in creating a digital library and to allocate the appropriate attention and resources.

3.8. CURATORIAL DECISIONS AND CONTENT CONTRIBUTION

At the professional workshops, both the art and design groups were presented with a question regarding the curatorial decisions required at a digital library. The participants offered different views ranging from a single professional curator or a national committee to an open upload service for any user.

An interesting discussion in both workshops regarded the issue of chronological prioritization. In the art workshop a discussion regarding the starting point of the digitization divided the speakers into those who suggested the starting point of digitization to the chronological beginning and those who suggested to decide on the present as the starting point from which digitization will move back according to educated prioritization.

At the design workshop participants agreed with Professor Yaakov Kaufman's remark that the timing of initiating a digital library of industrial design is successful since it's local history has not begun long ago and will not offer enormous amounts of items due to the lack of preservation and documentation until recent years.

The various proposals have their merits and demerits. As the projects proceeds, the issue of curatorial decisions will require further attention as it will considerably affect the project's management, database and processes.

3.9. MANAGING WORKFLOW AND PROCESSES AT THE DIGITAL LIBRARY

As any large scale project, a digital library will require consideration and constant adaptations of the workflow, processes and strategies. The complex steps of curatorial decisions, digitization, cataloguing, interface design, maintenance and new initiatives should be planned with consideration of the grand scheme, as all processes are entwined. Lack of planning will result in limitations that otherwise could have been prevented.

Knowledge of this matter exists in other digital libraries and museums. Joining a network of specialist and attending professional workshops and conferences will not enable the digital library to maintain its relevance and technical aptness but become a professional advisory centre, leading other local initiatives.

4. PILOT STUDIES

4.1. The Hechal Shlomo Jewish Art Museum (HSJAM) Judaica and Industrial Design Archiving Pilot Study

A case study of the similar and dissimilar elements in the archiving of Judaica items from the HSJAM and the archiving of Industrial Design items.

Head Researcher: Rae'ut Stern

4.1.1. Background

4.1.1.1. Archiving in the field of Industrial design is underdeveloped both in Israel and internationally. The few examples that were found in our initial survey either lacked basic elements or were created towards objectives that were irrelevant to the current study. Due to the absence of available and relevant local examples from which the pilot study could learn, it was presumed that archival work done in other fields that have similar attributes could function as an example for the specific needs of digitization and archiving of three dimensional, functional, commercially manufactured items.

4.1.1.2. Design and manufacture of products has existed in Israel for many decades yet few collections focus on this field. Many of the items that have historic and creative meaning are privately owned by individuals and are not part of a collection. There are some semi-public/private collections concentrating on product industries as furniture and ceramics.

4.1.1.3. For these reasons the industrial design pilot study chose to examine the digitization and archiving of a collection from a similar field according to an existing method. This method is then compared to the needs of the field of industrial design and the conclusions enable altering the existing method to suit the needs of collection with similar attributes.

4.1.1.4. The field elected for this process was Judaica.¹⁶¹ The term Judaica in Hebrew refers to the artifacts used in the Jewish ceremonial life. As such, these items were designed to function in the daily rounds of Jewish life and were made as three dimensional products with a wide range of materials and techniques. The collection and research of Judaica is widespread and experience in the digitization and archiving of item has accumulated in various collections. While sharing various attributes with products of industrial design, for example functionality, and three dimensional features. Judaica can assist in illuminating the needs of digitization and archiving in the field of Industrial design.

4.1.2. The Hechal Shlomo Jewish Art Museum (HSJAM) Judaica collection

4.1.2.1. The HSJAM is part of the Jewish Heritage Centre adjacent to the

¹⁶¹ The Bezalel School founded in 1906 developed in its early years' crafts including Judaica. The works have been recognized world wide and the collection assembled during the first half of the twentieth century became one of the basic components of the new Israel Museum as opened in 1965.

Jerusalem Great Synagogue. The Judaica collection of the HSJAM includes a wide variety of objects that range from unique archaeological objects and fine art to mundane items and original documents as well as distinctive religious artifacts. The items in the collection were made or used in Jewish communities around the globe and represent the rich and versatile history and heritage of those communities.

4.1.2.2. The objects in the collection have been gathered during the past fifty years. In the 1960's a method was created to catalogue the items using library cards and textual image descriptions. This method was maintained many years and an attempt to digitize the items for collection management is planned to take place in 2010. Currently the collection has over 6000 items out of which 5300 are catalogued in the above manner. As for digitization, since 2003, the entire collection was photographed for internal use by Mr. Shlomo Kashtan, an employee with relevant technical training. The items were photographed digitally in high resolution and in basic studio positioning and lighting. This resulted in over 10,000 images categorized only by topic and stored on about 15 CDs that are backed up on another set of CDs. Neither the catalogue nor the images are currently available to the public due to lack of funding and personnel.

4.1.3. Objectives

4.1.3.1. The pilot study aimed to derive knowledge of digitization and archiving in the field of Industrial Design based on the existing knowledge and experience of Judaica collections. In order to ensure that the pilot study would enable not only comparison but develop experience in cataloguing and digitization as well, the collection chosen hasn't undergone a process of cataloguing and so a sample of works was catalogued as part of the pilot. The sample consisted of 40 items relevant to scope of the suggested national archive, having been either produced in Israel in the past century or with great relevance to the field of industrial design.

4.1.4. Method and Process

4.1.4.1. In concurrence with the pilot study guidelines, a seven-stage research process was planned and implemented.

4.1.4.2. These stages included:

- Gaining a thorough acquaintance with the HSJAM collection and personnel. Required information at this stage included classification of content, assessment of physical status of items, legal status and future plans. Special emphasis was given to those objects which relate to Israel by design or place.
- Identification of mutual benefits by defining objectives and resources available to each party. This stage was meant to deepen the understanding of the relevance of a national archive and the gaps that it can or should fill.

- Research and analysis of similar collections and historical references. The HSJAM is a large and important collection, yet other Judaica collections have accumulated experience that can contribute to the research by means of comparison. The categorization process developed in the *Centre of Jewish Art at the Hebrew University* and the digitization of the *Continuity and Change* exhibit were both used as models for comparison, and will be integrated in further collaborative research.
- Search for new and innovative modes of digitization and representation by use of technology.
- Definition of modes of implementation and specific parts of collection to be digitized based on the knowledge gathered until this stage. The selection of items to undergo this stage is focused on objects that are relevant to the scope of the national archive yet introduce a wide variety of objects, materials and techniques.
- Simultaneous implementation and scrutiny. At this stage, the items were analyzed with great emphasis on photography definitions and technological innovation.
- Analysis of the data towards conclusions and actionable recommendation.

4.1.4.3. After these stages were completed, a professional workshop was arranged to present and discuss the complex issues the process has brought up.¹⁶²

4.1.5. Findings

The experience gained from the collaboration with HSJAM focused on two themes that were decided upon as important for early stages of creating a digital library, and were not represented in the other two pilot studies – digitization and cataloguing.

4.1.5.1. Digitization

4.1.5.1.1. The HSJAM, as many other mid sized and small collections in Israel, is on the verge of digitization, with the will and reasons to do so, yet without the proper funds and infrastructure. For collection management purposes, the entire collection was photographed during 2003 for internal use by an employee with relevant technical training, Mr. Shlomo Kashtan. These photographs were taken making the most out of the circumstances of an improvised set built in the museum. Most items are photographed from a few viewpoints, and images of interesting detail were taken as well. Further technical information regarding the process was not available.

4.1.5.1.2. These photographs were taken mostly for collection management

¹⁶² See paragraph 2.4.2.2

and identification, taken into consideration that if necessary, the items are available for reshooting. A digital library will not have that privilege and will require each photograph to be taken in the best possible standards – both technical and visual. The technical aspects were discussed above¹⁶³ and conclude in certain recommendations. The in-house, low budget digitisation of the HSJAM collection provided materials for analysis and scrutiny of the visual aspects of photographing 3D artifacts. The content provided a list of categories in which comparison was made to other collections of Judaica photographs.

4.1.5.1.3. The two other collections from which photographs were used were the Continuity and Change exhibit catalogue¹⁶⁴ and the 2005-2009 student works collection of the Bezalel archive. Although both collections are connected to Bezalel, the Continuity and Change photographs were taken for publicity purposes where as the student collection photographs were taken for archive purposes several years after the exhibit catalogue.

4.1.5.1.4. Following is a list of items for consideration that emerged from the photographs reviewed. Many of the items will not be new to professional photographers. However, as found in the research, professional photographers that work for Israeli collections often do not work according to archival photography guidelines of any sort and the results vary from one another. Because there is only one opportunity for photographing an item, it is important to make the most of that opportunity.

▪ **Controlled Background**

A good background can affect the image by eliminating any distraction from the image itself and enabling easy reuse of the image. For that reason, using equipment such as backdrops can prevent distracting lines and shadows. The use of post-production image editing software enables further changes to the background yet should not be relied upon.

Using a solid colour (black, white or grey) rather than a pattern will enable quick and easy post-production changes. However, using a white drop as opposed to a dark colour can result in different light reflection on the object as well as affect the ease of separating the object from the background both for the viewer and editing software.

For that reason and for presentation uniformity it is advisable to make sure that all photographs are taken with at least one

¹⁶³ See section 3.3

¹⁶⁴ Ben Sasson, M (1999) Continuity and Change: 92 years of Judaica at Bezalel. Jerusalem: Bezalel Academy of Art and Design.

permanently predetermined background and the additional backgrounds can be determined according to the item itself.

Specific kinds of objects may require tailor fit solutions. For example, Ms. Ariella Amar¹⁶⁵ of the Centre of Jewish Art at the Hebrew University shared from her experience with Judaica ritual objects that objects made of silver are best photographed with a blue background.



Michael filmus, Kiddush Cup, 1940's



Uri Reshef, Kiddush Cup, 1997

In any case, when purchasing backdrop equipment, portability is an advantage.

▪ **Lighting**

Poor lighting can result in loss of data or distortion. Therefore, lighting should be determined by a professionally trained photographer. Specific details or reflecting items such as coins often require special lighting schemes for obtaining best result. Tutorials can be found online. When conducting a field digitization assignment it is advisable to update the photographer in advance of types of objects are to be documented in order to prearrange required settings.

▪ **Single Items and Sets**

Many items that can be used as single items are also part of a set. Photographing each separate item is required for detailed documentation and flexible presentation, however joining the items for a shared photograph can help understand the items connection and relative properties.

▪ **Significant Details**

¹⁶⁵ Ms. Ariella Amar (M.A.) Head of the department for synagogues and ceremonial art at the Centre for Jewish Art of the Hebrew University was interviewed August 3rd, 2009

When documenting items that have intricate details, zooming in to the detail will provide more information for the viewer. If the items are shown at the discovery environment with thumbnails, the detail will not be overlooked.

▪ **Artistic Interpretation**

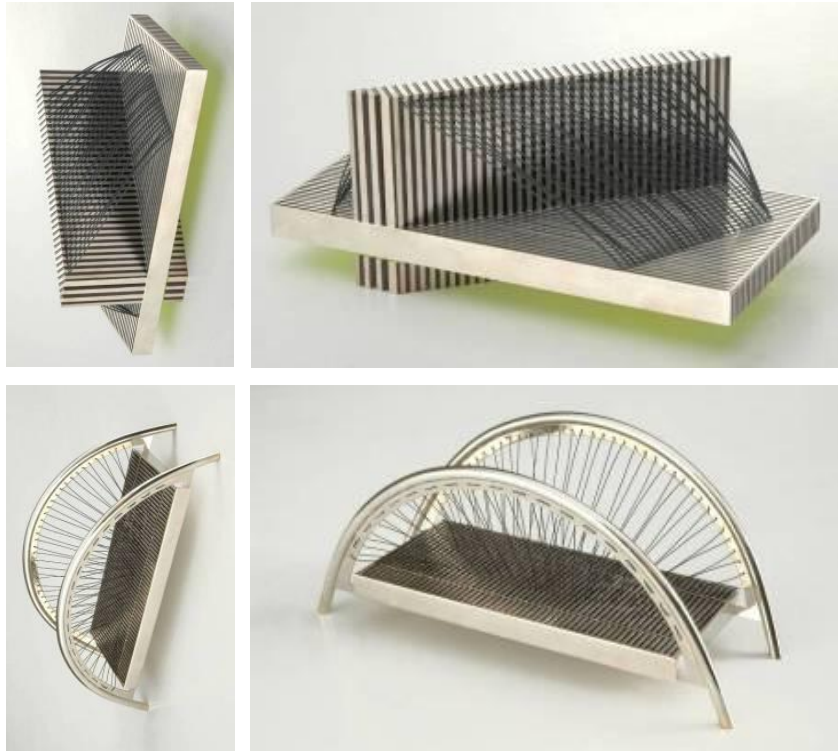
Objectivity may not be a truly achievable in any case and especially not in a digital surrogate. However, aspiring to eliminate distortion of any kind can be a basic value in documentation. For that reason, consideration should be given to the added value the photographer may add at certain occasions. For example, the composition and lighting of the basket in the following image emphasizes the shadow created by the design of the basket. If this shadow was not intended by the creator as a detail of his creation, then the emphasis can be regarded as an artistic interpretation of the documenter and an addition of exterior information to the object.



Nimrod Vardi, Tene Basket, 2008

Pointing out this issue is not meant as critique but rather as an issue to consider. Positive outcomes of such interpretation should be noted as well. As the photographer can be compared to a witness or a representative of the future user, his interpretations can shed a light on aspects that will not be visible to a user viewing an image. The shadow of the bowl may not be inferred without the emphasis of the photographer.

Another example can be viewed in the next image where the Mezuzah ritual objects that were made to be hung on a doorway are photographed laying down, as emphasis of architectural values in the design.



Hadas Israel, Mezuzah, 2005

▪ Use of Props

As stated in the issue of artistic interpretation, adding information to the object should be taken into consideration. However, in some cases, adding information with a prop can clarify or emphasize aspects of object which are relevant to understanding its functionality or context. Adding the wine to the glass goblet clarifies how deep the vessel is and how it would appear when used.



Lisbeth C.B. Biger, Kiddush Cup, 1998

Viewing a wheel without the wheelchair and the sand that explain it would require reading the accompanying text to understand its functionality. Documentation in such cases will benefit from two versions – with and without the added information.



Yaron Hirsh, Wheel, 2009

▪ **Functionality**

The functionality of an object is often derived from a change in formation, from movement or from a relation to another object or material. As in the use of props, documentation will benefit from several versions – presenting the item while not used and in use.

The unity metaphor in the wedding cup that appears in the following image would not be visible without the separated version.



Bruria Avidan Hertz, Wedding Cup, 2006

If possible, or for complex items, video or sound recording should be considered as well. In the following image, a rattle can be demonstrated moving yet the sound will remain unknown.



Sivan Finkelstein, Purim Rattler, 2006

▪ **Creation process and by-products**

In the field of industrial design, as in many other creative fields, the final creation is often preceded by a development process with sketches, models and prototypes. As with early drafts by famed authors can shed a light on their work, so can by-products of designer's creative processes. Examples of such by-products were collected for the Bezalel Archive by the the group of student that created the model for the "Heart Beat Coffee Grinder"



Adi Navwany, Itamar Paluga, Michal Shamsian, Danielle Ram, Coffee Grinder, 2008

At the industrial design professional workshop Professor Yaakov Kaufman commented that in his view, one of the unique characteristics of the field of industrial design is the visual language used to developed ideas and communicate them. Communicating with this visual language is part of the professional identity of the designer and should receive proper attention. This remark was accepted with great concurrence by many participants.

▪ Curatorial bounds

Expanding the documentation of industrial design product to include interpretation, functionality, props or by-products may create a large amount of data per item. As constraints of time, staff and digital storage limit the digital library abilities, curatorial bound must be set.

The current strategy at the Bezalel Archive is *last in, first out* based on the assumption that the new digitized files that arrive have better odds of being accompanied with cataloguing information. This assumption may have some merit. However, such a generalized strategy is bound to cause considerable loss of valuable information since incoming data surpass the cataloguing staff capacities. The strategy also ignores the quality of different items and prioritizes a masterpiece alongside mundane works.

4.1.5.2. Cataloguing

4.1.5.2.1. For the cataloguing process, 40 items were chosen with the guidance of Ms. Maayan Sraya of the HSJAM. Each item included an image of the object and a paper library card. The items were then catalogued with Ms. Ziv Zfati of the Bezalel Archive in a spreadsheet that included all of the cataloguing elements used by the archive.¹⁶⁶ During the cataloguing process another group of items for consideration emerged, and is hereby presented.

4.1.5.2.2. The first apparent difficulty when dealing with the HSJAM collection, which hasn't received advanced cataloguing attention, was the state and validity of the existing metadata. At HSJAM the records were recorded for decades on library cards, by staff varying in qualifications, often without reference to the resource or identity of the cataloguer. An example of such a card appears below. As many small and midsize local collections have similar cataloguing systems, the assessment of time and resources required for handling them should take this factor into consideration as it may require additional time and expertise.

¹⁶⁶ For the list of elements used by the archive see appendix 8.7

בית נכות „מדור לדור“ היכל שלמה, ירושלים

ת א ר ו ר ה מ ו צ ג					15	
המסל	החומר	הגובה	האורך	הרוחב	המספר	הסוג
17C	25	18	28	1927	18	
סימני הייבוי ושם האומן					תאריך הוצאה 17.9.1980	תאריך הסוג
					תחנה	17.9.1980
פרטים נוספים והערות המותאמת.					מספר סדורי בפנקס המוצגים	
<p>מס' 100/88 חו"מ. גילי לוי, יבוי צללים</p> <p>קרייבו סטודיו צ'רלס סקוט ג'ו סטודיו הבתאים</p> <p>14 תמונות אחרי הצלם עם ציוריו של</p> <p>סדורי הנש"י.</p>					3171	
					תאריך הרשום בפנקס	
					מספר תעודת היבוישה	17.9.1980
					מספר	
					קביע	צילום תמונות מלב
					זמני (בעפרון)	

12.64. 2000

HSJAM Archiving Card for Rattler, 1980

4.1.5.2.3. Even if the metadata is valid and useful, often cards lack information that is easily accessible online, and may not have been at the date of cataloguing. When cataloguing entire collections, should that data be added (as it can be search by users as well), by whom should it be added (the cataloguer, a researcher) and when should it be added? This is a curatorial issue as well.

4.1.5.2.4. The element set at Bezalel archive was originally based on DCMES but had many alterations made to it throughout the years. Following is a list of questions that arose from the cataloguing process regarding the different fields.

▪ **Author/Creator**

For the field of industrial design, a creation can often be the result of efforts made by a group of collaborators including designer, design firms and manufacturers. Thought should be given to the proper element arrangement that can express this notion.

▪ **Object**

As stated earlier a digitized item within the database is a surrogate for the original. In that case, what type should the "object" element describe if the original item is a surrogate as well? When searching for a chair in the object element a scan of a newspaper advertisement for a chair will not appear as a result and will require a generalized or keyword search, making the object element redundant for that search.

▪ **Subject**

This element was used in an older system to name sub-items within an item. In the new system the item is hardly used and should be reconsidered.

▪ **Dating/Date**

This element is currently updated manually with the available information, whether month, year or decade, the equivalent dates, such as "20th century" are manually added to the key words. In addition, the field is not updated according to any international standard. The ATHENA Report on Existing Standards Applied by European Museums¹⁶⁷ found that of the institutions using a date format standard, the most commonly used format was YYYY-MM-DD (ISO 8601¹⁶⁸). Beyond using a standard, an easy and effective improvement can be the use of a closed chart of alternate terms describing the date starting from day, month, year, decade and so forth (early, mid and late century). When a term is chosen from the table, the more general terms are automatically added. That is, if the month and year are known, the unknown day of the month will not be added, yet the derived decade and century will.

▪ **Measurements**

This element describes dimensions, size, or scale of the work and may be recorded according to different criteria, depending upon the type of work being measured. At the Bezalel archive, the measurements are documented yet according to an international standard. Since measurements have great relevance to the content, a more systematic approach will enable better descriptions. An extensive guide of measuring objects can be found in the Info-Muse Network Documentation Guide.¹⁶⁹

▪ **Colour-Monochrome**

As colour based CBIR (Content Based Image Retrieval) technology is available, the use of this element becomes redundant and can be eliminated, once replaced with a proper tool that will enable more than the field can currently offer. Many of the interviewees viewed the use of CBIR as highly relevant. Ignoring such possibilities may make the digital library appear outdated and more complicated to use in comparison to other commonly used tools.

▪ **Ordered by Course**

This element was created for the internal management of the academy archive. If the future digital library should include student work from the various schools, the cataloguing can be changed to use standardized fields for documenting the school, course and

¹⁶⁷ McKenna, G. De Loof C. (2009[a]) [ATHENA Report on existing standards applied by European museums](http://www.ATHENAeurope.org/getFile.php?id=396). eContentplus.
www.ATHENAeurope.org/getFile.php?id=396

¹⁶⁸ See at

http://www.iso.org/iso/support/faqs/faqs_widely_used_standards/widely_used_standards_other/date_and_time_format.htm

¹⁶⁹ See at <http://www.musees.qc.ca/publicspec/guidesel/doccoll/en/measure/index.htm>

lecturer. Such information will enable to analyse the styles, trends, topics and materials addressed by different schools and generations, and how specific teachers have influenced their students.

▪ **Keywords**

The keyword element has recently started using a table to which additional words can be added. A terminology tool, preferably a bilingual thesaurus, would considerably improve cataloguing quality and time.

▪ **Additional field: Associations**

As textual metadata still reigns in most of digital libraries' search possibilities, much of the semantic information within a digital image does not receive attention without the active addition of text by cataloguer. Yet semantic information can often be an interpretation and therefore is not considered valid information. For example if a late 20th century painting has an image of a blond woman, wearing a white dress, blown by strong wind, the keyword "Marilyn Monroe" will not be catalogued unless the artist or researcher specifies it as related. The solution for invalidated interpretations or relational connections can be solved with user participation and social tagging. By adding an additional element of associations that is fed by user tagging' an additional more liberal layer of cataloguing can coexist. To prevent misinformation, the element can be clearly separated and defined as user created. The first tags can be created by the cataloguer and thus ensure a basis for the knowledge network exists and seems inviting to add on to.

4.1.6. General Conclusions and Recommendations

Working on the HSJAM proved enlightening in both technical aspects of digitization and cataloguing 3D artifacts, and in the type of challenges brought by working with an external collection. The conclusions and recommendations are divided into four sections: photographic recommendations, cataloguing recommendations, collaboration and visualization technologies.

4.1.6.1. Photographic Recommendations

(This list is not meant to replace or re-educate professional photographers but to emphasise certain parameters)

- **Controlled Background** – Use a professional, portable backdrop in at least one solid colour (black, white or grey) consistently and if necessary take an additional photograph with another appropriate colour.
- **Lighting** - Should be determined by a professionally trained photographer with consideration of lighting schemes for special objects.
- **Single Items and Sets** - Photograph both set and individual items.

- **Significant Details** - Items with intricate details require zooming in to the detail.
- **Artistic Interpretation** – Assess the artistic interpretation and its influence on documentation.
- **Use of Props** - Assess the need of props in order to clarify or emphasize aspects of object. Document two versions – with and without the added information.
- **Functionality** - For functional objects present the item not in use and in use. If possible use additional documentation such as video and sound.
- **Creation process and by-products** – Consider documenting the by-products of the development process (e.g. sketches, models and prototypes).
- **Curatorial bounds** - Balance constraints of time, staff and digital storage limit by curatorial strategy.

4.1.6.2. Cataloguing Recommendations

- When planning a digitization project for an external collection, consider carefully the time and effort required to decipher the information provided.
- Use expert guidance for specific fields so time and effort can focus on important themes and terminology.
- Enhance the use of terminology tools and tables
- Update and align the element set with international standards. Irrelevant fields should be eliminated or replaced
- Implement use of additional cataloguing forms such as CBIR and social tagging.

4.1.6.3. Collaboration Recommendations

Our core value of collaboration proved to be important in the industrial design pilot as well. Whomever was approached to assist, advice, collaborate or criticise the project regarded the need of open, joint-ownership project to overcome the factious political nature of the field of design. Pini Leibovich of Shenkar College of Engineering and Design remarked on that issue that a project headed by a person who can promote, on a personal level, collaboration between the institutes can have a great effect on the success of the project.

Beyond bringing the parts together, collaboration can extend even further. Mr. Elad Persov, Head of the Design Management Masters program at Bezalel, suggested involving local industry in the creation of a digital library as the history of industrial design has much to do with the history of the industry that applied it.

Although not all of the opinions presented at the workshop could be

incorporated in this report, the thoughts shared with the researchers were taken into consideration and shed light on a variety of issues. Having nearly all invited participants arrive at the workshop was a great indication of the importance of the digital library to the professional and educational community. These participants should be further consulted with as they represent a large variety of relevant users and contributors to the digital library. However, the large amount of people at the workshop prevented the in-depth discussion that was planned. Future plans should limit discussions to at most 12 people.

4.1.6.4. **Information visualization Recommendations**

Information visualization is unsurprisingly crucial to visual content consumers. Many tools and strategies can be implemented to supply a rich visual environment. For example, at the Industrial Design professional workshop Mr. Gideon Dotan, VP and Chairman of Industrial Designers at the Israel Community of Designers organization, shared his preference to experience design via video as opposed to still images. He suggested incorporating video as much as possible. Mr. Raviv Lifshitz, of the Raviv Lifshitz Design Studio shared his futuristic vision of enabling the user to exhibit information from the database as 3D home exhibit or hologram. Many possibilities of this sort exist or can be created. The ability of the digital library to remain relevant, useful and successful may rely on its ability to cater to the visual needs of visual content creators and consumers.

4.2. The Bezalel Fine Art Department Collection (BFADC) Art Archiving Pilot Study

A case study of archiving and digitization of the multifaceted, spontaneously created, collection of the Fine Art Department at Bezalel

Head Researcher: Aharon Ozery

Research Assistant: Maya Elran

4.2.1. Background

As part of the preliminary investigation, an aim was set to identify semi-public and semi-private collections that could be integrated in a wider data base and virtual archive. Of the various possibilities, one of the most versatile collections was stored in Bezalel and included works created by students and faculty of the Fine Art Department during the past thirty years, several of which have become prominent in the field of Fine Arts in Israel and internationally. This collection represents the incubation of ideas, their conception and the various influences derived from the faculty present during the development of each new generation of artists.

The collection holds an assortment of slides, prints and photographs that have accumulated over the years. Nearly 80% of the collection is recorded in 35mm slide format. The slides are in an acceptable state of preservation and can easily be used or scanned into a digital format. Information regarding some of the slide details is absent, such as the exact dates, or in some cases the name of the artist. In addition, the collection includes a small amount of original works such as: print works, paintings and sculptures, stored away with no special conditions and option for display. It should be noted that over the last few years the Academy has begun documenting in an orderly fashion the graduation projects of all students.



BFADC Archive

4.2.2. Objectives

The main objective was to assess the needs of archiving and digitization of art works created in the Academy during the 1970's. This process included evaluating the requirements of the community of artists as both users and suppliers of the archive. Based on these assessments, recommendations were then tested on a heterogenic sample of the works.

4.2.3. Method and Process

- 4.2.3.1. A review of the collection of 10,000 images and art works which had accumulated over the years in the Fine Arts Department initiated the work. Of these images, the slide collection, which is estimated at 8000 slides, began a scanning process of which 60% was completed at the time of writing this report.
- 4.2.3.2. By recording the material, an attempt was made to reach conclusions regarding the format and technologies of the process of digitization of an art archive. This attempt was divided into the three components of documentation: cataloguing, curatorship and the preservation of the works themselves.
- 4.2.3.3. During the recording process, complex questions were raised and the summoning of a professional workshop enabled discussing the issues with representatives of future contributors and users of a digital library. The joint brainstorming session, held with assistance of Professor Ido Bar-El, head of the Fine Art Department, included different representatives of the multifaceted art world. The results of this session were a shared vision of the future digital library in terms of a joint platform for documentation of Israeli Fine Art.

4.2.4. Findings

In contrast to the fields of design and architecture, the world of Fine Art has much experience with digitizing and cataloguing art work. Many of the leading art museums (Tate Gallery, Rijksmuseum, MOMA and the Smithonians, to name a few) have begun digitization processes and enable online access to their collections. The examples and information collected regarding the cataloguing and digitization practice were included in the State of the Art analysis and therefore will not be repeated here. For specific recommendations regarding works of art, the existing literature supplies excellent guidelines, and a specific recommendation goes to Getty institute publications.

4.2.4.1. Workshop Conclusions

- 4.2.4.1.1. Out of the initial plans of the research, not all questions were answered. However, valuable thoughts were collected and discussed at the professional workshop. These can be organized according to three dominant themes: available information, prioritizing the curatorial work, envisioning the future platform.

- 4.2.4.1.2. The digital library is not intended to compete with the Israel Museum, holding the peak of Israeli fine art, but rather offer an insight to smaller and semi-private collections, museums, archives and privately owned artworks. There is a wide variety of available collections of fine art and data regarding their creators and creation. As presented above educational institutes, museums and other institutes hold works of art and information about them which is not available online. The Ziffer House for Documentation and Research Centre of Israeli Visual Arts exemplifies this situation by holding an important collection of research, un-digitized. On the other hand, much information is missing; student works, for example, at many of the art institutes were not documented systematically. Many of the current works of artists also lack documentation. Beside the documentation done at galleries, other works by artists can be considered as undocumented. Even if artwork is photographed and made available through the artist's website, there is no guaranty that the work will always be available there.
- 4.2.4.1.3. Because constraints make digitizing everything impossible, the notion of prioritization was raised and the question asked: Should prioritization be applied to digitization of fine art and how should it be done? The collections often hold works that vary in their significance and therefore may require a more critical form of curatorial process.
- 4.2.4.1.4. The participants were somewhat divided on this issue. Professor Gila Ballas of the Tel Aviv University pointed out those large, paper based databases already exist and contain valuable information and images of the history of Israeli fine art. Currently very little information exists online and therefore the canonized works and creators should be made available first, while investing in improvement and updating of the resources. Contrary to this standing, Professor Nahum Tevet, Head the M.A. Program at Bezalel Academy suggested that since some documentation of the history of fine arts has already been done, the focus of the digital library should be the present time, documenting current works and simultaneously taking care of what has already been done as a secondary priority. Mr. Doron Rabina, head of the Midrasha School of Art joined that point of view and added that if the library is supposed to document cultural heritage, then it should not be looking for the individual stars as museums and galleries do, but rather collect a rich variety of works that can have a sociological and historical importance. Works that do not receive current attention actually help shed light on why other works do receive attention and in any case may become relevant in the future.

4.2.4.1.5. An example of this point can be observed in the great interest shown by participants of both the art and industrial design workshops who were very curious to see the educational genealogy of a work of art or design. Two examples of this genealogy could be: Who was the teacher of a creator and what work did he do at that class, or, what works of art were created at a certain artist's class. The works themselves may not be of great value but in proper context can shed light on a research topic. The slides documenting exhibits were welcomed by the participants as documentation of curatorial styles of hanging and presenting artwork.



Unknown, 1970's

4.2.4.1.6. Making the digital library a vibrant and useful database was the recurring description of the future platform. Professor Ido Bar-El, Head of the Art Department, expressed his wish that the digital library will become a useful educational tool, not only providing information but also generating discussion and research. The educational aspects can be made to suit different needs and different levels of discussion. In that matter, the educational aspect Mr. Shai Shaul suggested was enabling curatorial exercises to be open to all users.

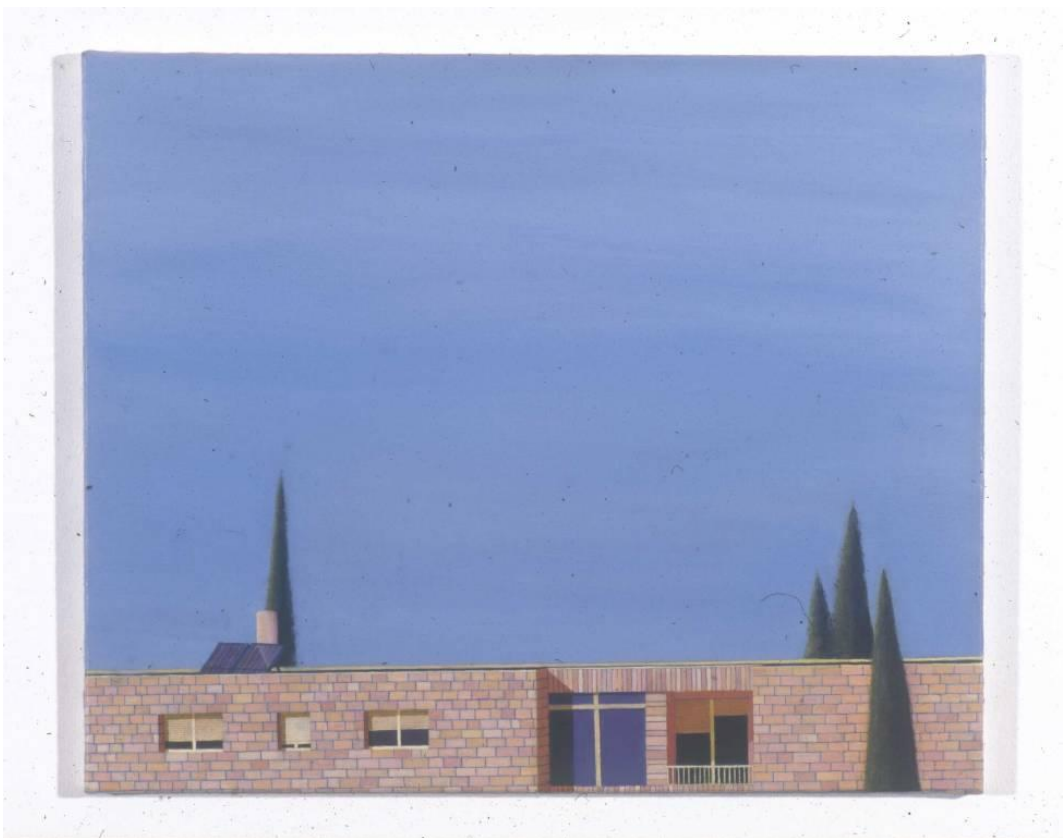
4.2.4.1.7. The user participation issue received attention as well and focused on participation for added value and participation for social networking. Added value can be derived from participation in many ways. As Ms. Maya Elran, research assistant and senior year art

student, suggested, advanced personalization tools can provide abilities such as creating inspiration folders that can then be shared with other users. In addition, receiving critique to uploaded works of art can provide insights as well. Participation for social networking has great potential for promoting Israeli art and artists, initiating events and creating a centre of activity for creators and art enthusiasts. Summing up these thoughts, Ms. Naomi Givon, of the Givon Gallery, articulated her wish that the digital library will not be a mere collection but provide a rich experience for users.

4.2.4.2. **Identification of Orphaned Work**

- 4.2.4.2.1. The BFADC collection was spontaneously created, resembling a storeroom more than anything else. For lack of systematic documentation of the works added to the collection, many of the works are orphaned and therefore difficult to catalogue. For that reason a possible solutions to identify the collection were devised, and plans to carry them out is underway.
- 4.2.4.2.2. The first possibility for identification of unknown works from the last few decades is publishing them at the digital library website. This can be used as an act of creating user involvement and insinuates what happens to works that have not been properly documented. This stage requires careful copyright consideration and a platform that enables response by the users and perhaps discussion. Data may require validation.
- 4.2.4.2.3. Another possibility is to organize a screening event for graduate of certain years as a social gathering in which memories are shared. By viewing the works in retrospective, the stories and context in which the works were created will be shared and recorded. Such an event can clarify the importance of the digital library to the potential contributors and perhaps facilitate further content contribution by participants.
- 4.2.4.2.4. The issue of orphaned works goes beyond the technicalities of identification and raises again the question of curatorial process and the need to decide what works should receive digitization and cataloguing efforts and what works should not. Answering this question may be required at early stages of the process. At BFADC the question was raised when the cabinet with thousands of slides was first opened and time did not allow scanning, editing and cataloguing them all.

Following are several examples of orphaned works from the BFADC





4.2.5. **Conclusions and Recommendations**

In spite of the limits of the pilot study, the BFADC offered some hands-on experience with ambiguous visual content. Conclusions were arrived at on both the curatorial and platform/user interface levels. The conclusions at this point are the canvassing and framing of salient questions that need to be fully addressed and further researched.

4.2.6. Although many digital libraries operate around the world, most of them will not have expertise in Israeli Fine Art; however, their knowledge in digitizing visual cultural heritage is invaluable. Book reports and websites offer good advice, yet often become outdated or do not offer specific problem solving advice. For that reason, best practices should include contacting a leading, experienced fine arts digital archive or digital library that can offer a short internship or consultation.

4.2.7. As the photographer has a decisive role on the quality of images it is essential that he should be professionally trained and qualified for the task. The photographer can obtain specific expertise by attending professional courses or a training period at an existing digital library.

4.2.8. Most of the Israeli small-sized museums, collections and archives eagerly await digitization, yet lack the resources to do so. Data has been collected and organized at many of the institutes and the decision to digitize should find the proper balance between visual content that already is being treated (even at a basic level) and information which is not collected or dealt with at all. Many (but not all) of the workshop participants recommended that the present time should always be the first priority, as it offers the most information available, and the past will be a constant commitment, yet secondary in efforts invested

4.2.9. Curatorial decisions will be required and are acknowledged as so. However, the participants recommended that any curatorial intervention should be very

limited flexible. Information which will not be chosen for official documentation can still be added by users and marked as such.

4.2.10. Dealing with future platform recommendations can be paralleled to recreating the historical origin of museums, the *cabinet of curiosities*. Some ways to achieve this include:

- Enabling and encouraging educational tools.
- Promoting discussion arenas.
- Enabling personalization and extensive use.
- Inviting users to participate and contribute thoughts, tags, creations, critique etc.
- Designing an appealing interface with clever use of technology, yet not intimidating or overly advanced.

4.2.11. As much of the data in the BFADC is orphaned, recommendations for dealing with that specific collection include organizing screening events and publishing unknown work online for identification. At the same time, information which isn't identified should be dealt with according to some policy, whether stored, catalogued or sold.

4.2.12. The representatives at the workshop were excited to take part in the initiative and find a way to collaborate. This network should continue to be built, as collaboration would ensure the highest odds of success for the digital library. The specific group of participants can and should be addressed again as an accompanying team since the level of discussion and variety of opinions presented were of high relevance.

4.3. The Kibbutz Planning Archive (KPA) Architectural Archiving Pilot Study

A case study of the architecture of Kibbutz Ein Harod between 1921-1939

Head Researcher for the interim report: Arch. Zvi Elhyani

Research Assistant: Elad Horn

4.3.1. Background

4.3.1.1. The pilot study is based on the "The Kibbutz Planning Archive" (KPA), an initiative by Architect Freddy Kahana who was, till his retirement, the Chief Architect of the Kibbutz Movement Technical Office. This controlled pilot study focused on the digitization of the architectural records of Kibbutz Ein Harod from its establishment in 1921 through 1939 together with cross-references to other available data and archives.

4.3.1.2. Freddy Kahana (b.1927) devoted his thesis at the London Regent Street Polytechnic school of Architecture to the planning of a communal form of living and to the research of communal planning in religious and secular communes worldwide. In 1954 he immigrated to Israel and settled in Kibbutz Bet Haemek in order to implement a cooperation and equality form of living. Additional to his work as an architect, Kahana taught at the Faculty of Architecture of the Technion, the Israel Institute of Technology in Haifa.

4.3.1.3. Kahana's urge to establish the KPA arose when faced with the absence of the kibbutz as a theme both from Israel's National Outline Plan *TaMA 35* (towards the year 2020) and from the canonical exhibition and book *The Israeli Project: Building and Architecture 1948-1973*¹⁷⁰. Likewise, the KPA was established in order to preserve the planning heritage of the kibbutz due to the dissolution of kibbutz planning departments in 1990 at which time much material was lost.

4.3.1.4. The KPA emerged from Kahana's refusal to accept this disregard and omission. In current discussions, Kahana still expresses his conviction that the kibbutz, in its regional format, can serve as a model for an alternative ex-urban society, and is still relevant to the present and future identity of the Israeli built and planned space.

4.3.2. Pilot Study Motivation

In conjunction with the expressed aims of the Memory of the World Programme, it was found appropriate to manage Kahana's inspiring project - a small yet important architectural data base, documenting the architectural history of one of the unique communal phenomena in the 20th century; the Israeli Kibbutz settlement.

¹⁷⁰ Efrat, Z. Yagid, M. (2004) *The Israeli Project: Building and Architecture, 1948 - 1973*. Tel Aviv: Tel Aviv Museum of Art.

4.3.3. Problem Definition

Kahana's KPA is currently digitized and organized on *Portfolio*, digital asset management software that allows visually organizing, sorting and previewing a complete library of digital assets, both online and offline. Portfolio gives a most basic cataloguing system of the archive's content and has limited functions for retrieval of data and cross-referencing that will ideally serve its potential users. However, Portfolio is not specifically structured and designed for dealing with the needs of architectural records data management and archiving. There is currently no cross-referencing to other archives, or digital media and documentation.

4.3.4. Objective

The pilot study aimed to extend the definition of the traditional Architectural Archive (AA) so the future AA can paradigmatically transform into a new platform for accumulating, retrieving and sharing architectural-cultural knowledge. This new kind of archive will address the broad context of architectural creation and the discourse on its social, economical, technical, popular, political, structural, and visual aspects, among others.

4.3.5. Method and Process

4.3.5.1. In order to prove the academic, public, and professional benefits of the new AA, we first defined a specific limited group of items from KPA dealing with a specific body of architectural knowledge on a specific site and period - in this case, the Israeli Kibbutz of Ein Harod in the Jezreel Valley (in the lower Galilee of Israel) in its first 20 years, between 1921, the year of its establishment, and up to the eve of the Second World War, 1939. With a local archive and museum available for comparing data and adding layers, this was to provide the case-study with added-value in confirming the hybrid approach.

4.3.5.2. The research process concurred with the pilot study's general guidelines, yet with adjustments to the specific needs of the specific objective of this case study. The process steps included:

- Sampling all of KPA's items that are directly related to the place and time chosen for the pilot, i.e. Ein Harod between 1921 and 1939.
- Careful selection of a group of items in different traditional formats of architectural records, as blueprints, sketches, models, drawings, photographs and written documents. This was done in order to examine the current physical condition of the various items before starting the digitization process.
- Extension of the KPA sample group of items by:
 - Linking it to other relevant materials in other existing

collections and archives in Israel and abroad, and

- enriching the cataloguing with new links and materials from various disciplines, including fine art, cinema, theatre, literature and visual culture, in various formats, including films, sound samples and lectures, that are all new to the current content of the KPA.
- Understanding the classification by periods, types, form and place.

4.3.6. Findings

The findings were on two levels: the general level including the accepted expertise in the field and the detailed results of the Ein Harod study.

4.3.6.1. At the general level there were two components the current state-of-the-art for Digital Architectural Archives and the best practice for the preservation of drawings.

4.3.6.2. The most up-to-date debate has been presented at the conference on *Hybrid Architectural Archives: the Creating, Managing and Using of Digital Archives*, which took place June 11-12, 2009 at the Netherlands Architecture institute (NAi), Rotterdam¹⁷¹. The research team was represented by architect Zvi Elhayani at the conference. The eight critical papers presented at the conference are enumerated below:

- **The Architectural Practices as First Curators of Their Archives**
David Peyceré Centre d'archives d'architecture du XXe siècle
- **Building a Fedora Repository for Architectural Content**
The Centre for Flemish Architectural Archives (CVAa)
- **Connecting the digital with the physical LAM: Building a Digital repository for the NAi**
Nederlands Architectuur instituut, Rotterdam
- **The Piacenza Labs Repository, a MACE EU project application**
*Ezio Arlati, *Elena Bogani, **Andrea Cammarata
- **Connecting digital architectural archives with MACE Metadata for Architectural Contents in European**
Stefan Boeykens, K.U.Leuven (Belgium)
- **Users: Expectations and Use Defining and Encoding Architectural Information for Digital Archives**
Kristine K. Fallon, FAIA
- **New Interfaces, new scenarios. Vroom n.0 : The emerging potential of collaborative 3D web platforms**

¹⁷¹ See at <http://conference.nai.nl/>

Eduardo Aguirre León/ Mauricio Ramírez Molina School of Architecture, Universidad de Talca, Chile

- **Thoughts on a Distributed Web-portal for World-wide Collaboration-Among Architectural Archives and Historians**
Dr. Bernd Kulawik MA, Bern, Switzerland

4.3.6.3. The reference book and best practice chosen for the preservation of drawings is: *Architectural Records: managing design and construction records*¹⁷² by the Society of American Archivists. Two critical Chapters of the book are Chapter 6 - Preservation Administration - p. 107-124 and Chapter 7 - Identification and Preservation Maintenance of Common Visual Media and Supports - p. 125-153. The subjects covered in the chapters include:

- **General long-term maintenance standards**
Temperature and Humidity, Pollution, Light, Mould, Disaster Planning
- **General preservation issues and treatments**
Flattening Rolled or Folded Drawings, Cleaning, Adhesive removal and tear repairs, Encapsulation and backing, Storage
- **Working with a conservator**
- **Reformatting for preservation**
Standard Photography, Microfilm, Indirect Electronic Prints, Digital Imaging to File
- **Original Visual Design Media and Supports**
Ink on Paper, Watercolor on Paper, Pastel on Paper, Tracing Paper with Ink or Graphite (Pencil), Paper Mounted on Muslin, Cardboard, Masonite or Foam-core, Ink or Pencil on or Tracing (Linen), Vellum, Drafting Film, Computer Aided Design

4.3.6.4. Further research is needed to evaluate the situation in Israel and the conservation issues to be addressed. For example, tracing paper and linen were used extensively during the researched period, especially for the presentation of plans to the British Mandate authorities and therefore require further attention.

4.3.6.5. **Pilot-study Ein Harod**

4.3.6.5.1. After the review process and documentation of those relevant parts of the collection (KPA) as assembled by Architect Freddy Kahana and the decision about the focus of the pilot study, the team began the process of extending the information network. The aim was to show how to perform catalogue reorganization and

¹⁷² Lowell, W. & Nelb, T. R. (2006). *Architectural Records: managing design and construction records*. Chicago: Society of American Archivists.

expansion of an existing collection (KPA) by creating a variety of connections and interest-based information architecture. To do so, some key actions of data collection were conducted in parallel: searching and archive documentation, bibliographic survey, documentation overview of relevant buildings and a series of meetings with experts. The findings were gathered during the process of learning about the needs and cataloguing of the various collections and the conservation of archival knowledge. On the basis of the existing information, as collected over many years, to learn how through collaboration one can produce high added value to all parties. The good will from all concerned from the various institutions contributed to the enriching dialogue. This good will is translated in the common interests for the promoting of the digital library initiative as relevant for all, irrespective of institutional affiliation.

4.3.6.5.2. The meetings that took place with the generous help of the Kibbutz Archivist, Ms. Ilana Bernstein, raised many issues concerning the Archive. The team photographed archival material that included plans of the first groups of buildings and other landscape plans together with drawings of buildings that were not implemented. Several famous Israeli architects signed these plans, many more than estimated. There are general plans, beginning with architect Richard Kaufmann for settlements in the region from the early 1920's till many later buildings by architect S. Bickles. The plans, in a state that is impossible to scan, were photographed by the team. However, this documentation is, in many cases, the first time that this material will become available for research. It also highlights the technical problems involved in digitizing this historic material. Also other relevant findings of different media types were also photographed. Historic photographs were scanned offering evidence of historical development of the physical grouping and growth of the communities and even of the construction process itself. Relevant text documents for the understanding the history, growth and construction processes were also scanned.

4.3.6.5.3. It should be noted that the archives are situated in an old building, with poor maintenance, under unsuitable conditions which will affect the long-term preservation. The digitizing process of the archive is currently randomized with little cataloguing facilities, generating a dependency on the limited human resources.

4.3.6.5.4. Three kinds of documents were collected: scanned images from the archive, pictures taken of plans and other documents, and pictures of the buildings in Ein Harod today. During the research at Kibbutz Ein Harod much material was collected regarding the state of the

buildings today. This documentation is designed to complement the picture of Kibbutz life and its planning history where many of the buildings have not been conserved and for many years have remained derelict while others are in a dilapidated state of use.

4.3.6.5.5. The further sample group of Ein Harod was developed working in the local archive under the guidance of Ms. Ilana Bernstein, the Kibbutz archivist, Ms. Galia Bar-or, the Museum curator, Ms. Avital Efrat, researcher, and Professor Ruth Ennis an emeritus professor of Landscape Architecture from the Technion, Haifa. The extension of the KPA sample group of items has been done by linking it to other relevant materials in other existing collections and archives in Israel and abroad, and enriching the cataloguing with new links and materials from various disciplines, including fine art, cinema, theatre, literature and visual culture, in various formats, including films, sound samples and lectures, that are all new to the current content of the KPA.

4.3.6.5.6. *Fine Art Links*

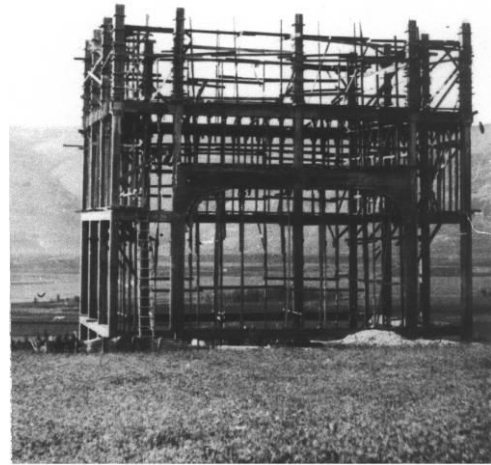
Ms Galia Bar-or,¹⁷³ curator of the Museum of Art, Ein Harod was interviewed at the museum in order to search for artistic representations of the Jezreel valley and Ein Harod and evaluate these and other visual information relating to the hybrid aspects of the digital library. In addition to a review of the relevant documents in the art library, names of artists who worked in the Kibbutz context were enumerated. Focus was given to artists who worked in and around Ein Harod with their work currently in the possession of the Kibbutz. Information of art items concerning Ein Harod, for example an exhibition¹⁷⁴ by Penny Hess Yassour¹⁷⁵ and the written work done on "Habama" outer wall were also collected providing a cross-reference for the hybrid digital library. Following the meeting it was decided to focus on, the artistic work of Penny Hess Yassour and Meir Gal¹⁷⁶.

¹⁷³ Ms. Galia Bar-Or, Ein Harod Museum Curator, was interviewed February 21st 2010

¹⁷⁴ Hess Yassour, P., Feigenbaum, P. (2008) *Kibbutz* Exhibit at the Bochum Art Museum, Germany

¹⁷⁵ Yasur is an active artist, whose work is influenced by the architectural experiences of Ein Harod. A recent example can be seen in her works of prefabricated hut structures using a plastic embedding technique

¹⁷⁶ Meir Gal is an Israeli artist whose work is mounted on the entrance wall to Ein Harod on a stage structure of the Kibbutz. The work was executed in a group exhibition entitled Museum of Art: "Critical Utopia" (curator: Galia Bar-or, 1996), and it has direct contact with the famous buildings of the area, and of importance in the local folklore



Habama

4.3.6.5.7. *Architecture Links*

At the second meeting at the Ein Harod Museum of Art with Ms. Avital Efrat a great deal of information was made available concerning the architect Samuel Bickels who worked intensively in the early part of the twentieth century. Ms. Efrat is an architecture graduate of Bezalel with a post-graduate degree in museum studies from Tel Aviv University and currently researching the architect Bickels. Amongst Bickels' buildings is the museum structure itself, which is considered by many scholars to be an extra-ordinary example of its period and the extension of the dining-room structure, originally designed by Richard Kaufman.

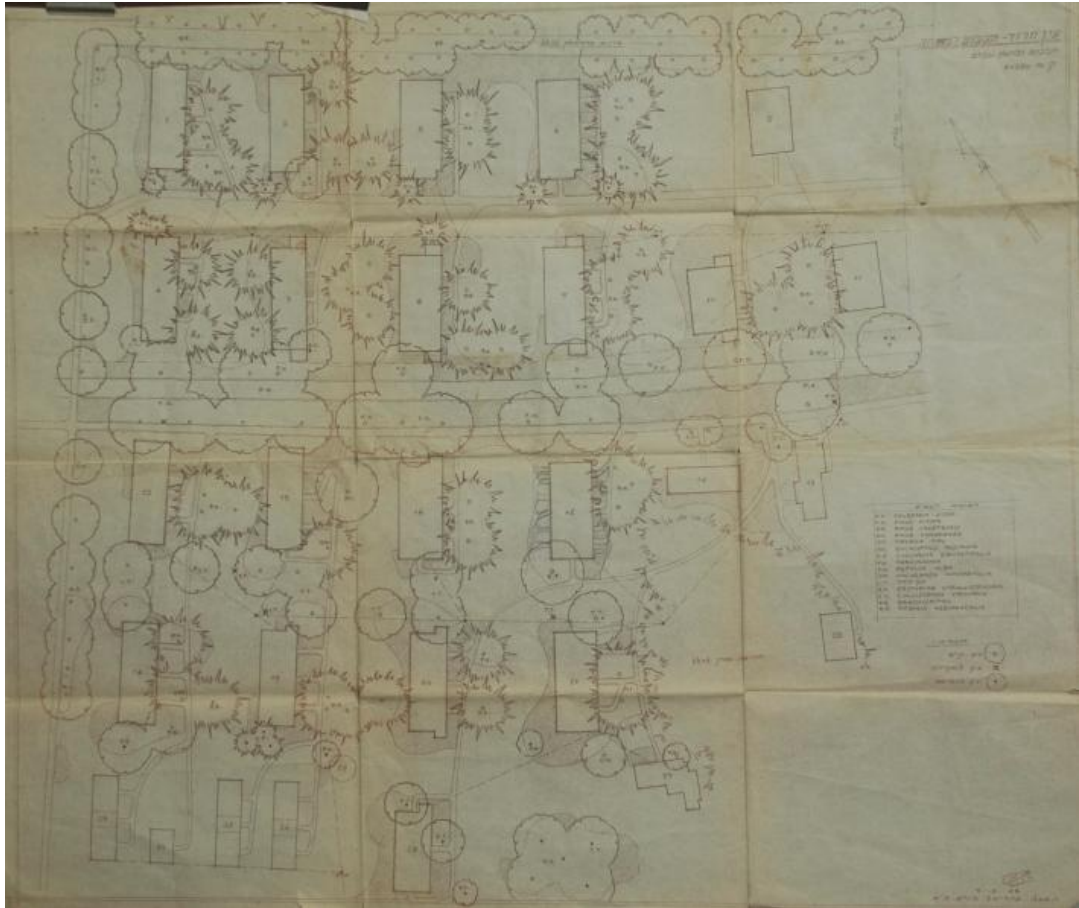


Original dining room by Richard Kaufman

4.3.6.5.8. *Landscaping Links*

At the meeting held with Professor Ruth Ennis¹⁷⁷ in her home at Haifa on information regarding the landscape architecture of the Jezreel Valley and Ein Harod was gathered. Ms. Ennis is a renowned authority on the history and documentation of landscape architecture during the Palestine Mandate and Israel. During the meeting a lot of information was identified regarding the overall and plans for Ein Harod. Furthermore, many bibliographic references were presented, including original works of Professor Ennis.

¹⁷⁷ Professor Ruth Ennis, emeritus professor of Landscape Architecture at the Technion, was interviewed February 16th, 2010.



Original landscaping drawings

4.3.6.5.9. Cinema Link

Mr. Ilan De Vreis, former director of the Jerusalem Cinematheque, was interviewed¹⁷⁸ in order to find audio-visual links to the architectural database. Mr. De Vreis described the "Axelrod Collection", which is a collection of rare newsreels, taken by Nathan Axelrod between the years 1927-1958, and documenting the building of Jewish communities in the Land of Israel and their development. There are 450 newsreels which depict a broad picture of Jewish settlement in Israel, during and since the British mandate in Palestine.

Following the meeting with De Vries the Axelrod collection was reviewed and short video clips of Group art in Kibbutz Ein Harod in 1946, 1956 were found. Furthermore, short clips from the Axelrod collection were identified and cross-referenced providing further information on Ein Harod and the Jezreel Valley, its planning and architecture. The clips found relevant appear in the following list and can be found at the Cinematheque archive:

¹⁷⁸ Mr. Ilan De Vreis, Former Director of the Jerusalem Cinematheque was interviewed February 16th 2010.

The Nathan Axelrod Collection - 1927-1934

Carmel Newsreels

Carmel Newsreel I - 243 - autumn 1946

Part E: 25th Anniversary of the Jezreel Valley (131').

General view of the Jezreel Valley from Mount Gilboa. In the background, Kibbutz Ein- Harod (long, 39').

Avraham Herzfeld makes a speech to a crowd near the spring of Ein Harod.

Carmel Newsreel II - 214, November 3, 1956.

Part D: Tour of Jezreel Valley by the Jewish National Fund.

General view of the valley.

Two men speaking. Tour of the Kibbutz.

Carmel Newsreel II - 214, November 3, 1956.

Part J: Berl Katznelson Artists House at Ein Harod

People entering artists' house.

Interior, relief sculpture of face of Katznelson.

People viewing exhibits.

Jewish art

4.3.6.5.10. Other archive and collection Links

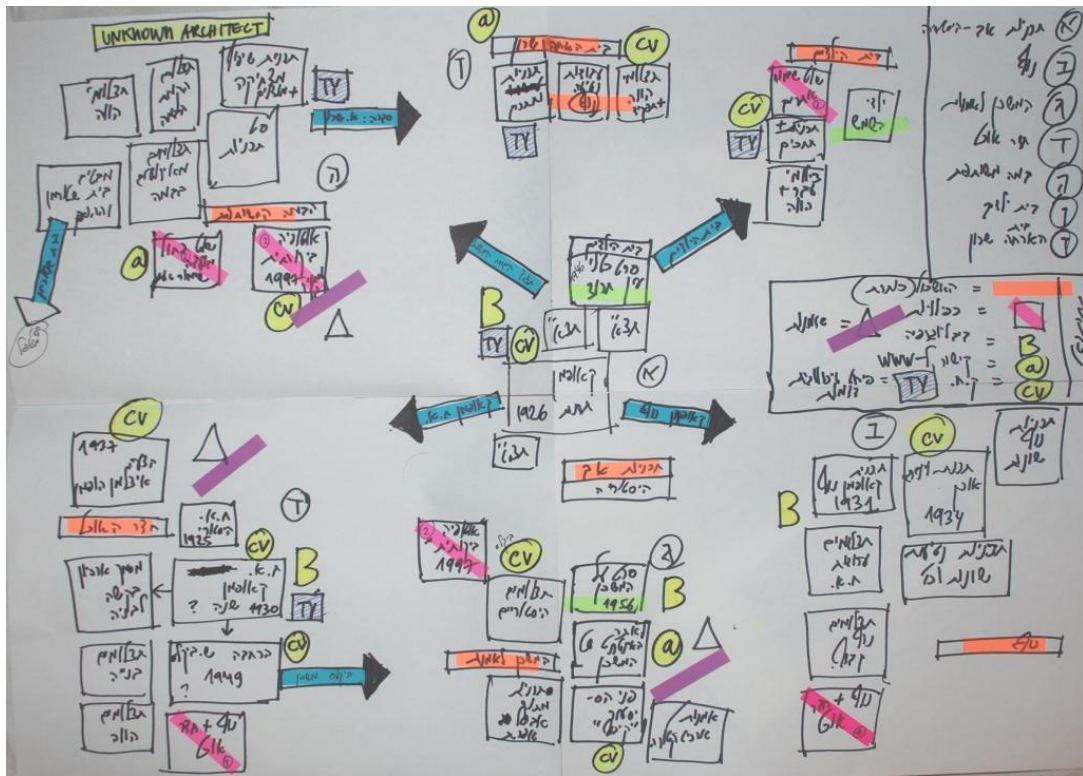
Part of the collection of the architect Arie Sharon, in the ownership of the family, was surveyed. In this survey, plans and photographs of the only building planned by Arie Sharon in the Kibbutz were documented, a guest house from the 1940's in use for the Kibbutz volunteers and in very bad state. The possibility that he was involved in other buildings was raised including the iconic central performing stage but no further documentation was found to verify this hypothesis.



The building of the guest house

4.3.7. Conclusions

4.3.7.1. The reflective chart of the sample group was generated as the synthesis step of the study. It was performed after appraisal of the KPA digitizing methods, including the receiving and conserving of the data, and the cross-referencing of information collected from all other resources. The significance of this stage is therefore, showing the vast areas of growth and advantages of creating a chain of digital data, as in the Ein Harod case-study, with artist renderings, texts and newsreels.



4.3.7.2. The chart demonstrates a system of decisions made in order to exemplify the possibilities that a future user would receive from the digital library system. This format is divided into seven topics¹⁷⁹, buildings and master plans of Ein Harod. Each topic is enriched by direct items of architectural interests, such as plans and images, and by other interest related items such as typology review, CV of the architect, relevant art works, bibliography, on-line links and movie clips. Every item is linked to other relevant types of items.

4.3.7.3. The relevancy and necessity of those data connections is demonstrated in the chart, when many areas of knowledge are tied up in a long and revolving chain of data including artefacts starting from architectural oriented documents such as plans and sketches, to pictures and movie clips.

4.3.7.4. The basic assumptions show the necessity of reinforcing the linkage and collaboration between the archives and other knowledge preservation institutes by digitizing a variety of data items into one unifying database. That will allow the future user to become acquainted with a vast collection of relevant items, starting from a search on the architectural based and growing further into other possibilities into other spheres and

¹⁷⁹ The seven topics are: historic master plan, landscape architecture, museum, dining-room, "habama", children's house, guest house

disciplines. The system using the data should enable algorithm based links created automatically. This ability is critical due to the vast amount of knowledge areas that should be integrated into a single key-word search.

4.3.7.5. Establishing a digital library of art, design and architecture might be the right step towards achieving that collaboration. Joining the various areas of knowledge in a modulated virtual space will allow the hybrid digital library to evolve over time.

4.3.7.6. Further research is required in identifying the main materials that were in use during the early and middle years of the twentieth century for drawings and renderings so that a more focused effort can be made for the conservation of the original data and a method for the scanning or digitizing of frail and sensitive materials.

5. CONCLUSIONS AND RECOMMENDATIONS

- 5.1. At the end of the first stage of the endeavour towards a digital library of the arts, design and architecture in Israel, the loose ends are tied with a feeling that a better understanding of the scope, depths and challenges involved has been acquired. The conclusions and recommendations of the process are summarized below and include: the core themes that emerged from the research, the technical requirements, the further research requirements, and the future possibilities.
- 5.2. Five core themes were identified as crucial to the future success of the digital library:
 - 5.2.1. COLLABORATION was a core value set forth at the beginning of the project and found to be highly relevant. As content, knowledge and resources are scattered at various institutions, only collaboration can ensure that the potential of the digital library is brought to its fullest extent. During the year, several steps were taken to increase collaboration. First, the research was overseen by a committee including members of leading national archival institutes: the Israel State Archives, the National Library, the Central Zionist Archives and the Israel Museum. In addition, experts in adjacent fields were consulted. The national and professional networks were a third step taken towards collaboration and had a great impact in bringing representatives together to discuss aspects of project implementation. Future steps to increase collaboration should establish the procedure in which collaboration is regulated. In addition, joining International initiatives and expanding connections and collaboration with international organizations and parallel institutes should benefit all sides involved.
 - 5.2.2. CURATORIAL PROCESS was a subject brought up repeatedly in relation to different topics as it will inevitably be required for resource allocation. Most probably, it will not be possible to add every visual culture item from Israel to the library, and perhaps not every item should be added. Even if the digital library will be open for users to upload data, projects managed by the library will still require prioritization. For that reason, at an early stage of the process a decision will be required regarding where and when curatorial decisions are made and by which committee or person.
 - 5.2.3. USER INTERFACE was found to be crucial to the appeal of the project to visual content consumers and contributors. Being a digital *library*, rather than repository, the success of the initiative will be measured also by its relevance to the users. Users often assess the relevance of a database according to its ease of use, appeal and other elements of the interface. Beyond pure aesthetics, which are often important for visual consumers, the user interface should be suitable for researching visual content. Technologies supporting such needs are available and constantly improving. As part of the analysis, ideas that should be regarded when planning the user interface were divided in to three *Prominent P's*. These, include the *presentation* of information, the *personalization* possibilities and the encouragement of user *participation*.

Future consideration should also regard the possibility of using crowdsourcing for tasks traditionally done by archive staff.

5.2.4. ACCESS FOR ALL is an additional core value of the initiative, expressing the view that cultural heritage and knowledge should be accessible to all, without ignoring copyrights. The idea of access should not be a strict financial aspect but should also attend to access to the varied needs of users, whether related to their age, their disabilities or other needs.

5.2.5. A BUSINESS PLAN according to the above themes will unequivocally be required since a digital library with free access and an advanced user interface is costly. Creative and efficient management will enable using the database as part of the sources of income, without charging the average users. However, establishing the library will require an initial investment that should be large enough to cover all of the basic needs. The project of setting up the digital library should not be divided into too many stages to ensure a continuous dynamic process. The importance of collaboration is essential to the funding aspects as joint fundraising may achieve additional governmental support.

5.3. The technical requirements that have emerged from the research include personnel requirements, equipment requirements, standardization requirements and process management requirements and a need for continuous updating of the 'state of the art'.

5.3.1. PERSONNEL recommendations require first of all the appointment of a full-time manager with appropriate supporting staff. A full time position will enable quick initiation and establishment and demonstrate the serious intentions of the initiative. The supporting staff should include professionally trained cataloguers that are preferably native English and Hebrew speakers and possibly freelance translators all of whom can make full and accurate use of a bilingual thesaurus; the integration of Arabic should be evaluated .If as recommended, photography is done in-house, a professionally trained photographer will be required. The use of an in-house website designer and administrator should be decided upon as part of the business plan.

Due to the rapid changes in technology, staff skills will require continual learning capabilities and the opportunities to be continually updated via workshops and conferences. Much of the learning process must result from hands-on experimenting. Collaboration with parallel staff from other institutions and other countries may advance the sharing of knowledge and skills.

5.3.2. TECHNICAL EQUIPMENT is an essential part of the digitization work, is ever changing and can greatly affect its quality. Because photographing an item will not be more than a one time opportunity, producing high quality images with reliable, portable equipment is crucial.

5.3.3. STANDARDIZATION of both digitization and cataloguing processes should be promoted as it will ensure interoperability and long term relevance. Especially important is the use of a bilingual thesaurus with specific reference to visual

culture in Israel. Currently, the Israel Museum Thesaurus appears to be the most relevant tool; therefore efforts to promote collaboration should be made. In addition, the library should be assisted by a professional advisor who can bridge the gap between the amorphous characteristics of art and design content, and the structured world of metadata cataloguing standards.

- 5.3.4. PROCESS MANAGEMENT is another important technical requirement as many of the future decisions should be based on a broad understanding of the complex system built. The digital library will much resemble a production line and therefore can be planned, to a great extent, as such.
- 5.4. Further research should advance the understanding of issues that were not in the scope of the current report such as: process management, legal management of intellectual property rights and copyrights, curatorial decision making in parallel institutes, web 2.0 and user interface. General information is provided in the report, yet in-depth understanding is recommended.
- 5.5. Future possibilities are vast and exciting. Throughout the year, the project team, received inquiries from many collections that were interested in collaboration and assistance with their non-digitized materials. On February 12th, 2010, a proposal to continue to the next phase of the initiative was sent to UNESCO. The proposal includes the initiation of the Israel Committee on the Memory of the World and the continuation and coordination of the existing activities with other institutions including the Israel Cinemateque, Givat Haviva, the Centre for Jewish Art, Hebrew University, Haifa University, and the Bezalel Academy, with the development of a common digital platform as a natural development from the current report's conclusions. Other activities will include a series of thematic workshops that will focus on specific aspects of the digital library. Further studies will attempt to identify additional relevant collections, especially those semi-public and private, and encourage their availability to researchers and the public.

6. BIBLIOGRAPHY

- Ashby, H. McKenna, G. and Stiff, M. ed. (2001) SPECTRUM Knowledge: Standards for cultural information management. Cambridge: Museum Documentation Association.
- BnF (10.9.2009) Gallica Digital Library Charter: 1997 – 2007. see at http://www.bnf.fr/en/professionals/a.gallica_digital_library_charter.html
- Baca, M. (2008). Introduction to Metadata: Revised Edition (Revised ed.). Los Angeles: Getty Publications.
http://www.getty.edu/research/conducting_research/standards/intrometadata/index.html
- Ben Sasson, M (1999) Continuity and Change: 92 years of Judaica at Bezalel. Jerusalem: Bezalel Academy of Art and Design.
- Calimera (2005[a]) Guidelines for Digital Preservation.
http://www.calimera.org/Lists/Guidelines%20PDF/Digital_preservation.pdf
- Calimera (2005[b]) Guidelines for Digitization.
<http://www.calimera.org/Lists/Guidelines%20PDF/Digitisation.pdf>
- Calimera (2005[c]) Legal and Rights Issues.
http://www.calimera.org/Lists/Guidelines%20PDF/Legal_and_rights_issues.pdf
- Calimera (2005[d]) Multilingualism.
<http://www.calimera.org/Lists/Guidelines%20PDF/Multilingualism.pdf>
- Crofts, N. Doerr, M. Gill, T. Stead, S. and Stiff, M. (2006) Definition of the CIDOC Conceptual Reference Model. ICOM/CIDOC CRM Special Interest Group.
http://cidoc.ics.forth.gr/docs/cidoc_crm_version_4.2.1.pdf
- Datta, R. Joshi, D. Li, J. and Wang, J.Z. (2008) "Image Retrieval: Ideas, Influences, and Trends of the New Age," ACM Computing Surveys, vol. 40, no. 2, article 5, pp.1-60.
- De Groat, G. (2009) Future Directions in Metadata Remediation for Metadata Aggregators. <http://www.diglib.org/pubs/dlfpubs.htm>
- Efrat, Z. Yagid, M. (2004) The Israeli Project: Building and Architecture, 1948 - 1973. Tel Aviv: Tel Aviv Museum of Art.
- Freundlich Y. (6.8.2009). The Reciprocal Relationship between the Archival System in Israel and Research. Presented at the session "The State Archives: Databases in Israeli Archives in relation to research and cultural heritage of the nation and the state" in the World Union of Jewish Studies, Hebrew University, Jerusalem.

- Hazan, S. (2010) When is a library NOT a library? Digital Library Futures, IFLA Publications Series of K.G. Saur Verlag, Munich.
<http://www.musesphere.com/images/IFLA-when-is-a-library-not-a-library.pdf>
- Hermon, S. (6.9.2009) Digital Libraries in the Digital Era: A Challenging Venue For Information Sharing. Presented at the "Hybrid Heritage: Towards sharing cultural knowledge" National Workshop. Bezalel Academy of Art and Design, Jerusalem.
- Hillman, D. (2005) Using Dublin Core. Dublin Core Metadata Initiative Website.
<http://dublincore.org/documents/usageguide/>
- Klein, M. (7.11.2008) Graphic Memory. The Jerusalem Post, Metro pp. 24-25.
- Kupietzky, A. (2006) March 2006 Update Thesauri and Multilingualism WP3 Minerva Israel. <http://filelibrary.unitedapps.com/1/file1048.pdf>
- Kupietzky, A. (2007) Subject Access to a Multilingual Museum Database: A Step By Step Approach to the Digitization Process. Englewood, Colorado: Libraries Unlimited.
- Kupietzky, A. (10.11.2009) Behind the Scenes: Digitizing the Collections for the New Permanent Galleries of the Israel Museum. Presented at the 6th Jerusalem Conference on the Digitization of Cultural Heritage EVA/MINERVA 2009
- Leroi, M.V Holland, J. (2009) ATHENA report on Identification of Existing Terminology Resources in Museums. eContentplus.
www.athenaeurope.org/getFile.php?id=398
- Lowell, W. & Nelb, T. R. (2006). Architectural Records: managing design and construction records. Chicago: Society of American Archivists.
- Marlow, J. et al., (2007) Multilingual Needs of Cultural Heritage Web Site Visitors: A Case Study of Tate Online. International Cultural Heritage Informatics Meeting (ICHIM07): Proceedings, J. Trant and D. Bearman (eds). Toronto: Archives & Museum Informatics.
<http://www.archimuse.com/ichim07/papers/marlow/marlow.html>
- McKenna, G. De Loof C. (2009[a]) ATHENA Report on existing standards applied by European museums. eContentplus.
www.athenaeurope.org/getFile.php?id=396
- McKenna, G. De Loof C. (2009[b]) ATHENA Recommendations and best practice report regarding the application of standards, including recommendations for a harvesting format and fact sheets for dissemination. eContentplus.
www.athenaeurope.org/getFile.php?id=538
- NISO National Information Standards Organization (2007), A Framework of Guidance for Building Good Digital Collections, 3rd edition, NISO Press.
<http://www.niso.org/publications/rp/framework3.pdf>

Schneider, A. K. (2003?) L.A. art ONLINE: Learning from the Getty's Electronic Cataloguing Initiative. Electronic Cataloguing Initiative. Getty Institute.
<http://www.getty.edu/foundation/funding/access/previous/index.html>

Smith, G. (2008) Tagging: People Powered Metadata for the Social Web (Voices That Matter). Berkeley, CA: New Riders Press.

Tractinsky, A. (6.8.2009) The Israel Archives Portal: Exposing Cultural Heritage. Presented at the session "The State Archives: Databases in Israeli Archives in relation to research and cultural heritage of the nation and the state" in the World Union of Jewish Studies, Hebrew University, Jerusalem.

UKOLN (2004) Good Practice Guide for Developers of Cultural Heritage Web Services. <http://www.ukoln.ac.uk/interop-focus/gpg/>

7. REFERENCE WEBSITES

A full reference list to websites mentioned in the report and additional examples can be found at the list compiled during the research process at

http://delicious.com/mow_pilot

The Society of American Archivists - Glossary

www.archivists.org/glossary/list.asp.

Ancient Acres digitization project by the Antiquities Authority

http://www.antiquities.org.il/akko_heb.asp

Bavarian State Library: Digital Library Munich digitization centre

<http://www.digital-collections.de/index.html?c=startseite&l=en>

Beit Hatfutsot, The Nahum Goldmann museum of the Jewish Diaspora

<http://www.bh.org.il/>

Bezalel Academy of Art and Design

<http://www.bezalel.ac.il>

Bezalel Academy of Art and Design, Virtual Tour: 2009 Graduate Students Exhibition

<http://chili-media.co.il/prj/bezalel/>

British History Online at the University of London

<http://www.british-history.ac.uk/Default.aspx>

British Library Digital Online Gallery

<http://www.bl.uk/onlinegallery/index.html>

British National Gallery Image viewer

<http://nationalgallery.org.uk/paintings/edouard-vuillard-madame-andre-wormser-and-her-children>

Cataloguing Cultural Object (CCO) A Guide to Describing Cultural Works and their Images

<http://www.vrafoundation.org/ccoweb/index.htm>

CIDOC Conceptual Reference Model (CRM)

<http://cidoc.ics.forth.gr/>

Cleveland Memory Project at the Cleveland State University

<http://www.clevelandmemory.org/>

Cornell University, The Division of Rare and Manuscript Collections

<http://cidc.library.cornell.edu/adw/adw.asp>

Creative Commons Israel
<http://creativecommons.org.il/>

Creative Spaces
<http://bm.nmolp.org/creativespaces/>

Digital Archive for Theatre in Israel at the Haifa University
<http://digitool.haifa.ac.il/R/%5C%5Clib.haifa.ac.il>

Dublin Core Metadata Initiative (DCMI)
<http://dublincore.org/>

EPOCH, The European Network of Excellence in Open Culture Heritage Tools
http://www.epoch-net.org/index.php?option=com_content&task=view&id=216&Itemid=332

Eternal Egypt
http://www.eternalegypt.org/EternalEgyptWebsiteWeb/HomeServlet?ee_website_action_key=action.display.home&language_id=1

Europeana
<http://www.europeana.eu/portal/index.html>

Finnish National Gallery Digital Collection
<http://kokoelmat.fng.fi/wandora/w?lang=en&imagesize=0&action=gen&>

Flickr
<http://www.flickr.com>

Google Goggles
<http://www.google.com/mobile/goggles/#landmark>

Google Image Labeler
<http://images.google.com/imagelabeler/>

Georgia Digital Library at Georgia State University
<http://dlg.galileo.usg.edu/?Welcome>

Getty Institute, Art and Architecture Thesaurus (AAT)
http://www.getty.edu/research/conducting_research/vocabularies/aat/

Getty Institute, Categories for the Description of Works of Art (CDWA)
http://www.getty.edu/research/conducting_research/standards/cdwa/index.html

Getty Institute, Thesaurus of Geographic Names (TGN)
http://www.getty.edu/research/conducting_research/vocabularies/tgn/

Getty Institute, Union List of Artist Names (ULAN)
http://www.getty.edu/research/conducting_research/vocabularies/ulan/

Getty Images, Stock Photography
<http://www.gettyimages.com/>

Harvard University Library: Visual Information Access (VIA)
http://via.lib.harvard.edu/via/deliver/advancedsearch?_collection=via

HaTzair Institute for Research and Documentation at Givat Haviva
<http://www.givathaviva.org.il/>

Nederlands Architecture Institute, Hybrid Architectural Archives Conference
<http://conference.nai.nl/>

Iconclass Classification System for Art and Iconography
<http://www.iconclass.nl/>

IDEA@ALM product website
<http://www.idea-alm.com/site/content/t4.asp?Sid=50&Pid=228>

Info-Muse Network Documentation Guide, How to measure objects
<http://www.musees.qc.ca/publicsspec/guidesel/doccoll/en/measure/index.htm>

Ireland National Library: Digital Photographs.
http://digital.nli.ie/cdm4/index_glassplates.php?CISOROOT=/glassplates

Israel Museum, Imagine Search Engine and Thesaurus
<http://www.imj.org.il/Imagine/collections/aboutImagine.html>

Jerusalem Index of Jewish Art
http://cja.huji.ac.il/home_page.html

Jerusalem Virtual Library
<http://www.jerusalem-library.org/>

Jewish National University Library. The David and Fela Shapell Digitization Project
http://jnul.huji.ac.il/eng/digi_intro.html

Library Thing
<http://www.librarything.com/>

MALMAD - Israel Centre for Digital Information Services.
<http://libnet.ac.il/~libnet/z39.htm>

MINERVA Knowledge Base
<http://www.minervaeurope.org/home.htm>

Muji rythem
<http://www.muji.com/rhythm/>

Museum of Modern Art (MOMA) NYC
<http://moma.org/explore/collection/index>

New York Public Library Digital Gallery
<http://digitalgallery.nypl.org/nypldigital/index.cfm>

NotCot
<http://www.notcot.org/>

Pinhas Lavon Institute for Labour Movement Research
http://yeda.amalnet.k12.il/LavonInstitute/RightMenu/InstituteCurator/have_rut_truma.htm

Rijksmuseum Webspecials
<http://www.rijksmuseum.nl/webspecials?lang=en>

Society of American Archivists Online Glossary
www.archivists.org/glossary/list.asp

Stanford University, Computer Graphics Laboratory, Digital Michelangelo Project
<http://graphics.stanford.edu/projects/mich/>

State Archive Image Gallery
<http://www.archives.gov.il/ArchiveGov/otsrot/Gallery/>

Steven Spielberg Jewish Film Archive at Hebrew University of Jerusalem
<http://www.spielbergfilmarchive.org.il/main.htm>

Tate Gallery Collections
<http://www.tate.org.uk/collection/>

Toronto Public Library Digital Collections
<http://digitalcollections.torontopubliclibrary.ca/webDC/begin.do>

Victoria & Albert Museum, Things to do online
http://www.vam.ac.uk/collections/periods_styles/todoonline/index.html

Virtual Museum Canada
<http://www.museevirtuel-virtualmuseum.ca/index-eng.jsp>

Visual Resources Association (VRA) Core 4.0
<http://www.vraweb.org/projects/vracore4/>

World Digital Library
<http://www.wdl.org/en/>

Yad VaShem Image search
<http://www6.yadvashem.org/wps/portal/photo?lang=iw&homepage=true>

Yale University Library Digital Collections
<http://www.library.yale.edu/libraries/digcoll.html>

Ziffer House: Documentation and Research Center of Israeli Visual Arts
http://arts.tau.ac.il/index.php?option=com_content&task=view&id=239&Itemid=377&lang=en

8. APPENDIX

- 8.1. The Research Team
- 8.2. Bezalel School of Art and Design, Jerusalem
- 8.3. National Workshop
 - Detailed Programme
 - List of Registered Participants
 - Images
- 8.4. Fine Art Professional Workshop
 - List of Registered Participants
 - Images
- 8.5. Industrial Design Professional Workshop
 - List of Registered Participants
 - Images
- 8.6. List of Accredited Museums in Israel
- 8.7. List of elements used by the Bezalel archive

8.1. The Research Team

Michael Turner is a practicing architect, professor, teaching in the graduate programme of the Bezalel Academy of Arts and Design and UNESCO Chairholder in Urban Design and Conservation Studies. He has been involved with urban and environmental issues establishing the first Municipal Unit in 1974 in Jerusalem. Since 1983 he has been in private practice, and leads design teams for projects in Israel in the field of urbanism and conservation.

His recent research activities include membership in the Jerusalem Berlin Forum reviewing these Divided Cities and offering mechanisms that can promote a transition to sustainable peace; two EU projects, on the management of pre-historic sites in the Mediterranean; and a tri-national Partnership for Peace project with Israeli, Jordanian and Palestinian academics, promoting the understanding of shared heritage.

Serving on many professional-academic bodies, he is currently Chair of the Israel World Heritage Committee and an initiator of the National Archive for Art, Architecture and Design linked to the UNESCO Memory of the World.

With over a decade of professional contribution in UNESCO, including advising on Ilha de Mozambique, the Auschwitz-Birkenau Concentration Camp and the preparation of a cultural inventory in Ethiopia. He has accompanied the debate on Historic Urban Landscapes.

Rae'ut Stern is a design researcher and lecturer at Bezalel Academy of Art and Design.

Rae'ut received her BA in Psychology and Communications from Tel Aviv University (cum laude) and her M.Des. in Design Management from the Bezalel Academy (magna cum laude). During her studies at Bezalel Academy, Rae'ut was awarded a research grant under the auspices of the President of Bezalel Academy for research of Universal Design in Israel.

Recent research work included heading an interdisciplinary team developing a communication device for physician-patient encounters lacking a common language.

Currently, Rae'ut resides in Jerusalem and is the research coordinator and head researcher of industrial design at the Memory of the World UNESCO pilot study at Bezalel Academy.

Aharon Ozery is a lecturer at Bezalel Academy of art and Design and head researcher of Art at the Memory of the World UNESCO pilot study at Bezalel Academy.

Aharon received his BA from the Bezalel Academy. During his studies, he participated in the student exchange program at Cooper Union School of Art and Design, NY.

Aharon was awarded the *Young Artist* prize 2007 by the Israeli Ministry of Culture and the *Excellence Award* from the Art department at Bezalel Academy.

Selection of solo shows: 2008- Capillation, Inga gallery, Tel –Aviv; 2007- Trans-Missions, Gallery David Gallo, Berlin; 2006- Sculpture, Artist Studio Gallery, Tel-Aviv.

Selection of group shows: 2009- Universal Circus, Artlv, Tel-Aviv; 2009- Beit Mani, Tel-Aviv; 2009- After the Deluge, Shenkar – Project space, Ramat Gan; 2009- Fresh Paint 2, Tel-Aviv; 2008- Pulse Miami- Contemporary Art Fair, Miami; 2007-Preview Berlin Art Fair, Berlin.

Aharon currently resides in Tel Aviv. He plans to travel to Berlin in July 2010 for the year long *Kunstlerhaus Bethanien* Residency.

Research Assistants

Elad Horn is a senior at Bezalel Academy of Art and Design, School of Architecture. Since 2009 has been Research Assistant to Prof. Mike Turner, UNESCO Chair for Urban Design and Conservation Studies. Elad currently resides in Buenos Aires, Argentina, as part of a student exchange program.

Maya Elran is a senior art student in the Bezalel Academy of Art and Design, Art Department. Maya works as a performance artist and has a great interest in curatorial processes and the "behind the scene" aspects of the art world. Maya was engaged in the MOW pilot at Bezalel as a research assistant to Aharon Ozery. Maya currently resides in Toronto, Canada, as part of a student exchange program at the Ontario College of Art and Design – OCAD.

Koby Sibony is a junior at Bezalel Academy of Art and Design, Industrial Design Department. Koby assisted Rae'ut Stern during March 2010 with the organization of the industrial design professional workshop. Koby currently resides in Jerusalem.

8.2. *Bezalel Academy of Art and Design, Jerusalem*

In 1903 Professor Boris Schatz, one of the founders of the Royal Academy of Art in Sofia, Bulgaria, approached Theodor Herzl, father of modern political Zionism, and proposed to establish a school of arts and crafts in the Land of Israel. The proposal was accepted in 1905 by The Seventh Zionist Congress in Basel and established in 1906 as the “Bezalel School of Arts and Crafts”.

Since 1906 the school has evolved as one of Israel’s leading academies of art and design, now named the “Bezalel academy of arts and design Jerusalem” or simply, “Bezalel”. Through out the years, Bezalel’s unique strength lay in the ability to respond in a timely manner to cultural changes, as demonstrated by the numerous artistic breakthroughs it has been responsible for.

A broad and multifaceted scope of professional and artistic activities composes the academic life at Bezalel. The scope of activities ranges from crafts such as the design of ceramics, glass and jewellery, which preserve ancient techniques, through advanced material research to the publishing of the acclaimed interdisciplinary E-journal “Protocols”. The Academy maintains workshops and facilities unparalleled nationwide that keep both students and faculty exposed to the ongoing changes in technology used in the various fields such as industrial design, art sculpture, fashion animation, video art and visual communications.

Bezalel takes pride in its many generations of graduates – artists, designers and architects at the cutting edge of their fields in Israel and all over the globe. These have placed Bezalel at the epicentre of Israel’s cultural discourse and artistic scene, making it instrumental in shaping and enriching the country’s cultural identity.

8.3. National Workshop "Hybrid Heritage": Towards sharing cultural knowledge. Detailed programme



צילום: צבי אלחייני

09:00	השתתפות: גנך המדינה; הספרייה הלאומית; הארכיון הציני המרכזי; מוזיאון ישראל; המרכז לאמנות יהודית באוניברסיטה העברית; המוזיאון לאמנות יהודית. היכל שלמה; סינמטק ירושלים; ארכיון יד יערי וספריית השלום. גבעת הביכזה. הפורום לשימור הזיכרון האודיוויזואלי בישראל; ביים גזדה להנדסה ועיצוב. שוקה ספריית החומרים. מוזיאון העיצוב חולון; המוזיאון הישראלי לקריקטורה וקומיקס.
09:30	התכנסות – ברכות ודברי מתיחה דניאל ברי-אלי, מנכ"ל הוועד הישראלי לאונסק"ו פרופ' יערה בר און, משנה לנשיא לעניינים אקדמיים, בצלאל פרופ' ניב אחיטוב, יו"ר ועדת 'מידע לכל' של הוועד הישראלי לאונסק"ו ואוניברסיטת תל אביב
10:00	הרצאת אורח Digital libraries in the digital era – a challenging venue for information sharing. ד"ר סורין חרמון, מתאם המחקר בנושאי מורשת תרבותית דיגיטלית ומדעי הארכיוולוגיה. The Cyprus Institute.
10:30	מושב א': אתגרים וחדושים בדיגיטיזציה וקטלוג של מורשת חזותית אורלי סימון, מנהלת יחידת מחשוב וטכנולוגיית מידע, הספרייה הלאומית אריאלה אמור, ראש מדור בתי כנסת ותשמישי קדושה, המרכז לאמנות יהודית באוניברסיטה העברית רחל רובינשטיין, סגנית מנהל לענייני ארכיונאות, הארכיון הציני המרכזי ד"ר סוזן חזן, אוצרת למולטימדיה, מוזיאון ישראל ראובן כהן, ראש מכון שנקר לחקר העיצוב
11:30	הפסקת קפה
11:40	דיון בהנחיית פרופ' יערה בר און
13:00	הפסקת צהרים
13:40	מושב ב': דוגמאות ודילמות מפיילוט "זיכרון העולם" בצלאל עיצוב: רעות שטרן ארכיטקטורה: אד"ר צבי אלחייני אמנות: אהרון עוזרי
14:40	דיון בהנחיית ד"ר סורין חרמון
15:40	הפסקת קפה
15:50	מושב ג': "זיכרון העולם" לאן מינז? אילן דה פריז, מנהל סינמטק ירושלים אסף טרקטנינסקי, מנהל מחלקת מידע ורישום, גנך המדינה דרור אמיתי, מנהל ארכיון השומר הצעיר יד יערי ופרוקטור הדיגיטיזציה בספריית השלום. גבעת הביכזה
16:40	דיון בהנחיית פרופ' מיקה טרנר יו"ר הוועדה הישראלית למורשת עולמית, הקתדרה של אונסק"ו ללימודי עיצוב אורבני ושימור, בצלאל

השתתפות אינה כרוכה בתשלום וכוללת ארוחת צהרים לנושאים מראש
נא אשרו השתתפות עד תאריך 2.9.2009
השתתפות על בסיס מקום פנוי
טלפון: 052-4418690, דוא"ר: mow.workshop@bezalel.ac.il

**List of Registered Participants at National Workshop:
 "Hybrid Heritage": Towards sharing cultural knowledge"
 September 6th 2009**

	NAME	TITLE	ORGANIZATION
1	Sharon Shapira-Glaubach	University Library	University of Haifa
2	Niv Achituv	PhD Vice-President and Director General	UNESCO, Tel Aviv University
3	Daniel Bar-Eli	Secretary-General Israel National Commission for UNESCO	UNESCO
4	Hila Zahavi	Archive manager	The Museum of Caricature and Comics Holon
5	Galya Richler	Michael-Israel coordinator	The Jewish National and University Library
6	Orly Simon	Head of IT Dept. at National Library of Israel	The Jewish National and University Library
7	Ilan Gafni	New Media Consultant	the Jerusalem Cinematheque
8	Ilan De Vries	Director	the Jerusalem Cinematheque
9	Efrat Friedland	Materials Library Manager	The Israeli Design Center - Mediatheque Holon
10	Amnon Zilber	Center Manager	The Israeli Design Center - Mediatheque Holon
11	Assaf Tractinsky	Head of Information and Cataloguing Department	The Israel State Archives
12	Ronit Notrika	Computing consultant	The Israel State Archives
13	Amalyah Keshet	Head of Image Resources & Copyright Management	The Israel Museum, Jerusalem
14	Alona Farber	Database Coordinator	The Israel Museum, Jerusalem
15	Allison Kupietzky	PhD Collections Database Manager	The Israel Museum, Jerusalem
16	Susan Hazan	PhD Curator of New Media	The Israel Museum, Jerusalem
17	Pnina Shor	Head of the Department for the Treatment and Conservation of Artifacts	The Israel Antiquities Authority
18	Ariella Amar	Head of the Synagogues and Ritual Objects Section	The Hebrew University of Jerusalem
19	Miki Joelson	Joseph and Margit Hoffmann Collection	The Hebrew University of Jerusalem
20	Asaf Oron	Conservator	The Eretz Israel Museum - Tel Aviv
21	Alina getzel	Registrar department	The Eretz Israel Museum - Tel Aviv
22	Shira Gorbin	preservation	The Eretz Israel Museum - Tel Aviv

23	Sorin Hermon	PhD	Research Coordinator on Digital Cultural Heritage and Archaeological Sciences	The Cyprus Institute
24	Rachel Rubinstein		Deputy director of the Central Zionist Archives	The Central Zionist Archives
25	Ofra Rechter	PhD	Philosophy Department	Tel Aviv University
26	Hadar Oren		Photographer	Tel Aviv Museum of Art
27	Ruben Kohn		Head of the Shenkar Design Archive and Research Center	Shenkar College of Engineering and Design
28	Debbie Lin		product manager	IDEA
29	Lior Ekron		Marcom and sales manager	IDEA
30	Ori Ainy		VP Sales EMEA	IDEA
31	Yehuda Levy-Aldema		Curator	Hechal-Shlomo – The Jewish Art Museum
32	Dudu Amitay		Spokesperson and co-director of the digitization project of the Palestinian newspaper archive in the Peace Library	Givat Haviva
33	Yuval Danieli		Director of Arts at the HaShomer Archives	Givat Haviva
34	Moran Szerer		Head of digital resources	Bezalel Academy of art and Design
35	Ziv Tsfati		Digital Library	Bezalel Academy of art and Design
36	Eldad Shalhevet		Director of Information Technology	Bezalel Academy of art and Design
37	Aharon Ozery		Pilot Researcher	Bezalel Academy of art and Design
38	Elad Horn		Research Assistant	Bezalel Academy of art and Design
39	Yaara Bar-On	PhD	Deputy President for Academic Affairs	Bezalel Academy of art and Design
40	Michael Turner	PhD	UNESCO Chair for Urban Design and Conservation Studies	Bezalel Academy of art and Design
41	Zvi Elhyani		Pilot Researcher	Bezalel Academy of art and Design
42	Rae'ut Stern		Pilot Research Coordinator	Bezalel Academy of art and Design
43	Maya Elran		Research Assistant	Bezalel Academy of art and Design
44	Prof. Aliza Cohen-Mushlin	PhD	associate professor emeritus of History of Art at the Hebrew University	Center for Jewish Art
45	Maya Dvash		Design journalist and curator	
46	Margaret Lev			
47	Tzipi Isenman			

Participants of the National Workshop Sharing Thoughts and Critique
(Photographer: Barak Brinker)



**8.4. Fine Art Professional Workshop
List of Registered Participants
December 17th 2009**

	NAME	Description	ORGANIZATION
1	Doron Rabina	Artist and Head of School	Midrasha School of Art
2	Prof. Gila Ballas	The Department of Art History, Faculty of the Arts	Tel Aviv University
3	Neomi Givon	Gallery owner	Givon Gallery
4	Shoni Rivnai	Artist, Collector, Designer	Owner at Bauman-Rivnai advertising agency
5	Shai Shaul	Businessman, Photographer	
6	Eitan Buganim	Artist, Journalist	
7	Roni Manor	Head of Library and Digital Resources	Bezalel Academy of art and Design
8	Ruti Director	Curator and Lecturer	Bezalel Academy of art and Design
9	Nahum Tevet	Head of M.A program	Bezalel Academy of art and Design
10	Ido Bar-El	Head of Fine Art department	Bezalel Academy of art and Design
11	Aharon Ozery	Head Researcher for Art Pilot	Bezalel Academy of art and Design
12	Rae'ut Stern	Pilot Research Coordinator	Bezalel Academy of art and Design
13	Michael Turner	UNESCO Chair for Urban Design and Conservation Studies	Bezalel Academy of art and Design
14	Maya Elran	Research Assistant	Bezalel Academy of art and Design

Participants of the Fine Art Professional Workshop
(Photographer: Barak Brinker)



8.5. Industrial Design Professional workshop
List of Registered Participants
March 9th 2010

	NAME	Description	ORGANIZATION
1	Pini Leibovich	Designer and Lecturer	Shenkar College of Engineering and Design
2	Gideon Dotan	Designer and Lecturer	Shenkar College of Engineering and Design
3	Hadas Kruk	Designer and Researcher	Armadillo Studio
4	Sary Paran	Gallery owner	Periscope Gallery
5	Kenny Segal	Inclusive Industrial Design Department Chair	Haddasah College
6	Wili Mizrahi	Head of Industrial Design Program	Avni Institute of Art and Design
7	Safi Hefetz	Designer and Lecturer	i2d design studio
8	Raviv Lifshitz	Designer	Raviv Lifshitz Design Studio
9	Efrat Friedland	Materials Library Manager	The Israeli Design Center - Mediatheque Holon
10	David Raved	Designer and Lecturer	Holon Institute of Technology
11	Yaakov Kaufman	Designer and Lecturer	Bezalel Academy of art and Design
12	Maya Vinitzky	Designer and Researcher	Bezalel Academy of art and Design
13	Galit shvo	Designer and Lecturer	Bezalel Academy of art and Design
14	Elad Persov	Head of "Design Management" program	Bezalel Academy of art and Design
15	Ilanit Kabesa	Head of "About Design" program	Bezalel Academy of art and Design
16	Ori bar tal	Researcher	Bezalel Academy of art and Design
17	Eyal Eliav	Designer and Lecturer	Bezalel Academy of art and Design
18	Ezri Tarazi	chair of Master Program in Industrial Design	Bezalel Academy of art and Design
19	Rae'ut Stern	Pilot Research Coordinator	Bezalel Academy of art and Design
20	Michael Turner	UNESCO Chair for Urban Design and Conservation Studies	Bezalel Academy of art and Design
21	Roni Manor	Head of Library and Digital Resources	Bezalel Academy of art and Design
22	Koby Sibony	Research Assistant	Bezalel Academy of art and Design

Participants of the Industrial Design Professional Workshop

(Photographer: Barak Brinker)



8.6. List of Accredited Museums in Israel

Name	Website	Online Access to collections or digitization
Petach Tikva Museum Of Art	www.petachtikvamuseum.com	No
The Old Courtyard at Ein Shemer	http://www.courtyard.co.il	No
Aaronsohn House-Nili Museum	http://www.nili-museum.org.il/	No
Bar-David museum	www.bardavid-museum.org.il	No
Beit Hameiri	http://www.kav-lahinuch.co.il/?CategoryID=201&ArticleID=6031	No
Beit Hatfutsot: The Museum of the Jewish People	http://www.bh.org.il	Yes
Beit Lohamei Haghetat	http://www.gfh.org.il/	yes
Beit Miriam	http://www.palmachim.org.il	No
Beit Shturman Museum	http://www.einhardm.co.il/sturman.htm	No
Beit Usishkin	http://www.datinet.co.il/1/usishkin/	No
Bet-alon	http://www.bet-alon.co.il/info/content.php	Basic Gallery
Bible Lands Museum Jerusalem	www.blmj.org	Basic Gallery
Bloomfield Science Museum Jerusalem	http://www.mada.org.il	Educational Gallery
Clore Garden of Science	http://www.weizmann.ac.il/diff_angle/garden/	No
Ein-Dor Museum of Archaeology	http://www.eindormuseum.co.il/	No
Eretz Israel Museum, Tel Aviv	www.eretzmuseum.org.il	No
Haifa Museums	www.hms.org.il	Yes
Hatser Telhai	http://www.hatser-telhai.org.il	No
Hechal Shlomo - center for judaism Jerusalem	http://www.hechalshlomo.org.il/	No
Hecht Museum	http://mushecht.haifa.ac.il	Basic Gallery
Herzliya Museum Of Contemporary Art	http://www.herzliyamuseum.co.il	Yes

Janco Dada Museum	www.jancodada.co.il	No
MadaTech - The Israel National Museum of Science	http://www.madatech.org.il	No
Man And The Living World Museum National Park, Ramat-Gan	www.adamvechai.org.il	No
Mané-Katz Museum	http://www1.haifa.muni.il/maneKatz/cmsPage.html	No
Mizgaga Museum	http://www.mizgaga.com/Site/pages/homePage.asp	No
Museum of Art Ein Harod	http://www.museumeinharod.org.il/	No
Museum of Human Sciences and Environment	http://ilmuseums.com/museum_heb.asp?id=212	No
Museum of Negev	http://negevmuseum.beer-sheva.gonegev.co.il/	No
Museum of Regional and Mediterranean Archaeology	http://www.gan3.co.il/hebrew/List.aspx?Item=680	No
Museum Yarmukian Culture	http://www.myc.org.il/	Basic Gallery
Old Yishuv Court	http://www.datinet.co.il/1/museum_haishuv_hayashan/index.html	No
Rishon Le-Zion Museum	http://rishonlezion-museum.org.il	Yes
Rubin Museum	http://www.rubinmuseum.org.il	Yes
Tel Aviv Museum of Art	www.tamuseum.com	No
The" KHAN" Museum Hadera	http://www.khan-hadera.org.il	No
The Dagon Grain Museum	http://cms.education.gov.il/EducationCMS/Units/Agafa/Mozeon/Lefinosaim/Arhiologia/osefdagon.htm	No
The Golan Archeological Museum	http://museum.golan.org.il	No
The Industrial Parks and The Open museums	http://www.omuseums.org.il/museum/default.aspx	No
The Israel Museum, Jerusalem	www.imjnet.org.il	Yes
The Mazkeret-Batya museum	http://www.mazkeret.org/museum	No
The Museum of Islamic Art in Jerusalem	www.islamicart.co.il	No
The Museum of Israeli Art , Ramat-Gan	www.m-i-a.co.il	No
The Museum of Kfar Saba	http://www.kfar-saba-museum.org/	No
The Museum of Bedouin Culture	http://www.joealon.org.il/hebrew/heb_beduin.htm	Basic Gallery

The Nahum Gutman Museum of Art	www.gutmanmuseum.co.il	No
The Pioneer Settlement Museum	http://www.pioneers.co.il	No
Prehistoric Man Museum	http://theprehistoricmanmuseum.blogspot.com	No
The U.Nahon Museum of Italian Jewish Art	www.datinet.co.il/1/museum_italy	No
Tower of David-The Museum of The History of Jerusalem	http://www.towerofdavid.org.il	No
Wilfrid Israel Museum	http://www.wilfrid.org.il	No
Yad Mordechai Museum	http://www.yadmor.org.il/info/tayrut/mozeon/mozeon.htm	אף
Yad Vashem	www.yadvashem.org	Yes

8.7. Element Set Used in Bezalel Archive, Compared to the Simple Dublin Core and other Element Sets

Based on the chart provided by Getty Institute at

http://www.getty.edu/research/conducting_research/standards/intrometadata/crosswalks.html

VRA 4.0 XML	CDWA Lite [2]	CCO [1]	CDWA	Dublin Core	Simple Dublin Core	Bezalel Archive Current Element Set
<vra: agent><display> in <vra: work> or <vra: collection>	<cdwalite: displayCreator>	Creator Display - The Creator element identifies the individual, group of individuals, corporate body, cultural group, or other entity that contributed to creating, designing, producing, manufacturing, or altering the work.	4.1 Creator Description	Creator - An entity primarily responsible for making the resource	creator	Author/creator
						Photographed/ digitized by
<vra: title> in <vra: work> or <vra: collection>	<cdwalite:title>	Title - כותר שניתן - 'אמן, אספן, מוסד' או מלומד. באין כותר על המקטלג לתת כותר	3.1 Titel Text	Title = A name given to the resource	title	Title
						Subtitle
Record Type - זיהוי מדויק של סוג העבודה, אוסף או דימוי	<cdwalite: objectWorkType>	Work Type - צורה פיזית, תפקוד או מדיום	1.2 Object/Work Type	Type = The nature or genre of the resource.	type	Object
						Sub-object
<vra: date type="creation"> in <vra: work> or <vra: collection>	<cdwalite:display CreationDate>	Display Date	4.2 Creation Date	Date.Created - A point or period of time associated with an event in the lifecycle of the resource	date	Dating / Date
<vra: location type="creation" in <vra: work> or <vra: collection>	<cdwalite: locationName> type = creationLocation	Creation Location - Creation Location is where the work or its components was or were created, designed, or produced	4.3 Creation Place / Original Location	Subject or Coverage.Spatial - the spatial applicability of the resource		creation place
<vra: measurements><display> in <vra: work> or <vra: collection>	<cdwalite:display Measurements>	Measurements Display - The Measurements element contains information about the dimensions, size, or scale of the work	6.1 Dimension	Format - The file format, physical medium, or dimensions of the resource.	format	Measurements
				7.6. Material Color		Color/Monochrome
						Ordered by / course name

				Description - re-text account of the resource.		Notes / Information
				<vra: materials><display> in <vra: work> or <vra: collection>		Technique / Materials
						Keywords
						Site
						Item no.
						Category
						Sub Category
						Provenance
						Cataloger
						Catalog date
						Cataloger notes
					publisher	
					contributor	
					subject	
					description	
					identifier	
					source	
					language	
					relation	
					coverage	
					rights	

