InterPARES 3 Project

International Research on Permanent Authentic Records in Electronic Systems

TEAM Canada

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A. Overview

In 2008, the City of Surrey undertook and Enterprise Content Management Program (ECM) that aimed to transition the City of Surrey's existing unstructured electronic records into a custom-built application to provide records management throughout the information lifecycle, and to provide a sustainable foundation for e-business standardization, workflow integration, enterprise-wide collaboration and paper reduction, in a business environment characterized by continued, rapid growth. InterPARES 3 accepted the City of Surrey as a test-bed partner *(Case Study 14 – City of Surrey Policies, Guidelines and Procedures for a Drive Migration Project as part of an Enterprise Content Management Program)*, participating in the ECM project by supporting the Drive Migration Project through the development of project methodology, research, assessment, documentation, and other forms of guidance.

The mission of the Drive Migration Project was to successfully appraise and transition the City of Surrey's existing unstructured electronic records from shared drives to an Enterprise Content Management system for long-term preservation or offline for authorized deletion. In 2008, the City held millions of information assets on large servers with multiple drive paths. Many of these assets were low-value records that were duplicated across drives, existed in various versions, and/or had met their legal and operational needs. Others were mission critical assets that needed to be identified, reviewed and uploaded to the ECM repository for long-term management and preservation.

The City required that the appraisal, re-classification, transitioning and authorized disposal of legacy unstructured information assets stored on the shared drives be completed according to records management best practices and yet be automated, to meet operational production requirements. Key assets had to be identified and set aside for long-term preservation, while expired and redundant records had to meet disposal requirements.

Through the process of completing the Drive Migration project the Graduate Research Assistants (GRAs) for case study 14 created a series of deliverables including an Appraisal Report Guide (Appendix 1) and two IDEFØ models, one of which illustrates the process of the migrating the records from shared drives into the ECM undertaken by the City of Surrey (Appendix 2), and another more generic model that models the steps necessary for the migration of shared drive records into an ECM and is applicable to organizations who are in the process of developing a similar program (Appendix 3).

B. Statement of Methodology

Case study 14 followed the action research design and case study methodology of InterPARES 3. Using a combination of semi-structured interviews and document analysis, the GRAs collaborated with the test-bed partners in an iterative process of data collection. Data were then presented to the TEAM Canada researchers for evaluation, discussion and recommendations at the bi-annual research plenaries in Vancouver.

The GRAs gathered data from the City's Web site and from interviews conducted with City employees. The GRAs also gathered data from documents provided by the test-bed partner

to get a full picture of the context of the test-bed and the elements of the case study. These data were used to complete the Contextual Analysis Report (v2.1),[1] the Records Research Questions Report (v2.0),[2] the Recordkeeping Systems Research Questions Report (v2.2)[3] and the Policy Research Questions Report (v2.0).[4] These documents were refined through an iterative process by the GRAs and the test-bed partner.

C. Description of context

Provenancial

The City of Surrey is a public entity, incorporated in 1879. It has a population of 452,000, and is currently the 12th largest city in Canada and the 2nd largest city in British Columbia. Staff includes over 3,000 full- and part-time workers in eight departments.

According to the City's value statement, the City is "an innovative team serving the community with integrity." The statement has further definitions around community, innovation, integrity, service and teamwork.

The City's goals and accomplishments are defined in the Annual Report and focus on the Official Community Plan; public safety; financial planning; infrastructure support; community services; public participation; employee recruitment and succession; inter-governmental co-operation; and effectively coordinating City programs, policies and initiatives. Council's policy responsibilities are defined under the *Community Charter* section 115(b) and include formulating policy to approve projects, programs and services. The City's *Policy Manual* was last approved in 1991, reviewed in 2001, and is currently being reviewed and revised for approval in the fall of 2009.

The City's record program began in the late 1970s, when a file classification plan with retention schedules was first implemented. In the 1980s, a Records Centre was set up in the basement of City Hall to manage the logistics associated with the transfer of File Registry records to off-site storage. A microfilming program was also implemented around this time. The first records management by-law was passed in 1992 and amended in 1994.

In 1999, the Human Resources division developed an Electronic Communications Acceptable Usage Policy, subsequently revised in 2008. This policy essentially defines acceptable use as "City business purposes only" and applies to electronic mail, internet, intranet, mobile phones, telephone services, fax services and paging services. After logging on to their computers, staff see a screen that advises them that the computer is the property of the City; that all records are subject to FOIPPA and litigation; that the City reserves the right to audit; that their log on is confidential; and that they are responsible for all activities completed under their log on.

[1] Unpublished, restricted InterPARES 3 project document.
[2] Unpublished, restricted InterPARES 3 project document.
[3] Unpublished, restricted InterPARES 3 project document.
[4] Unpublished, restricted InterPARES 3 project document.

The Records Management Manual was last updated in 1999, and since then, only minimal training has been provided to new and existing staff. For the most part, business units have developed their own methods of working with records. Through the 1990s and the 2000s, the City's electronic infrastructure developed, and there are now over 200 servers supporting City data. In 2005, the first step towards electronic records control was taken with the implementation of Laserfiche, an application that manages the media conversion process (paper to digital records). In preparation for the implementation of the Enterprise Content Management (ECM) system, this by-law will be revoked, and a new by-law adopted by fall of 2009. The new by-law will define records, systems, roles and responsibilities, and formally authorize the Corporate File Plan and Records Management Manual. The by-law will apply to records regardless of format.

> In 2006, the Enterprise Content Management (ECM) Program was established, with Information Technology division in the lead role. By 2008, the need for an information professional was recognized, and a Record Manager was hired to take on the role of ECM Program Director. Reporting to the City Manager's Office department and the Legislative Services division, the Records Management Section's functions include administering the Records Program to the City; maintaining the Corporate File Plan (classification schema and retention schedules); managing the storage and disposition of records; and providing training to staff.

Juridical-administrative

As a public body, the City of Surrey is accountable to a variety of stakeholders that include: taxpayers and the wider public; business partners and vendors; and region, provincial and federal governments. The governing body of the City is comprised of a Mayor and eight Council members who are elected by the citizens of the city. The City is bound to follow all City By-laws, relevant Canadian and British Columbia regulations and statutes, including the *Community Charter,* the *Local Government Act,* the *Evidence Act,* and the *Freedom of Information and Protection of Privacy Act*.

The City is divided into eight departments: City Manager's Office; Engineering; Planning & Development; Finance & Information Technology; Parks, Recreation & Culture; Library; and Fire. The City of Surrey contracts the Royal Canadian Mounted Police (RCMP) to provide municipal-level police services.

Activities within the City are brought forward to Council by departments as By-laws or Council Reports containing recommendations, adopted as By-laws or Resolutions of Council. By-laws are approved by the Province of British Columbia. Activities are also identified by Council, or brought forward to Council by citizens and business people, and referred to departments for action.

Key to this process are the General Managers of the departments, who form the Senior Management Team (SMT), which is responsible for guiding staff activities. The SMT approves any internal administrative policies. The Senior Management Team includes:

- City Manager
- Deputy City Manager
- General Manager, Planning and Development
- General Manager, Engineering
- General Manager, Parks, Recreation and Culture
- General Manager, Finance and Technology
- General Manager, Human Resources
- City Solicitor
- Fire Chief
- Officer-in-Charge, RCMP
- Chief Librarian

In addition to the City bylaws already mentioned, Surrey adheres to over sixty-five federal and provincial acts and ten codes. These include:

- *Community Charter, SBC 2003*
- *Local Government Act, R.S.B.C 1996*
- *Freedom of Information Act and Protection of Privacy Act,* R.S.B.C 1996
- *Evidence Act, R.S.B.C 1996*
- *Document Disposal Act, R.S.B.C 1996*
- *Financial Information Act, R.S.B.C 1996*
- *Employment Standards Act, R.S.B.C 1996*
- *Workers Compensation Act, R.S.B.C 1996*
- *Environmental Management Act, S.B.C 2003*

The records requirements listed in the acts are reflected in the retention requirements. The City has worked with the *Local Government Municipal Association* team (Sandie Bradley and Stuart Rennie) to ensure all requirements were captured in the current version of the Corporate File Plan. The Corporate Records Program is governed by City of Surrey By-Law No.17002, the Corporate Records By-Law (currently in draft form). This by-law will specify how records are managed within the City, and dictated responsibilities for records activities. The Corporate Records Program is designed to ensure that records are collected, stored, accessed, preserved, destroyed and reused in ways that meet the City's legal, operational, and administrative obligations.

Procedural

The Records Program is administered by the Records Manager, who reports to the City Clerk in Legislative Services, who then reports to the City Manager. The City Clerk presents the Records By-law to Council for adoption; liaises with the Legal division on compliance issues; and participates in the ECM (dubbed InfoShare) Selection Committee and InfoShare Working Group. The Records Manager administers the City's Records Management program.

As the ECM Program Director , the Records Manager defines and produces RM program and project deliverables; contributes to IT project deliverables, (including the Requirements

Specification); and chairs the InfoShare Working Group. The Records Manager reports to the Executive Sponsor (the Deputy City Manager) and also provides updates to the IT Management Team.

Documentary

Records are created by staff in all departments across the City. Unstructured records include text-based documents (such as by-laws, agendas, minutes, reports, correspondence, memoranda, e-mail and Web pages); images uploaded from cameras, scanners and photocopiers (such as photographs and scans); and drawings (such as plans or maps). A few business units may collect audio/visual recordings (such as meetings or inspections).

City workers use over 150 desktop software applications during the course of daily business. In general, the specific functions and activities of each division will determine the software applications used; however, digital unstructured records are created using what are referred to as "authoring tools." Microsoft Office (Word, PowerPoint, Excel, Project, Visio, Publisher, and Outlook) is the primary authoring tool suite used to create the City's unstructured electronic records.

Technological

The Records Management Section is located at City Hall, and occupies three areas with seven workstations. It includes an onsite Records Centre where 1,000 boxes of the City's semi-active and inactive paper records are stored, with an additional 14,000 records boxes stored off-site with a third-party vendor. There are twelve File Registries located primarily in business units at City Hall, and Central Filing Areas in the fifty-plus City facilities located across the municipality.

The Surrey Archives are located about six kilometres west of City Hall. The Archives' corporate holdings include original by-laws, electronic copies of Council Minutes, some zoning maps, and miscellaneous accessions. However, the Surrey Archives serves as a historical institution and does not receive accruals of City records.

The City's electronic records are stored on two hundred servers supported by Information Technology at City Hall and other City facilities. The City maintains both structured and unstructured databases. Structured databases serve specific business needs and are capable of including unstructured files as attachments. The structured records managed within these databases will not be ingested into the ECM as the data is already well managed and meeting business needs.

The majority of the City's unstructured electronic records are housed on the City's file shares located within its internal secure network. The estimated total volume is of upwards of 4 million files. These are the digital objects that are the subjects of the Drive Migration Project.

D. Narrative answers to the applicable set of questions for researchers

The goal of the ECM program was to develop an integrated and centralized digital recordkeeping system for the entire City where records would be captured, maintained and preserved in a single repository regardless of media and form. All divisions will use and share this system.

The purpose of this case study was to provide guidance based on research knowledge and best practice for the migration of the City of Surrey's digital records into the centralized ECM system. To do this, the GRAs collected data about the records, the recordkeeping systems and relevant policies and procedures of the City of Surrey.

Records Policy

The *Community Charter,* section 115(b), mandates that by-laws, policies and complementary guidelines guide activities at the City of Surrey These guidelines must always compliment corporate policy. Compliance is the duty of the division managers. The City Clerk and Legal Services are responsible for ensuring that policies follow legal requirements. They also ensure that policies and guidelines do not conflict with each other.

The Legislative Services division is responsible for writing the records/archives policy. The City of Surrey has formalized this policy in a Records By-law (1992, amended in 1994 and 2003), and is in the process of writing a new by-law to be adopted in the fall of 2009. Although responsibility ultimately belongs to Legislative Services, input is sought from other departments. The City thus considers its records policy to be a collaborative effort.

The new records by-law currently being written will formalize both the use of the newest version of the Corporate File Plan, and the new Records Management Manual. The implementation of an Enterprise Content Management System will include an update to the records manual and the creation of six online training modules and workshops for clerical records staff.

The Legislative Services division administers the records program, and is thus responsible for accountability. Auditing procedures have been introduced within the Records Centre, in which boxes sent down from divisions are now checked against the retention schedule to ensure that what is written on the box reflects the reality of what is inside. Before any records are destroyed, a General Manager and the Records Manager sign off on the destruction. In the future, auditing will be a part of any new records policies and training.

The Surrey Archives is part of Heritage Facilities and Services, which is in turn a division of Parks and Recreation. As such, the Archives does not have an authoritative relationship with the City's records. In contrast, the Legislative Services division, responsible for the implementation of records policy, is a part of the City Manager's office. The City Clerk delegates responsibility for administering the records program to the Records Manager. The Archives functions as a community archives and currently has no role in records scheduling or disposition. Long-term preservation of City operational records is assigned to the responsibility of the Records Centre and, going forward, the responsibility of the ECM.

Legislative Services is responsible for records overall and is also responsible for administering *FOIPPA*. Individual divisions are responsible for following records management procedures. This can include operating a file registry, classifying and filing records, as well as ensuring that transfers are made to the Records Centre. Information Technology is responsible for maintaining electronic systems, files, and access controls. There is a high degree of on-going collaboration between the Legislative Services division, IT, and individual departments.

The existing policies, procedures and standards are currently being used on a voluntary basis. These are being modified and augmented to be strengthened and for better control and city-wide compliance.

The legal obligations of the City of Surrey are many and include the City's own bylaws, sixty-five federal and provincial acts and ten codes. These include: *Community Charter, SBC 2003, Local Government Act, R.S.B.C. 1996, Freedom of Information and Protection of Privacy Act, R.S.B.C 1996, Evidence Act, R.S.B.C 1996, Financial Information Act, R.S.B.C 1996, Employment Standards Act, R.S.B.C 1996, Workers Compensation Act, R.S.B.C 1996, and Environmental Management Act, S.B.C 2003*. Additionally, the Laserfiche system application, used to scan documents, is compliant with *CGSB 72.34 Electronic Records as Documentary Evidence*, and the goal is to apply this standard to the ECM system. The City is working towards Payment Card Industry (PCI) Standard compliance.

Recordkeeping systems – the situation prior to the ECM

The City of Surrey has a structured recordkeeping system for its physical records. The physical records are managed by the file classification plan that is supported by a retention schedule bylaw. The classification plan is block numeric and is based on function. The City's retention schedule bylaw was passed in 1992 and amended in 1994 and in 2003.

The City maintains File Registries, Central File Areas and a Records Centre[5] for all active and semi-active analog records. However, the classification plan is not mandatory nor is it consistently followed throughout the City. Additionally, the current file plan has gone through two revisions—the first in 1994 and the second in 2003. The version used varies from division to division. The file plan hierarchy is, however, strictly adhered to within the Records Centre. Box inventories are monitored using an custom relational database application built in-house that allows Records Centre staff to log and track the 15,000 boxes currently held in its inventory.

In the context of digital records, the majority of unstructured electronic records are housed on the City's file shares located within its internal secure network. The estimated total volume is of upwards of 4 million files. The classification plan and retention schedule, however, are only applied to digital records that are printed. Beyond print to file, the City does not currently maintain a filing plan or retention schedule for its digital records. The folder structure on the file shares and personal drives is an ad hoc system of folders and sub-folders that varies from division to division. The folder structure is created, named, and organized by individual

[5] It is the policy for the City of Surrey to maintain its permanent records at the Records Centre rather than the City Archives. The Archives does not have jurisdiction over City records and therefore does not receive regular accruals.

employees or employee workgroups. In this system, employees can save and file their records on their personal drive, shared drives, their personal computer's C-drive, or save City records to external devices such as memory sticks and CDs. Although the current system is ad hoc and managed by individual employees, for the most part, the folder structure on the file shares does reflect the functions and activities of each department. The exceptions are the Fire Department and the Office of the Clerks where the File Plan "series" numbers have been used as the root folders

City workers use over 150 desktop software applications during the course of daily business. In general, the specific functions and activities of each division will determine the software applications used; however, digital unstructured records are created using what are referred to as "authoring tools." Microsoft Office (Word, PowerPoint, Excel, Project, Visio, Publisher, and Outlook) is the primary authoring tool suite used to create the City's unstructured electronic records. Other software includes Adobe Acrobat Standard, Adobe Illustrator, Adobe Photoshop, ArcGIS and AutoCAD. The City also uses scanners and digital cameras to create digital records (images).

The City also has a number of structured databases that serve specific business needs: Amanda (land management), Tempest (taxation), PeopleSoft (human resources), LaserFiche (image management), POSSE (business licensing), Maximo (work and asset management), City Works (work and asset management), PowerPlay (cube generation), Impromptu (reporting services), and Computron (financial). These structured databases are capable of including unstructured files as attachments. The structured records managed within these databases will not be ingested into the ECM as the data is already well managed and meeting a business need. The "attachments", however, will be incorporated into the ECM and cross-referenced back via links to the business-structured database. E-mail is managed in Exchange 2003 e-mail server. E-mail will not be routinely ingested into the ECM, but messages may be exported and ingested on an a-required basis in "msg" format. The City also employs other structured databases such as Microsoft Access that are (usually) self-contained databases that can be ingested (depending on their use) wholly to the ECM.

Only structured databases at the City employ a formal metadata schema. The ECM may be able to inherit and utilize metadata for unstructured records held on file shares or as a result of an "attachment" from a database; however the metadata found within unstructured records is limited and unreliable.

The following table describes the types of metadata that may be gleaned from each source for use within the ECM:

File Shares	Properties within the files stored on the files shares such as author, modified date, created date, native authoring tool. Properties of the file share such as folder hierarchy, access permissions.
Business Structured	Metadata will likely be cross-referenced between the City ECM and other City database applications to co-relate ECM records with structured

Databases	business database records.
E-mail	Metadata from the E-mail header (To, From, cc, bcc, Subject, etc.) will be extracted (automatically) as an E-mail is added to the ECM.
Small Databases	It is likely that small databases (such as MS Access) will be treated as a record, fully houses by the ECM.

Stable funding is critical for sustaining a digital records infrastructure. Financial support for the City's file shares and planned ECM project is provided through the City's budgeting process. The City's records management positions are funded by the City Manager and administered by Legislative Services and the ECM project is sponsored by the City Manager's office and funded by Information Technology (IT). The technical capabilities of the City include an in-house IT division, which is responsible for managing and maintaining the entire City's computing networks, hardware and software applications.

Creation and maintenance of digital records prior to the ECM

In general, digital records at the City of Surrey are created and captured by staff in the regular course of business (e.g., text documents, drawings, photographs, scans). Records are saved upon receipt, and maintained by staff in the absence of an electronic retention or disposition procedure (i.e., legacy files). Digital records are generated in the process of interacting internally and with the public (locally, provincially, nationally and internationally) in the course of carrying out the business of the City of Surrey. Records are used by City of Surrey staff, contractors, businesses, public bodies, other governmental departments, ministries and agencies (municipal, provincial, federal, international), home owners in Surrey, law enforcement officers and related personnel, and the general public.

The form of digital entities is determined by the software application used. All digital records contain metadata generated by the Windows operating system or other authoring applications. Records may contain metadata added by the writer/author.

Prior to the ECM, any metadata added manually is done at the discretion of the writer; there is no formal requirement other than the required folder and file name. Metadata generated automatically includes document type, file path, permissions (inherited from folder), date(s), and other metadata specific to the native application.

Going forward, the ECM system will have mandatory "classify at creation" and all files will be organized to the City's approved Corporate File Plan plus additional metadata as required. In addition, full-text indexing, OCR conversion, and automated/manual metadata gathering will ensure a stronger level of organization and control.

Because the City servers hold digital records created over the course of twenty years, unstructured data exist in more than 300 active and inactive file formats. The test-bed partner estimated that less than 30% of the file types represented digital records that would be appraised for migration to the ECM. The table below lists an example set of the candidate file types identified. This list is expected to expand as further file shares are examined.

Format	Format Type
.ivt	20/20 Spreadsheet
.pdf	Adobe Acrobat Document
.ai	Adobe Illustrator File
.apd	Alphacam Punch Drawing
.sam	Ami Pro Text Document
.btr	Btrieve Database File
.csv	Comma Separated Values File
.cdr	Corel Draw Drawing File
.wp	Corel Draw Graphic
.prc	Corel Presentation File
.let	Createacard Letterhead Project
.rpt	Crystal Report File
.eps	Encapsulated Postscript File
.new	Generic - used to rename something to "new"
.old	Generic - used to rename something to "old"
.gif	GIF Image
.htm	HTML Document
.html	HTML Document
.jpg	JPEG Image
.123	Lotus Spreadsheet File
.mmm	MacroMind Directory RIFF/RMMP Format Movie
.accdb	Microsoft Office 2007 Access Database
.xlsb	Microsoft Office 2007 Excel Binary Worksheet
.xlsm	Microsoft Office 2007 Excel Macro-Enabled Worksheet
.xlsx	Microsoft Office 2007 Excel Worksheet
.pptx	Microsoft Office 2007 PowerPoint Presentation
.docx	Microsoft Office 2007 Word Document
.docm	Microsoft Office 2007 Word Macro-Enabled Document

Format	Format Type
.dotm	Microsoft Office 2007 Word Macro-Enabled Template
.dotx	Microsoft Office 2007 Word Template
.mdb	Microsoft Office 97-2003 Access Database
.xlt	Microsoft Office 97-2003 Excel Template
.xls	Microsoft Office 97-2003 Excel Worksheet
.doc	Microsoft Office 97-2003 Word Document
.dot	Microsoft Office 97-2003 Word Template
.ics	Microsoft Office Outlook Calendar File
.msg	Microsoft Office Outlook Item
.pst	Microsoft Office Outlook Personal Folders
.ppa	Microsoft Office PowerPoint Addin
.ppt	Microsoft Office PowerPoint Presentation
.pps	Microsoft Office PowerPoint Slide Show
.pot	Microsoft Office PowerPoint Template
.mpp	Microsoft Office Project Document
.mpt	Microsoft Office Project Template
.pub	Microsoft Office Publisher Document
.vsd	Microsoft Office Visio Drawing
.vst	Microsoft Office Visio Template
.bmp	Microsoft Paint (usually) Bitmap Image
.pbx	Outlook Express Message Folder
.P65	Pagemaker V6.5 File
.png	Portable (Network) Graphic Image File
.tif	Tagged Image Format Files
.tiff	Tagged Image Format Files
.rtf	Rich Text Format
.swf	Shockwave Flash Object
.snag	SnagIt Editor Image
.eng	Unknown - suspect a legacy possibly WordPerfect
.erd	Unknown - suspect it is a database entity relationship drawing

Format	Format Type
.avi	Video Clip
.wmv	Windows Media Audio/Video file
.i00	Winphone Phonebook
.zip	WinZip Compressed (zipped) Folder
.xml	XML Document
.fla	Adobe Flash Animation
.lid	Kodak Easyshare Album File

The digital components of unstructured records are determined by the application. For example, text documents may have a single textual component, or may have image or other files embedded; some records have components from different applications—for example, autoCAD records may have as many as five reference files bundled together. GIS systems have components in layers; web sites have multiple pages and embedded files. Unstructured records have unique (but not persistent) file names / paths.

System security is a high priority for the City, particularly with respect to financial transactions, and the file shares are considered to be a "trusted environment." Security is maintained by firewalls, unique login IDs, and a strong system of permissions at the drive and folder level. Access privileges are managed and provided by Information Technology (IT) to employees on an as-needed basis. As an example, IT will give an employee access to their designated personal share (personal drive), and their designated file shares. Personal shares are "private" and can only be accessed by the employee and IT. File shares are used by department workgroups and can be accessed by multiple employees.

An individual's login ID is attached to each record but does not guarantee the identity of the writer. There are no audit logs, and there are significant issues with version control and duplication, however a storage area network (SAN) has been implemented that detects duplicates and checks accuracy at the bit level. The City's backup strategy is for disaster recovery and does not account for records retention, legal discovery, or other requirements.

The City requires that the ECM system to be implemented must have the ability to audit an entity at the document level. Once the ECM system is installed and tested and the entities are ingested from the file shares, it is expected that the electronic system in place will provide a higher level of record trustworthiness. It is this functionality that will enable the City to declare electronic records as the master record, and reduce the City's dependency on notarized hard copies of born-digital records.

Prior to the ECM, digital records are saved on C-drives, home shares, file shares, memory sticks, or printed. Digital records required for legal reasons are printed to paper and notarized as required. To date, the City has not been challenged to prove any further proof of electronic records.

File shares are backed up daily. The daily backup process involves differential backups (i.e., copies of all files that have changed since the last backup) from Monday to Thursday and a full back up on Fridays. The backup tapes are placed in a vault at City Hall and then taken to a second City location for two weeks using a secure delivery service. They are then returned to the vault at City Hall and added back into rotation after three months. The monthly backup process involves a full backup on the last day of the month. The tapes follow the same path as the daily backups but are not added back into rotation for two years.

Documents may be opened, edited or otherwise changed, and saved as the "original" or as a new version. It is up to the individual City employee to determine if the document will be overwritten or given a new name and become a new version of the original record or become a new record. Changes are not tracked.

Records are linked by storage location (i.e., in the same folder), or context as represented through file name (subject-based). Digital records are not subject to the City's approved File Classification Code, and there is no explicit link between digital records and related records in other media.

E. Narrative answers to the applicable Project research questions

How can we adapt the existing knowledge about digital records preservation to the needs and circumstances of small and medium sized archival organizations or programs?

The City of Surrey case study demonstrates the importance of ensuring corporate commitment and support in order for large scale records management projects to be successful. Although the City of Surrey is a large bureaucratic body, the records management unit is only a small part of the larger organization. In order for programs, such as the Drive Migration Project, to be successful the records manager required approval and cooperation from higher administrative bodies. In addition, the case study demonstrates the importance of developing good communication between various business units, IT and corporate management to ensure the proper resources and attitudes are devoted towards records management projects. This was the case, due in large part to the cooperative and inclusive approach to project management adopted by the Records Manager.

How and when should these archives or programs prepare themselves for digital preservation?

Given the enormous amount of work required by Lois Enns to develop and carry through the Drive Migration Project with 20-plus years of digital material, it is recommended that businesses implement similar programs as early as possible to ensure that they are able to migrate their legacy records while they are still viable.

What kinds of digital records, either soon to be preserved by a small or medium sized archival organization or program or already in its custody, are currently most in need of attention, and what are the most urgent issues and problems associated with their creation, management and/or preservation?

The City of Surrey's legacy records were most in need of attention. Stored in unstructured shared drives, many of these records were in formats no longer supported. Urgent issues and problems associated with their management included identification, appraisal, and migration or disposition.

What kind of policy, strategy and procedures should any such archives or program have in place to be able to control the digital records for which it will be or already is responsible from creation to preservation, and on what factors are these administrative devices dependent (e.g., a specific accountability framework and governance structure)?

Ensuring that City by-laws are current and reflect the goals and mandate of the records management unit is vital to ensure the success of an ECM project. To this end, the City's Records By-law (1992, updated 1994), was revoked, and a new by-law developed that defines records, systems, roles and responsibilities, and formally authorizes the Corporate File Plan and Records Management Manual. The by-law applies to records regardless of format.

Can the action plan chosen for a given body of records be valid for another body of records of the same type, produced and preserved by the same kind of organization, person, or community in the same country?

Yes, the action plan developed by the City of Surrey's legacy records is valid for other bodies of records created by similar organizations. The second IDEFØ model created as a deliverable of the case study, attempts to further generalize this process to make it applicable to other bodies of records outside the context of the City of Surry, in other organizations, communities and/or countries.

Can the action plan chosen for a given body of records be valid for another body of records of the same type, produced and preserved by the same kind of organization, person or community in another country or culture?

Yes, see above.

Can the action plan chosen for a certain type of record or system be valid independently of the creating or preserving organization and its context?

Yes, see above.

What knowledge and skills are required for those who must devise policies, procedures and action plans for the preservation of digital records in small and medium sized archival organizations or programs?

The skills required by records managers at small and medium sized archival organizations or programs includes knowledge of archival and records management principles; knowledge of the nature of digital objects; knowledge of the nature of digital records; familiarity with standards and applicable by-laws and legislative controls; and general IT knowledge. In addition records managers must possess the ability to work closely with IT personnel; and must also possess the inter-personal skills to maintain working relationships with the various business units involved in implementing, funding and enforcing large scale organizational change.

How can records professionals keep their knowledge of digital preservation up-to-date in the face of ongoing and increasingly fast technological change?

To keep their knowledge of digital preservation up-to-date in the face of ongoing and rapid technological change, records managers must continue to read the literature and stay current with research. They must remain involved with the archival and records management community by attending conferences, reading the current literature, and becoming involved in or at least familiar with research projects like InterPARES.

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G. Activity Models

The GRAs modeled the process of shared drive migration to the ECM in two IDEFØ models. An IDEFØ model is a functional model; that is, "a structured representation of the functions, activities or processes within the modeled system…" The IDEFØ modeling technique provides a means for "completely and consistently modeling the functions (activities, actions, processes, operations) required by a system or enterprise, and the functional relationships and data (information or objects) that support the integration of those functions,… [and] has the following characteristics:

- Generic (for analysis of systems of varying purpose, scope and complexity);
- Rigorous and precise (for production of correct, usable models);
- Concise (to facilitate understanding, communication, consensus and validation);
- Conceptual (for representation of functional requirements rather than physical or organizational implementations); and
- Flexible (to support several phases of the lifecycle of a project)."[6]

The first model represents the project as undertaken by the City of Surrey. Although the theoretical process is evident in this model, there are certain steps that were specific to Surrey's circumstances and did not reflect a generic workflow. For that reason, the GRAs created a second model that represents the general steps necessary for an organization to conduct a file migration from a network system of shared drives to an ECM.

H. Findings, Recommendations and Products

This case study has produced the following deliverables: an Appraisal Report Template, Share Care Toolkit, the Share Drive Migration Toolkit, and IDEFØ models.

Appraisal Report Guide

The Appraisal Report Guide (see Appendix 1) was created to support the process of appraisal conducted by the City of Surrey prior to ingest of legacy records into the City's Enterprise Content Management system. It includes the following sections: 1.0 Introduction, 2.1 Purpose of the appraisal report form, 2.2 Purpose of the appraisal report, 2.3 Context of

[6] Draft Federal Information Processing Standards Publication 183 (1993 December 21), Announcing the Standard for INTEGRATION DEFINITION FOR FUNCTION MODELING (IDEFØ), available at www.itl.nist.gov/fipspubs/idef02.doc. Accessed November 4, 2010.

appraisal, 2.4 Verification of appraisal methodology, 3.0 Appraisal Analysis, 4.0 Recommendations/Decision, and 5.0 Authority. The template includes a workflow chart that illustrates the decision making process surrounding the appraisal of the City of Surrey's legacy records. The recommended process of appraisal is guided by the Chain of Preservation Model (InterPARES 2) and provides a measure of the records' authenticity against the Benchmark Requirements supporting the presumption of authenticity (InterPARES). The benchmark requirements are the conditions that serve as a basis for the assessment of authenticity based on the manner in which the records have been created, handled and maintained.[7]

IDEFØ Models

The GRAs created two schematic models representing workflow processes. The modeling activity was carried out using the IDEFØ function modeling method, which "is a method designed to model the decisions, actions, and activities of an organization or system."[8] This modeling technique uses simple box and arrow graphics in an organized and systematic way to depict how the various activities in a 'system' interrelate and operate.[9] The first model represents the City's workflow as outlined in the Share Care Tool Kit version 01-0 (see Appendix 2). Titled "Manage Migration of Shared Drive Records into an Enterprise Content Management System" this model provides a schematic diagram of all the activities, function, inputs, outputs, controls and mechanism involved in the process of migrating the City of Surrey's legacy records to the ECM. The second model (see Appendix 3), is more generic and illustrates the steps necessary for an organization to conduct a file migration from a network system of shared drives to an ECM.

The Share Care Toolkit and Shared Drive Migration Toolkit

The Share Care Tool Kit version 01-0 was written by Lois Enns in 2009. It is specific to the City of Surrey's Corporate Records program and activities and was designed for use by the City based on InterPARES researchers' review and feedback. The Share Care Toolkit outlines the processes undertaken to complete the migration of the City's unstructured digital records into the ECM. It consists of the following sections: introduction to corporate records, identifying recordkeeping systems for appraisal, creating the file share appraisal copy, establishing records ownership, completing the file share macro-appraisal, establishing records authenticity, migrating records, glossary, and bibliography.

The Share Care Toolkit was replaced in early 2010 by the Shared Drive Migration Toolkit version 02-0. Consisting of the following sections, context, business appraisal, technical appraisal, migration, templates, guide, glossary, and bibliography, the Shared Drive Migration Toolkit expresses the content covered in the original Share Care Toolkit in a more general way.

[7] Luciana Duranti, ed., *The Long-term Preservation of Authentic Electronic records: Findings of the InterPARES Project*, Archilab 2005, p. 209.
[8] Knowledge Based Systems (2010), "IDEFØ Function Modeling method." Available at http://www.idef.com/IDEF0.htm.
[9] For an overview of the IDEFØ modeling method and an introduction to the symbols and elements that appear in the diagrams, see http://www.idef.com/IDEF0.htm and Randy Preston, "Integrated Definition Function Modeling (IDEFØ): A Primer," InterPARES 2 Project (4 Aug 2007), available at http://www.interpares.org/ip2/display_file.cfm?doc=idef0_primer.pdf.

Appendix 1: Appraisal Report Guide

Appraisal Report Guide

InterPARES 3 – City of Surrey Case Study 14
Last Updated: November 1, 2009, by Shamin Malmas and Elizabeth Walker, IP3 GRAs

1.0 Introduction

This appraisal report documents the activities of appraisal conducted by the City of Surrey prior to capture of legacy records into the City's new Enterprise Content Management system. Appraisal consists of four distinct activities: compiling information; assessing value; determining feasibility of preservation; making the appraisal decision (IP1 p. 78). Assessment of authenticity in the context of assessing value is an integral part of records' appraisal. Appraisal must rest on a foundation of solid research, which will be of particular assistance in assessing record value and authenticity, and identifying digital components that must be preserved.

The recommended process of appraisal is guided by the Chain of Preservation Model (InterPARES 2) and provides a measure of the records' authenticity against the Benchmark Requirements supporting the presumption of authenticity (InterPARES). The benchmark requirements are the conditions that serve as a basis for the assessment of authenticity based on the manner in which the records have been created, handled and maintained.[10]

The process of appraisal undertaken by the City of Surrey is detailed in the Shared Drive Migration Toolkit; the current appraisal report summarizes the analysis of the legacy files under consideration of authenticity (data leading to the presumption of authenticity, or if there is an insufficient basis for a presumption of authenticity, the verification of authenticity) and presents the resulting appraisal decisions.

2.0 Appraisal report (template)

2.1 Purpose of the appraisal report form

- This appraisal report form brings consistency and standardization to the process of documenting the appraisal of records to be captured into the recordkeeping system.

2.2 Purpose of the appraisal report

- The purpose of the appraisal report is to render open and transparent the decisions made in the process of records appraisal.
- The report articulates the presence or absence of indicators of records' authenticity (InterPARES benchmark requirements) identified through the appraisal process.
- The report becomes a primary point of reference in the iterative process of subsequent records appraisals until final disposition.

[10] Luciana Duranti, ed., *The Long-term Preservation of Authentic Electronic Records: Findings of the InterPARES Project*, Archilab 2005, p. 209.

- The report is an instrument in holding the appraisers accountable to the citizens of Surrey for the management and preservation/disposition of their public records.

2.3 Context of appraisal

(This is a summary of the circumstances that have led to the appraisal decision.)

- State the reasons for conducting this appraisal: (i.e., preparing to capture into the ECM)

- State the status of this appraisal for the current group of records: (i.e., first appraisal; subsequent appraisal & reason)

- Who is conducting/has conducted this appraisal?
    - Name
    - Position
    - Authority/accountability

- Are these records required to be maintained/preserved?
    - If yes, by what authority?
    - For how long?

2.4 Verification of appraisal methodology

- Describe the process of appraisal undertaken (e.g., how was research conducted, who/what departments were consulted; outline section 3 of Shared Drive Migration Toolkit)

3.0 Appraisal Analysis

This section documents circumstances of creation and compiles evidence leading to a presumption of the records' authenticity

- What is the originating office?
- What legislation/regulations/standards pertain to these records?
- Who is responsible for managing/maintaining these records? What is the office responsible for maintenance and/or long-term preservation?
- Who/what departments have access to these records?
- How has access been monitored/controlled?
- Do these records form a complete series, or are they part of an existing series?
    - If yes, what is the name of the series?
    - If these records are not a series, or part of a series, what are the identifiers for the records?
- Are these records part of a larger aggregate of records?
- What other records/record series do these records relate to?
- Describe the relationship(s) of these records to related records and how the relationship(s) affect appraisal (e.g., is the reason for these records to exist superseded by subsequent records)
- What retention/disposition schedule pertains to these records/series?

- What is the organization and structure of this group or series of records?
  What function, activities or organizational entities do these records support?
- Describe the procedure of creation of the records
- What controls (human or technological) govern their creation?
- What is the date range of these records?
- Describe the names/types of records being appraised (e.g., memos, reports, minutes)
- List the types of information configuration represented (e.g., textual, graphic, audio)
- List the original file formats
- Are these records still in active use?
- By whom/for how long?
- What is the retention period—if one has been assigned to them?
- If scheduled for permanent retention, in what format will they be preserved?
- What metadata exist for these records?
- Describe the metadata attached to these records
- How are the metadata linked to the records?
    - How will this metadata link be maintained?
- Have these records been subject to modification, annotation or other intentional change?
    - If yes, give details
- What controls have secured these records against corruption/loss
- Describe any technological constraints or requirements for the digital components of these records (e.g., are they composed of different types of information configurations: photographs, audio, etc.) How have these constraints or requirements been managed?
- Are there any controlling instruments that need to be acquired with the records?
    - If yes, how will they be linked to the records?
- Is there system documentation that needs to be acquired with and linked to the records?
    - If yes, how will it be linked to the records?
- List any other relevant information

4.0 Recommendations/Decision

On the basis of this appraisal analysis, a decision can be made about the presumed authenticity of these records, or if authenticity cannot be presumed, about whether there is a need for research to discover evidence of authenticity, and whether these records will be recommended for capture in the ECM.

(Also see Recommendations / Decisions Diagram – Appendix 1b)

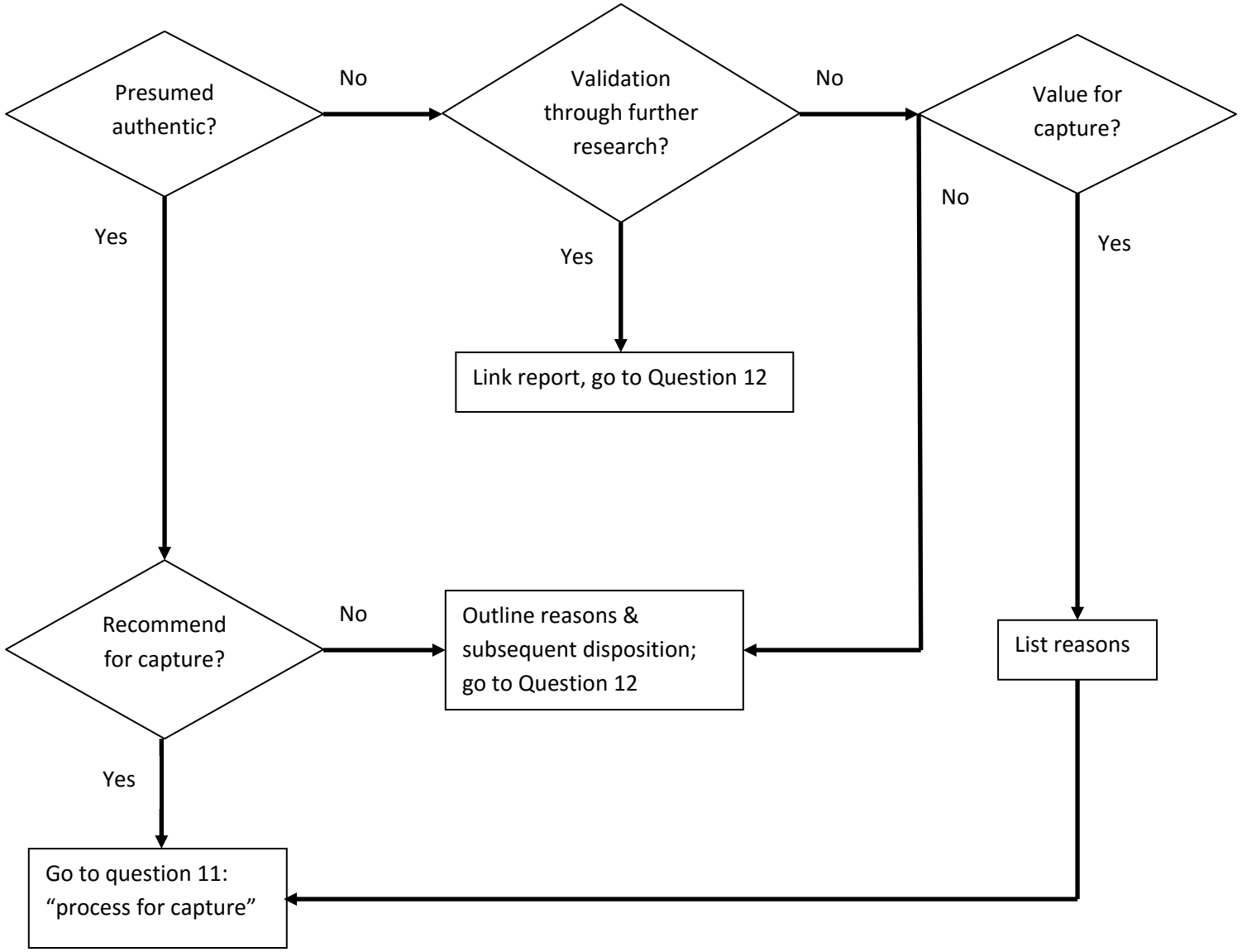
1. On the basis of this analysis, can this body of records be presumed authentic? (That is, has this analysis determined that these records were created in the usual and ordinary course of business, and have been set aside for further action or reference; and that there are documented procedures around their creation, use and maintenance.)
2. If yes, (presumed authentic) are these records being recommended for capture to the ECM?
3. If yes, (recommended for capture) go to question 11.
4. If no, (not recommended for capture) why not?
    a. What will be their disposition?

    b. Continue to section 5.0
5. If they cannot be presumed authentic, will further research/analysis be undertaken to attempt to verify their authenticity?
6. If yes, (further research) append this report to the next stage of analysis
    a. Continue to next section
7. If no, (no further research) are these records deemed to be of sufficient value to capture even though their authenticity is questionable?
8. If yes, (sufficient value) outline the reasons
    a. How will this report be linked to the records in the process of capture [through Surrey's metadata schema?]
    b. Go to question 11.
9. If no, (insufficient value) outline the reasons
    a. What will be the final disposition of these records
    b. Continue to next section.
10. If no, (not recommended for capture) what will be their disposition?
    a. Continue to next section.
11. If these records are to be captured, detail the process of capture
    a. In what form will these records be maintained/preserved?
    b. Will these records be renamed/reclassified?
    c. If yes, describe
12. When will these records be due for monitoring and, if needed, a new appraisal?

5.0 Authority

- Signature of records manager?
- Signature(s) of person(s) responsible for appraisal?
- Signature of person(s) responsible for appraisal report

Appendix 1b: Recommendations / Decisions Diagram



Appendix 2: City of Surrey IDEFØ Model – Manage Migration of Shared Drive Records into an Enterprise Content Management System

(version 1.1, 11 May 2010)

Preface

The Graduate Research Assistants (GRAs) met initially twice with Lois Enns to begin modeling the process used by the City of Surrey in developing its drive migration project. The GRAs continued to meet, using the Share Care Toolkit (v01-0)[2] presented at Workshop 05 as a guide for the activities to be modeled.

The modeling activity was carried out using the IDEFØ function modeling method, which "is a method designed to model the decisions, actions, and activities of an organization or system."[3] This modeling technique uses simple box and arrow graphics in an organized and systematic way to depict how the various activities in a 'system' interrelate and operate.[4]

Appendix 2a: City of Surrey IDEFØ Model — Diagrams
Appendix 2b: City of Surrey IDEFØ Model — Definitions of Activities and Arrows

Appendix 1a: City of Surrey IDEFØ Model — Diagrams

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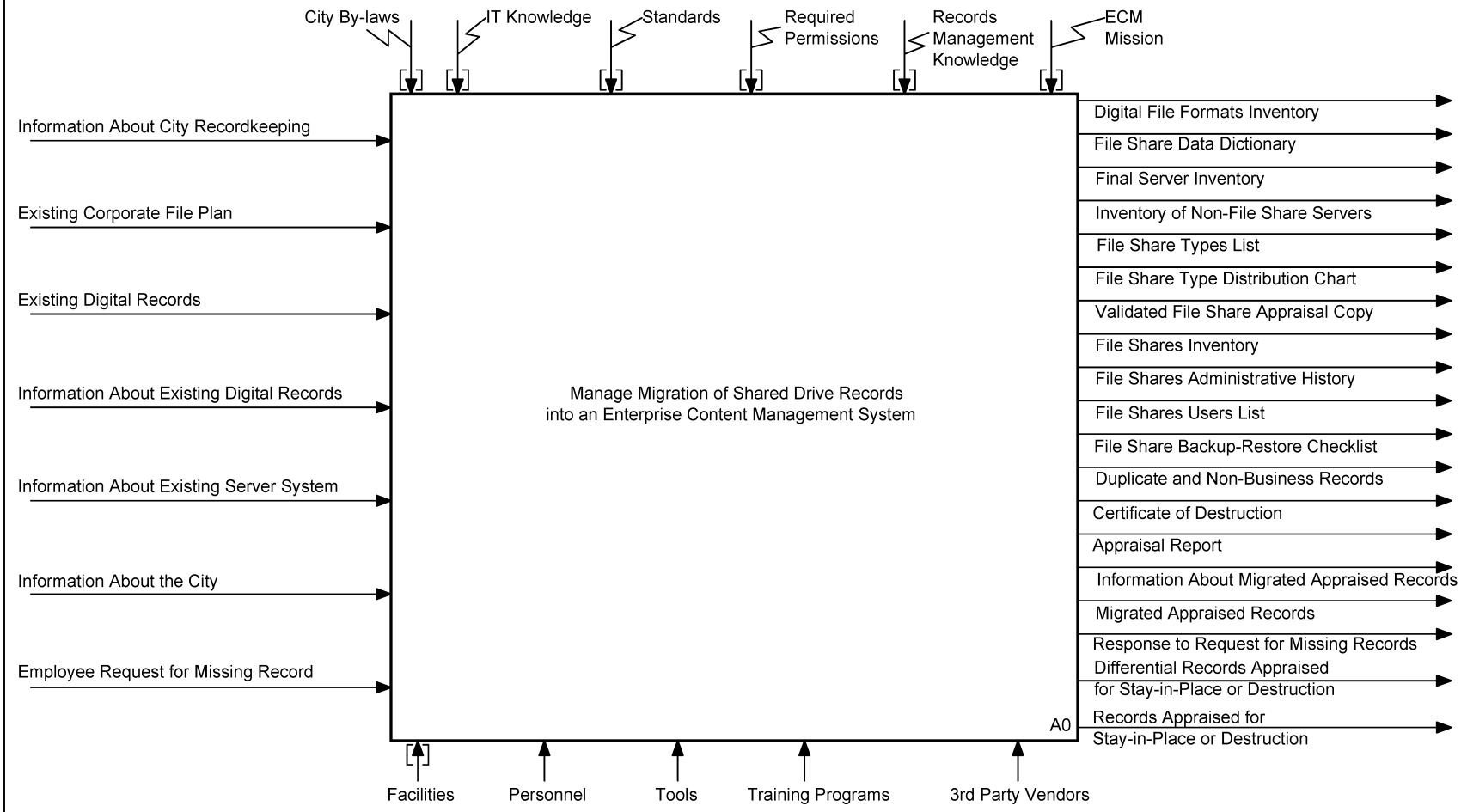

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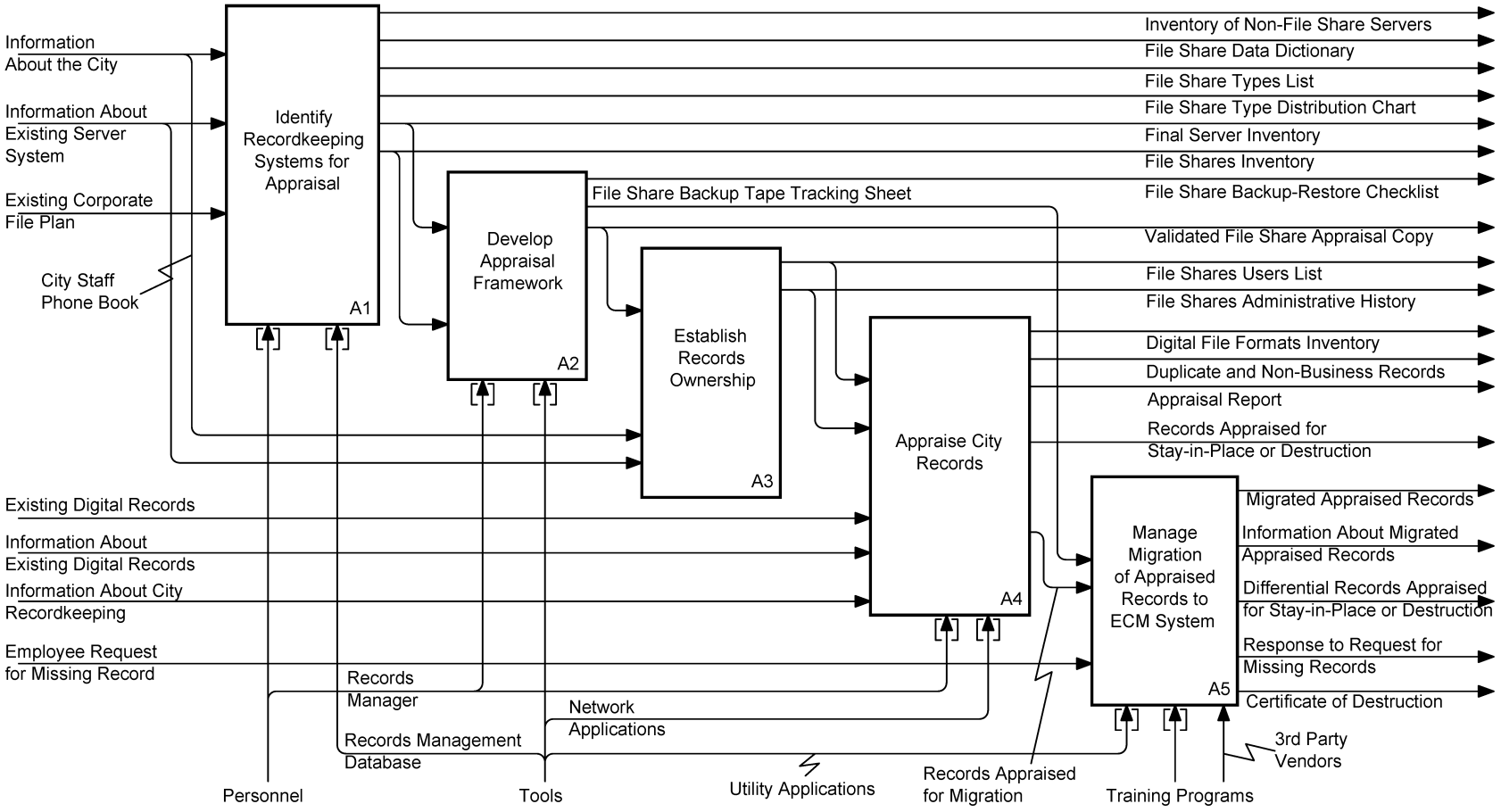

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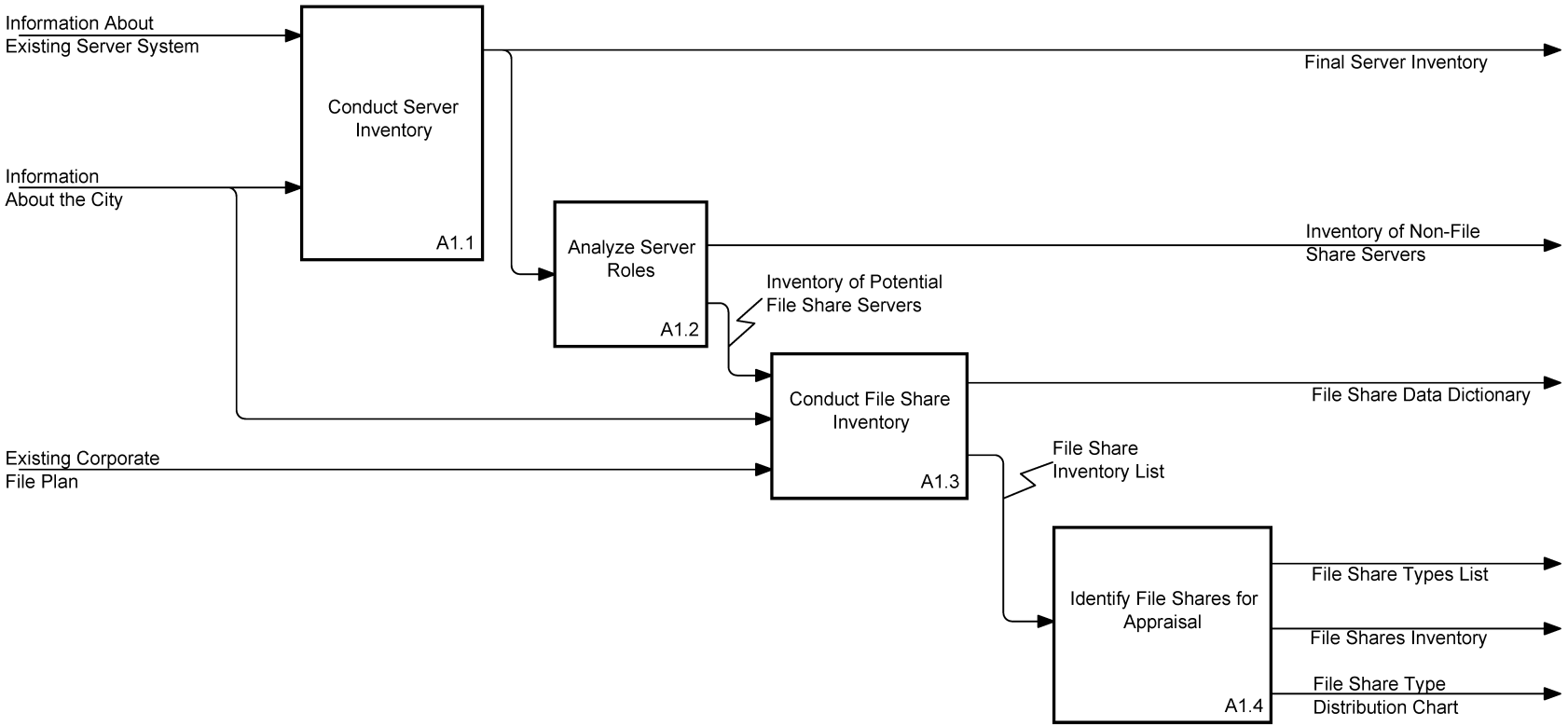

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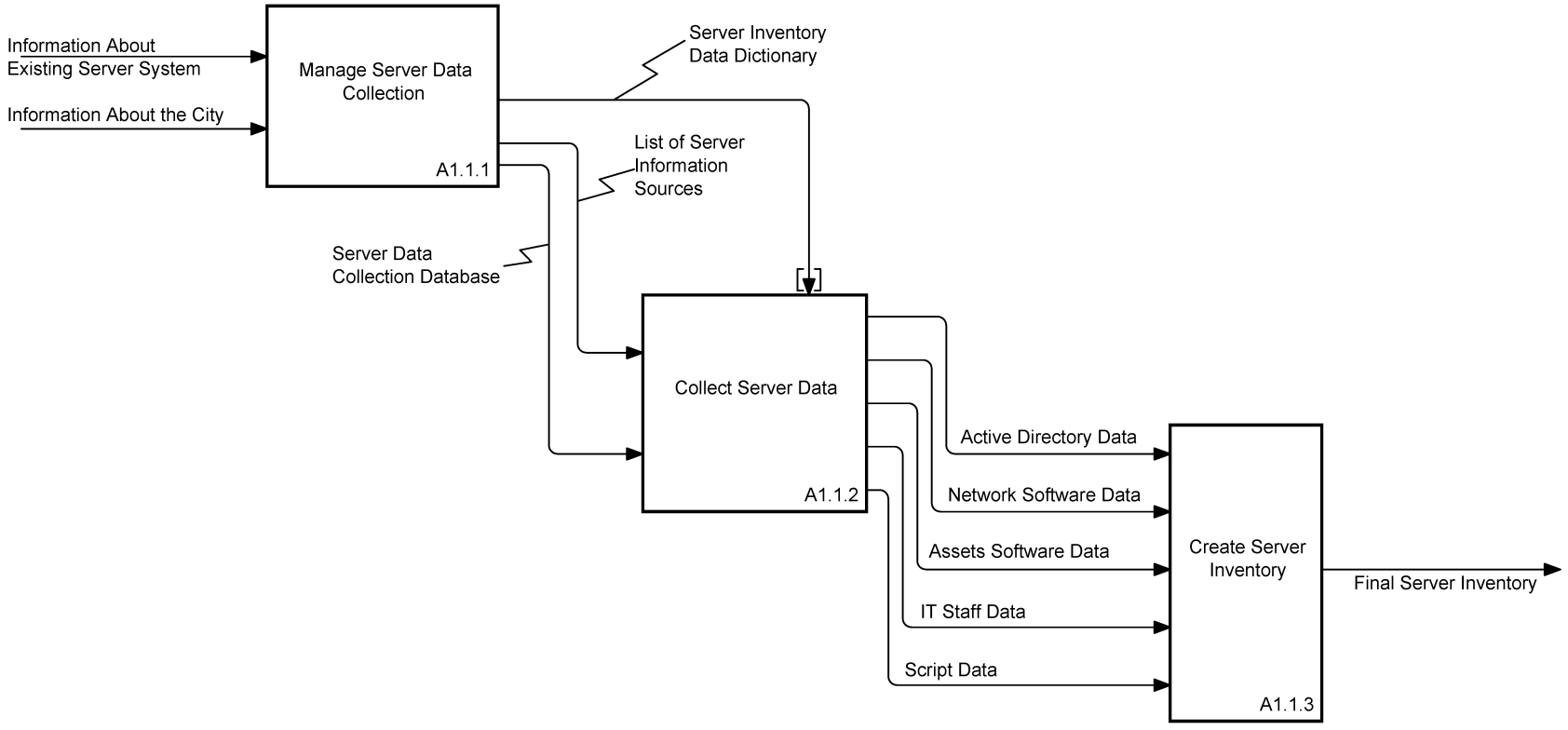

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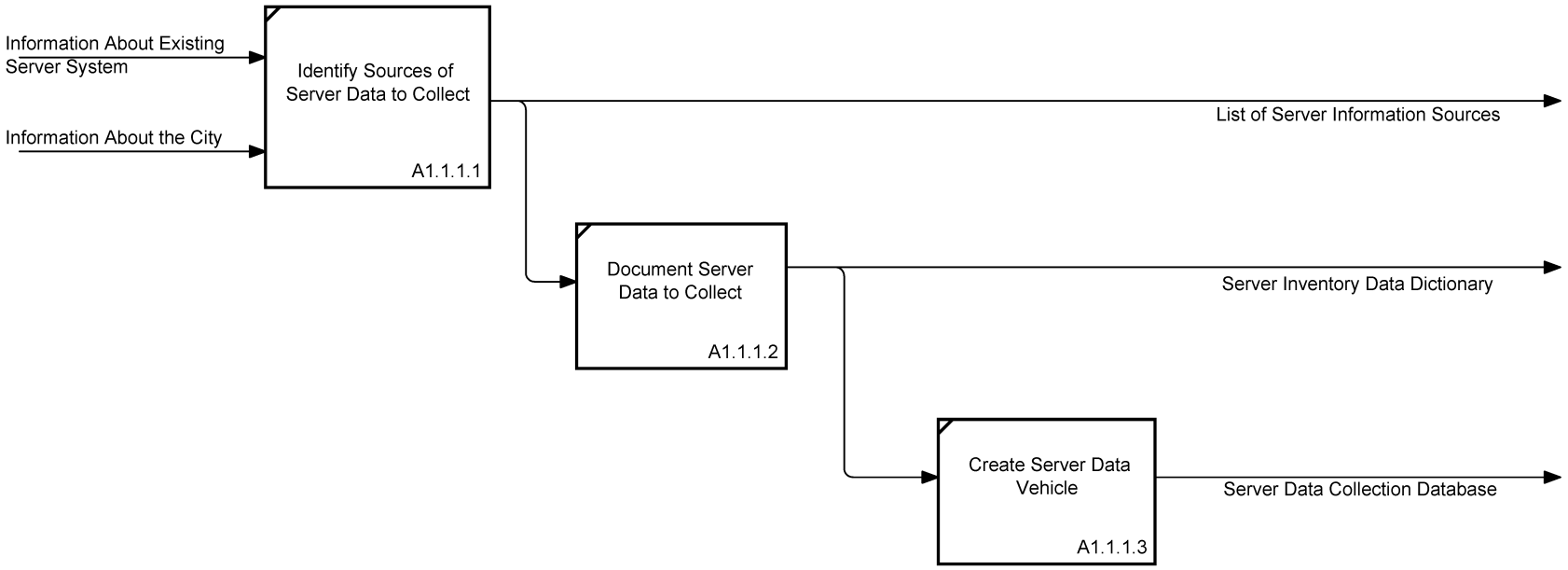

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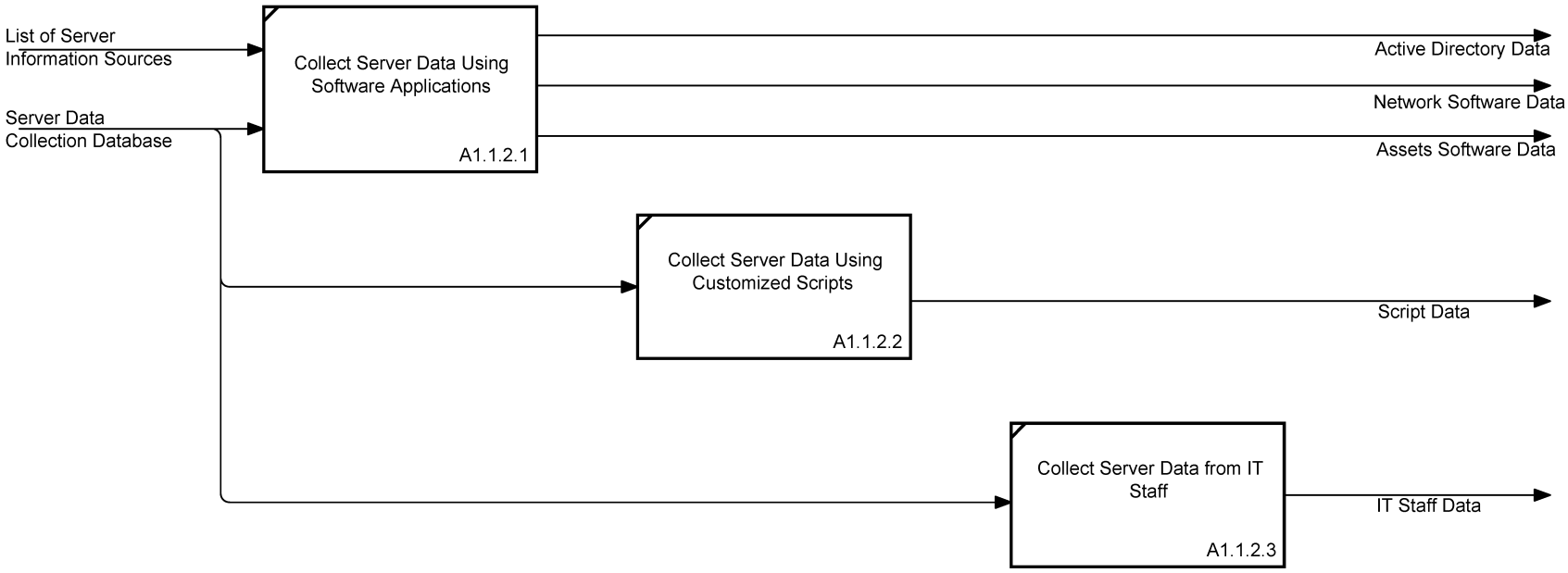

NODE:	TITLE:	NUMBER:
A1.1.2	Collect Server Data	

USED AT:	AUTHOR: InterPARES 3 Project, TEAM Canada	DATE: 06-Apr-2010	■	WORKING	READER DATE	CONTEXT:
	PROJECT: Case Study 14 (City of Surrey)	REV: 04-May-2010		DRAFT		
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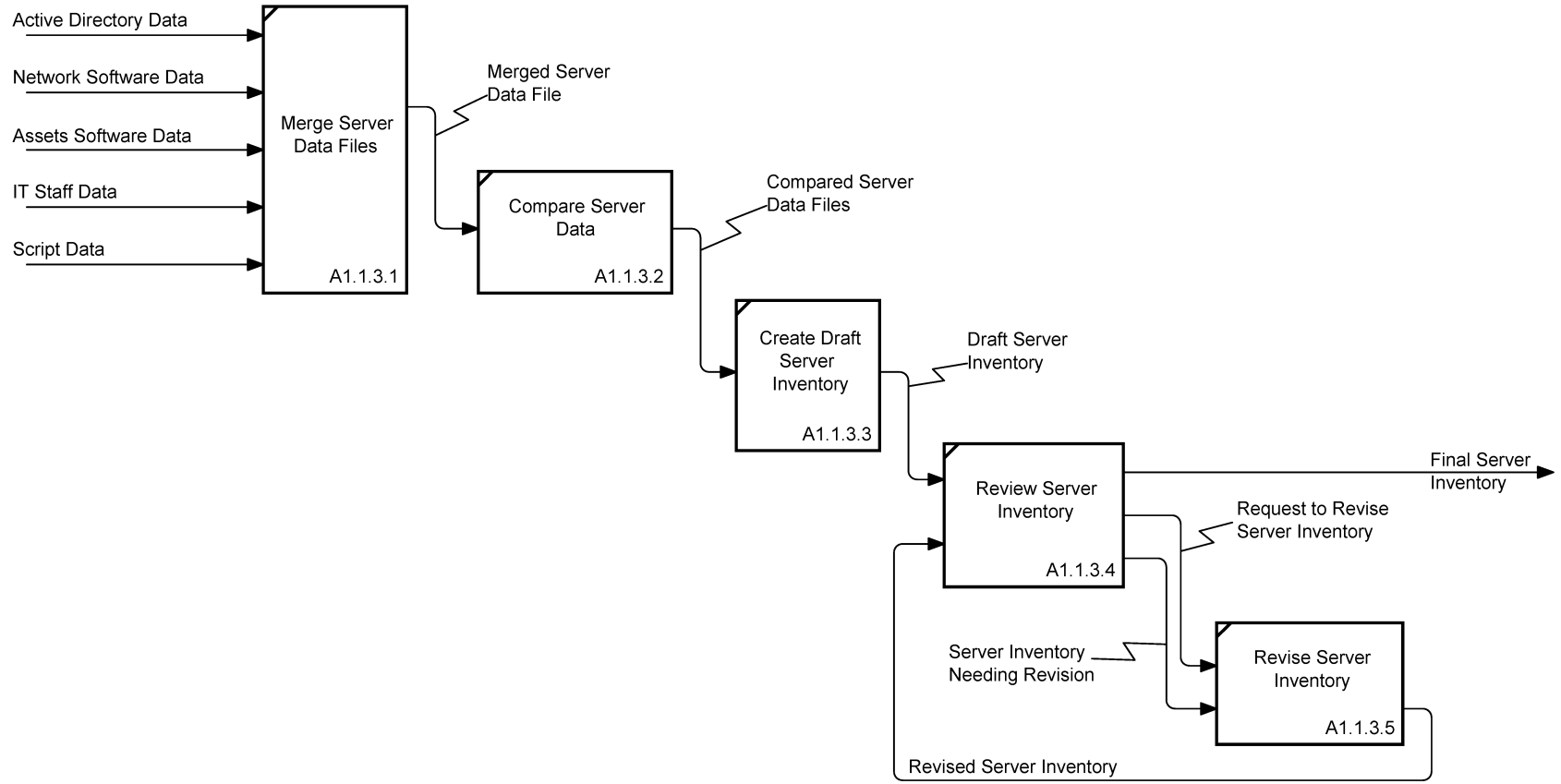

NODE:	TITLE:	NUMBER:
A1.1.3	Create Server Inventory	

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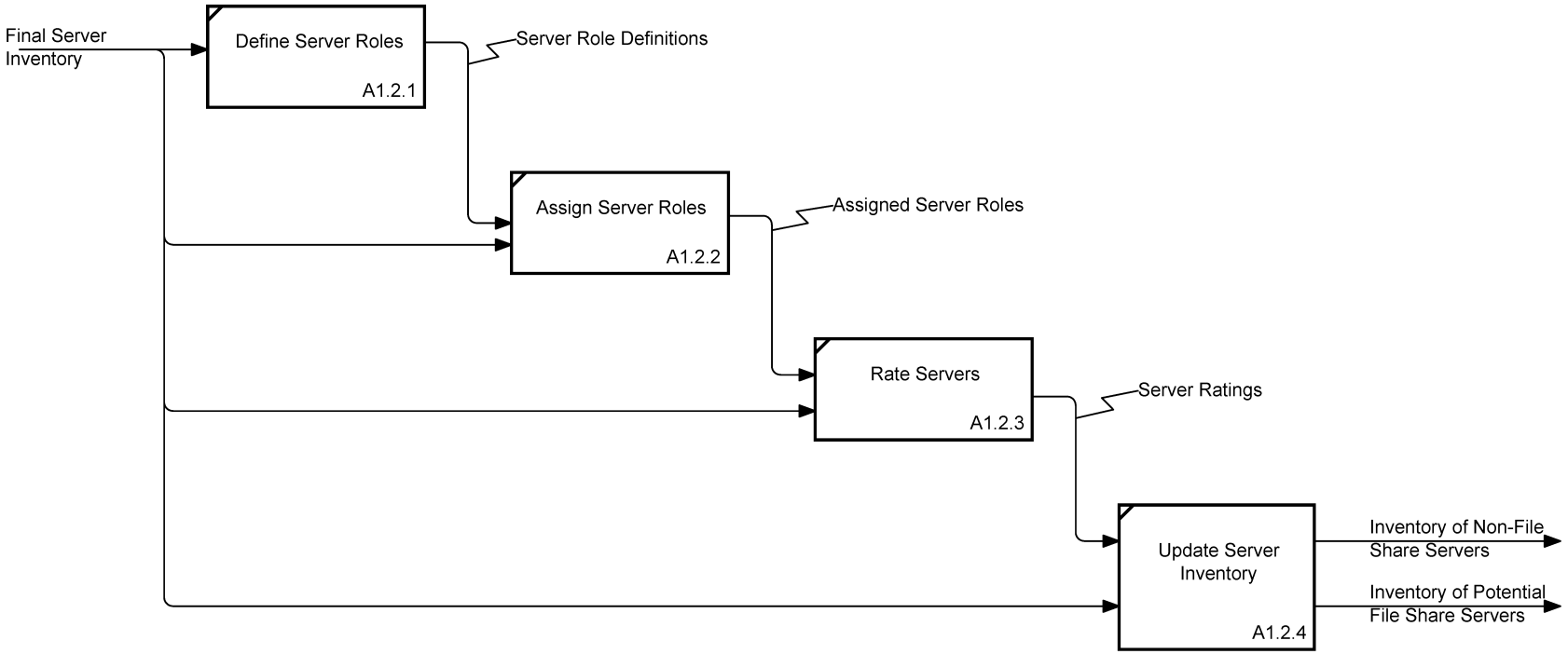

NODE:	TITLE:	NUMBER:
A1.2	Analyze Server Roles	

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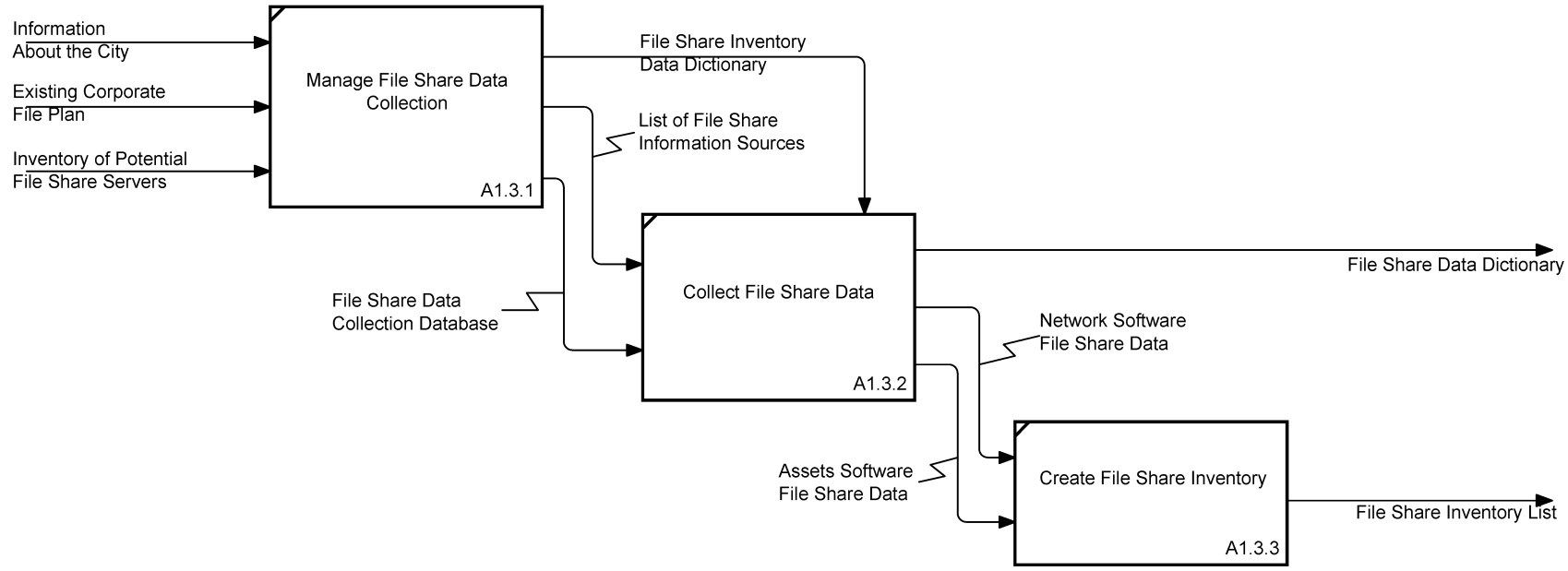

NODE:	TITLE:	NUMBER:
A1.3	Conduct File Share Inventory	

USED AT:	AUTHOR: InterPARES 3 Project, TEAM Canada	DATE: 06-Apr-2010		WORKING	READER DATE	CONTEXT:
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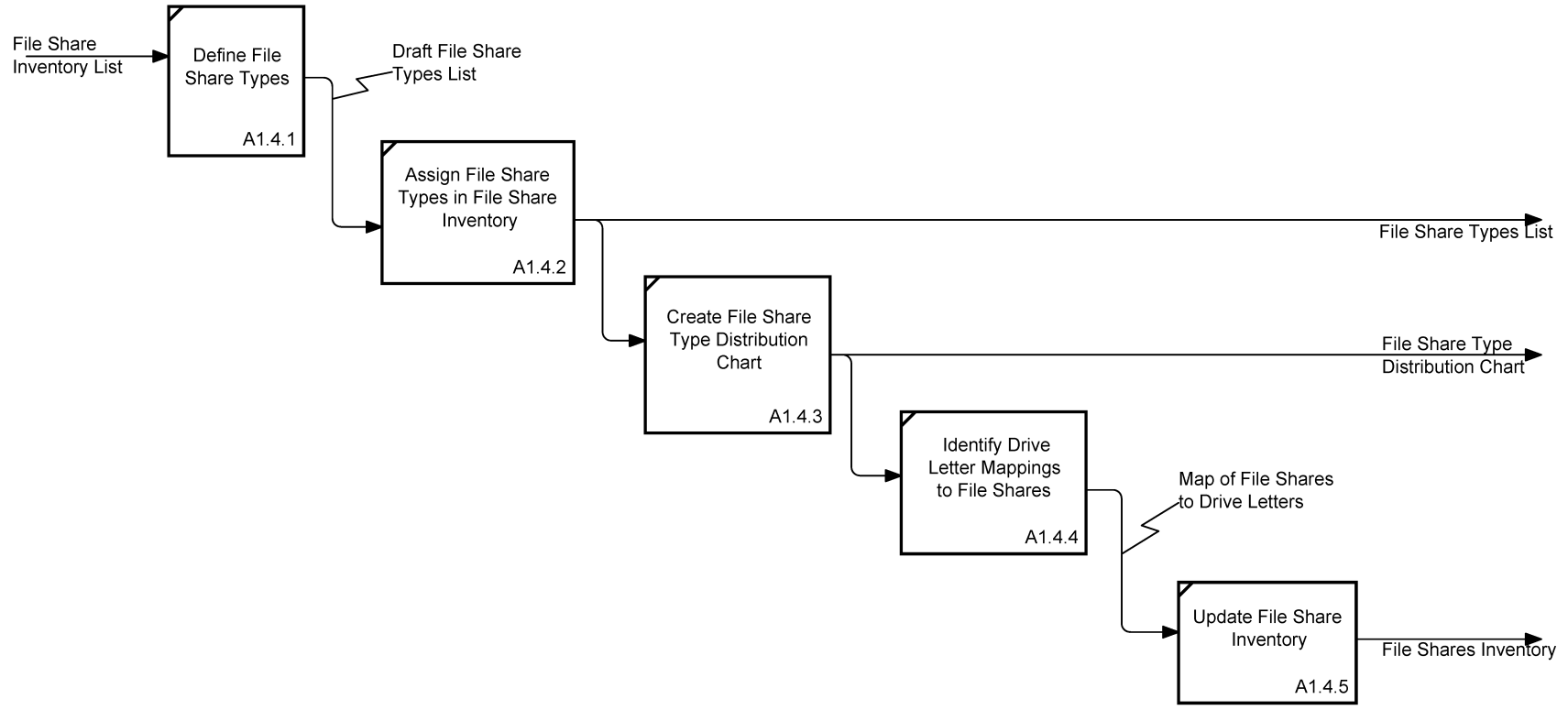

NODE:	TITLE:	NUMBER:
A1.4	Identify File Shares for Appraisal	

USED AT:	AUTHOR: InterPARES 3 Project, TEAM Canada	DATE: 19-Jan-2010		WORKING	READER DATE	CONTEXT:
	PROJECT: Case Study 14 (City of Surrey)	REV: 11-May-2010		DRAFT		
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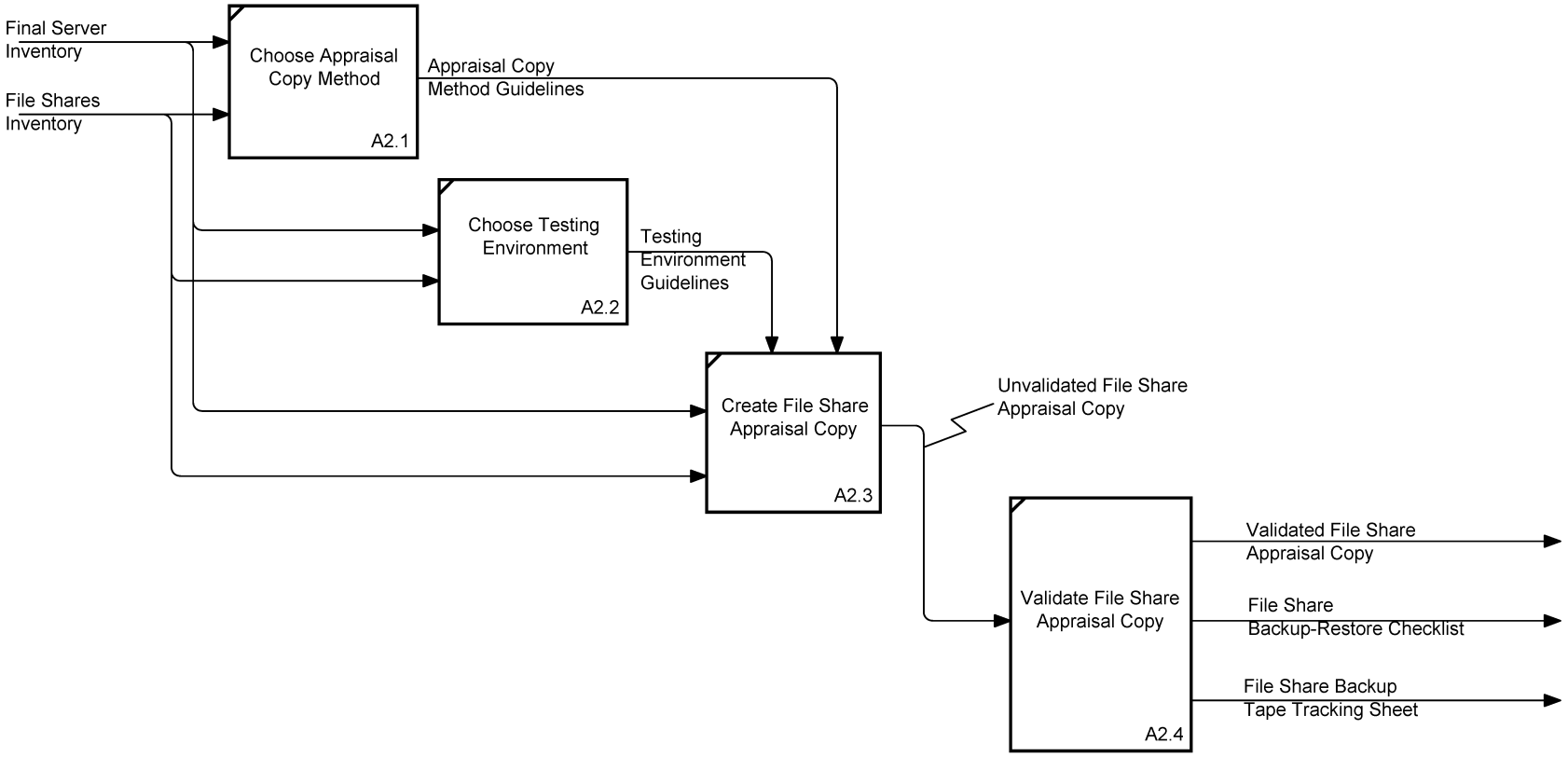
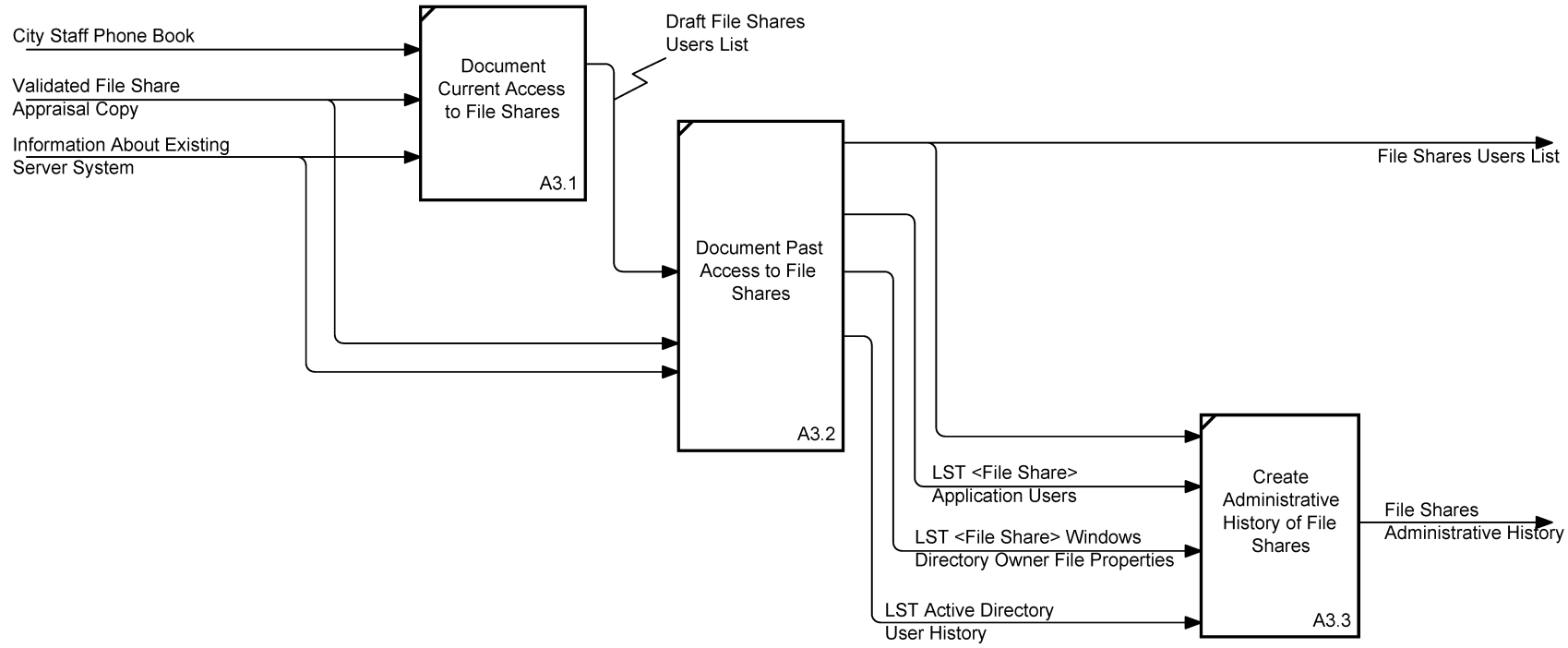


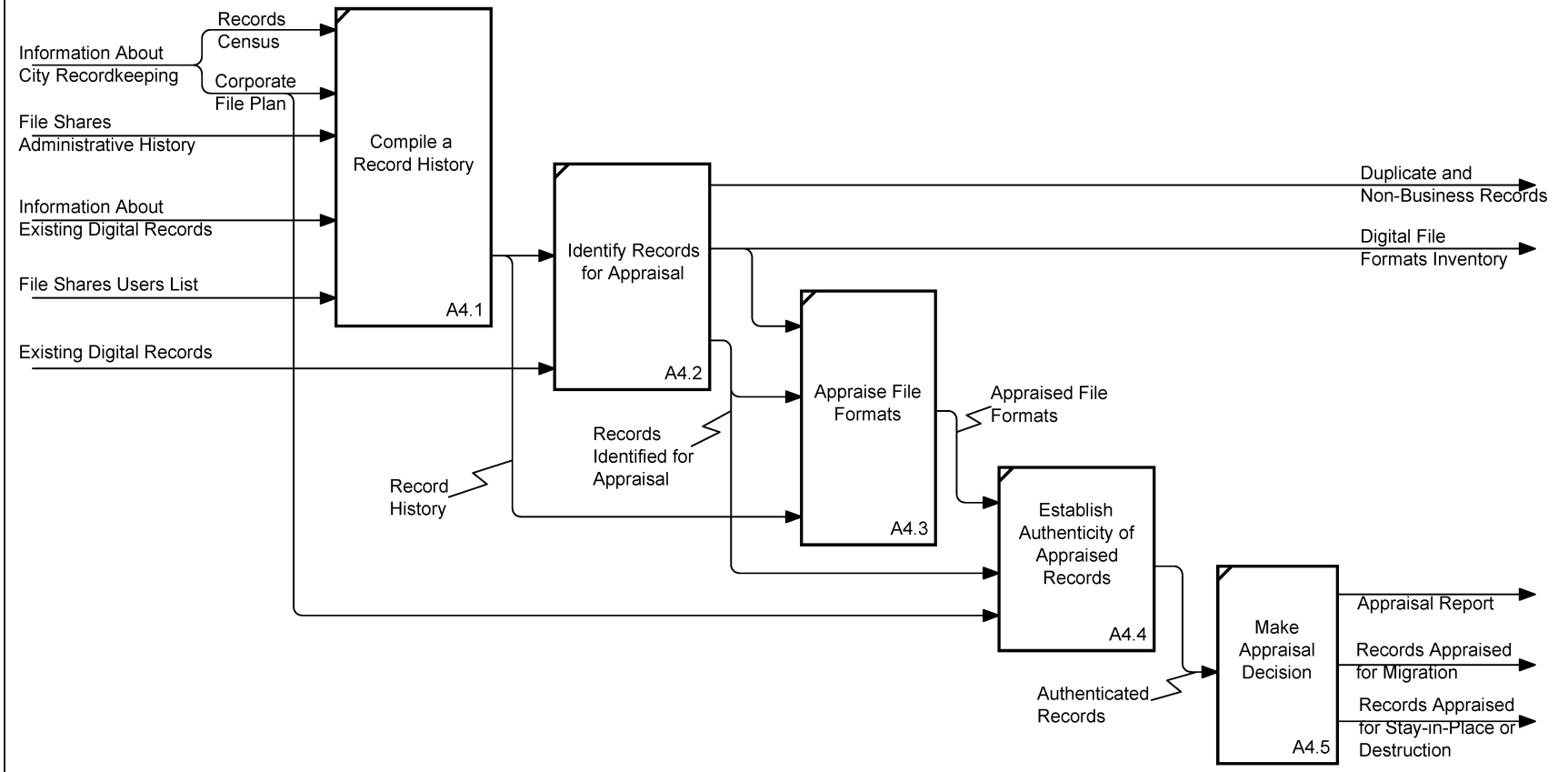
NODE:	TITLE:	NUMBER:
A2	Develop Appraisal Framework	

USED AT:	AUTHOR: InterPARES 3 Project, TEAM Canada	DATE: 13-Apr-2010		WORKING	READER DATE	CONTEXT:
	PROJECT: Case Study 14 (City of Surrey)	REV: 11-May-2010		DRAFT		
				RECOMMENDED		
	NOTES: 1 2 3 4 5 6 7 8 9 10			PUBLICATION		A0



NODE:	TITLE:	NUMBER:
A3	Establish Records Ownership	

USED AT:	AUTHOR: InterPARES 3 Project, TEAM Canada	DATE: 19-Jan-2010	■	WORKING	READER DATE	CONTEXT:
	PROJECT: Case Study 14 (City of Surrey)	REV: 11-May-2010		DRAFT		
				RECOMMENDED		
	NOTES: 1 2 3 4 5 6 7 8 9 10			PUBLICATION		A0



NODE:	TITLE:	NUMBER:
A4	Appraise City Records	

USED AT:	AUTHOR: InterPARES 3 Project, TEAM Canada	DATE: 19-Jan-2010		WORKING	READER DATE	CONTEXT:
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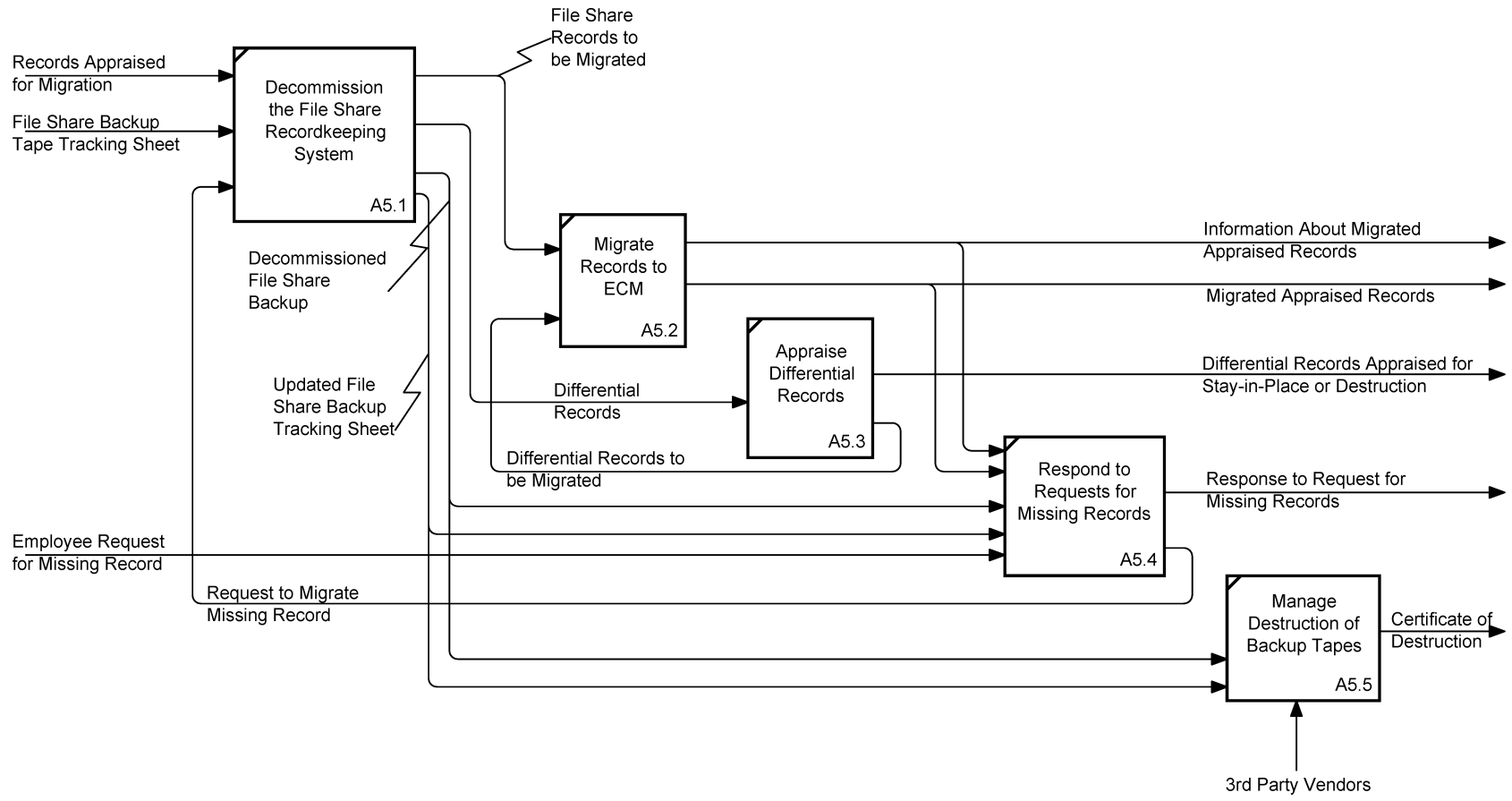
	NOTES: 1 2 3 4 5 6 7 8 9 10			PUBLICATION		A0



NODE:	TITLE:	NUMBER:
A5	Manage Migration of Appraised Records to ECM System	

Appendix 2b: City of Surrey IDEFØ Model — Definitions of Activities and Arrows

CS14 City of Surrey IDEFØ Model, v1.1 (11 May 2010)			
Activities			
Activity Name	**Activity No.**	**Activity Definition**	**Activity Note**
Manage Migration of Shared Drive Records into an Enterprise Content Management System	A0	To inventory city records, develop an appraisal framework, appraise city records and import appraised records into an Enterprise Content Management system.	Former Activity Title: Develop an Enterprise Content Management System
Identify Recordkeeping Systems for Appraisal	A1	To identify recordkeeping systems of interest which contain file shares where business units store and access unstructured electronic records.	Share Care Section 2 (v01-0)
Conduct Server Inventory	A1.1	To manage server information, collect server data and create an inventory of the City's existing online servers,	
Manage Server Data Collection	A1.1.1	To identify sources of information for servers, identify and document server data to be collected, and to create a vehicle for holding the data collected,	
Identify Sources of Server Data to Collect	A1.1.1.1	To identify of sources used to collect data about City servers.	May include Active Directory, network software, asset software, custom scripts and/or staff knowledge. Share Care 2.1
Document Server Data to Collect	A1.1.1.2	To identify the server metadata elements to be collected.	Share Care 2.1 (v01-0)
Create Server Data Vehicle	A1.1.1.3	To merge all data collected from the identified sources into a single data vehicle.	Share Care page 2-4 (v01-0)
Collect Server Data	A1.1.2	To collect server data using appropriate software, scripts and IT staff knowledge,	
Collect Server Data Using Software Applications	A1.1.2.1	To obtain server data using Active Directory, network software and asset software.	
Collect Server Data Using Customized Scripts	A1.1.2.2	To obtain server data using customized VBScript.	
Collect Server Data from IT Staff	A1.1.2.3	To obtain data about the servers from City IT staff.	
Create Server Inventory	A1.1.3	To merge the server data obtained from all sources into a single Server Inventory spreadsheet.	
Merge Server Data Files	A1.1.3.1	To locate and open the five server data files and merge them together, one at a time.	

Activity Name	Activity No.	Activity Definition	Activity Note
Compare Server Data	A1.1.3.2	To compare server data from the merged server data files.	
Create Draft Server Inventory	A1.1.3.3	To create a provisional inventory of all existing City servers.	
Review Server Inventory	A1.1.3.4	To analyze information gathered about the few hundred servers identified as potentially having records to be migrated.	Share Care 2.2 (v01-0)
Revise Server Inventory	A1.1.3.5	To update the server inventory based on new information gathered.	
Analyze Server Roles	A1.2	To create and assign roles to online servers, to identify those that may contain recordkeeping systems.	
Define Server Roles	A1.2.1	To classify server roles based on data from software applications, notes from the server inventory and IT staff information.	
Assign Server Roles	A1.2.2	To assign a role to each server and record in the Server Inventory.	
Rate Servers	A1.2.3	To rate each server according to the probability that they contain recordkeeping systems of interest (Primary Interest, Secondary Interest, Limited Interest).	Primary, Secondary and Limited Interest servers - servers that are registered in Active Directory, have advertised file shares, are online, and are not an alias name. Share Care pages 2-6 and 2-7 (v01-0).
Update Server Inventory	A1.2.4	To add "level of interest" rating and baseline Local and SAN Disk statistics for all servers to the Server Inventory.	
Conduct File Share Inventory	A1.3	To collect additional information about the file shares held by the servers identified as being of primary, secondary or limited interest.	
Manage File Share Data Collection	A1.3.1	To identify sources of information about the file-shares held by the servers identified as being of Primary, Secondary and Limited Interest, identify and document file-share data to be collected, and to create a vehicle for holding the data collected,	
Collect File Share Data	A1.3.2	To collect file-share data using network and asset software.	
Create File Share Inventory	A1.3.3	To create an inventory of file shares in each server of interest identified in the Server Inventory.	
Identify File Shares for Appraisal	A1.4	To analyze the potential recordkeeping file shares to determine which shares contain records for possible migration.	Share Care 2.4 (v01-0)
Define File Share Types	A1.4.1	To confirm which file shares contain records.	Share Care 2.4 (v01-0)
Assign File Share Types in File Share Inventory	A1.4.2	To identify file share types and their functions.	Share Care 2.4 (v01-0)
Create File Share Type Distribution Chart	A1.4.3	To create a chart identifying the number and location of file share types for further validation.	Share Care 2.4 (v01-0)

Activity Name	Activity No.	Activity Definition	Activity Note
Identify Drive Letter Mappings to File Shares	A1.4.4	To verify log-on scripts to identify drive letter mappings to file share.	Log-on scripts are command files with bad extension file type used to perform a set of automatic actions when staff log on, including confirming access to "drive letter" mappings given to file shares. Share Care 2.4 (v01-0)
Update File Share Inventory	A1.4.5	To create list of file shares that may contain recordkeeping systems.	
Develop Appraisal Framework	A2	To develop the appraisal environment in order to identify file shares for appraisal for migration to the ECM, stay-in-place or destruction.	Share Care Section 3 (v01-0)
Choose Appraisal Copy Method	A2.1	To decide between Disk Imaging and Backup/Restore as the appraisal copy method.	Share Care 3.0 (v01-0) - Backup/Restore was selected by the City of Surrey
Choose Testing Environment	A2.2	To decide between the test and production environment. The decision is made by the technical lead based on the following considerations: disk space, import and workflow.	Share Care 3.2 (v01-0)
Create File Share Appraisal Copy	A2.3	To create a file share appraisal copy by using the Backup/Restore process.	Share Care 3.3 (v01-0)
Validate File Share Appraisal Copy	A2.4	To validate the file share appraisal copy by conducting a quality assurance process to ensure it is an exact copy	Share Care 3.4 (v01-0)
Establish Records Ownership	A3	To establish the authenticity of records prior to migration by identifying records ownership.	Share Care Section 4 (v01-0)
Document Current Access to File Shares	A3.1	To identify which staff currently access the file shares.	Share Care 4.1 (v01-0). Conducted by the systems administrator and records coordinator
Document Past Access to File Shares	A3.2	To identify which staff previously access the file shares. This will include both current and past staff, in the case of past staff information may be limited.	Share Care 4.2 (v01-0)
Create Administrative History of File Shares	A3.3	To provide the business context for records to be used to validate the ownership of record series.	Share Care 4.3 (v01-0)
Appraise City Records	A4	To assess the value of records of the City of Surrey for the purpose of determining the length and conditions of their preservation by identifying file shares for appraisal for migration to the ECM, stay-in-place or destruction.	Share Care Section 5 (v01-0)

Activity Name	Activity No.	Activity Definition	Activity Note
Compile a Record History	A4.1	To provide additional context for the file share appraisal, as some files may exist as records in other media (e.g. paper, microform, or structured databases).	Completed by the records manager. Share Care 5.1 (v01-0)
Identify Records for Appraisal	A4.2	To identify the minimum best set of records for appraisal by eliminating duplicates and non-business files.	Share Care 5.2-5.3 (v01-0)
Appraise File Formats	A4.3	To determine file formats designated for migration, stay-in-place or destruction	Share Care 5.4-5.6 (v01-0)
Establish Authenticity of Appraised Records	A4.4	To establish authenticity by capturing file property metadata and assigning name block and classification metadata.	Share Care 6.0 (v01-0)
Make Appraisal Decision	A4.5	To appraise records for migration, stay-in-place or destruction	
Manage Migration of Appraised Records to ECM System	A5	To manage all the functions of migration of appraised records into the ECM, including decommissioning the File Share Recordkeeping system, migrating appraised records, appraising and migrating differential records, responding to requests for missing records and destroying the infoshare file share back up tapes.	Share Care Sections 6 and 7 (v01-0)
Decommission the File Share Recordkeeping System	A5.1	To fix the records in the file share so they can no longer be added or modified in preparation for migration.	Share Care 7.1 (v01-0)
Migrate Records to ECM	A5.2	To use the object importer to migrate records from the file share recordkeeping system to the ECM system.	Share Care 7.2 (v01-0)
Appraise Differential Records	A5.3	To appraise differential records for migration, stay-in-place, or destruction.	Share Care 7.0 and 7.3 (v01-0)
Respond to Requests for Missing Records	A5.4	To receive requests for missing records, locate missing records on the backup tapes and migrate to the ECM.	Share Care 7.4 (v01-0)
Manage Destruction of Backup Tapes	A5.5	To destroy backup tapes one year after the successful completion of the file share migration.	Share Care 7.5 (v01-0)

Arrows

Arrow Name	Arrow Definition	Arrow Note
3rd Party Vendors	The City's authorized vendor for physical destruction of backup tapes.	ReCall. Share Care 7.5 (v01-0)
Active Directory Data	Server data about network resources and users collected using Active Server software.	
Appraisal Copy Method Guidelines	Guidelines for using the Backup/Restore appraisal copy method.	
Appraisal Report	The summary of all the information collected about the files on the file share.	Share Care 5.6 (v01-0)
Appraised File Formats	List of file formats designated for migration, stay-in-place or destruction.	

Arrow Name	Arrow Definition	Arrow Note
Assets Software Data	Server data collected using software designed to manage information technology assets.	
Assets Software File Share Data	File Share data collected using assets software.	
Assigned Server Roles	List of assigned server roles.	
Authenticated Records	Records that have been proven to be what they purport to be, and have not been tampered with or otherwise corrupted.	
Certificate of Destruction	Proof that the backup tapes were physically destroyed by the City's authorized third-party vendor.	Share Care 7.5 (v01-0)
City By-laws	City of Surrey by-law 11593 (Records Management) and draft by-law 17002 (Corporate Records).	Was 11593 revoked?
City Staff Phone Book	The resource used to validate the user's names, job titles and business units.	Share Care 4.1 (v01-0)
Compared Server Data Files	Provisional list of compared server data files.	
Corporate File Plan	A catalogue of classification numbers that are used to code records that is the corporate standard for records classification at the City of Surrey.	
Decommissioned File Share Backup	The last copy of the production file share before the file share recordkeeping system is decommissioned.	Share Care 7.1 (v01-0)
Differential Records	Records created or modified since the day and time the file share appraisal copy was made.	Consists of new records to be appraised and modified records to be matched up and take the place of earlier versions. Share Care 7.0 and 7.3 (v01-0)
Differential Records Appraised for Stay-in-Place or Destruction	List of differential records to stay-in-place on the file share or to be destroyed.	Share Care 7.0 (v01-0)
Differential Records to be Migrated	List of differential records to be migrated to the ECM.	Share Care 7.0 (v01-0)
Digital File Formats Inventory	Inventory of file formats used by the City of Surrey over the past 20 years.	Share Care 5.4 (v01-0)
Draft File Share Types List	The preliminary list of file shares that contain records.	
Draft File Shares Users List	Preliminary list of file share users.	
Draft Server Inventory	Provisional inventory of all existing City servers.	
Duplicate and Non-Business Records	Records that are duplicate and/or non-business records and which are to be removed from the file share appraisal copy.	

Arrow Name	Arrow Definition	Arrow Note
ECM Mission	Document that outline's the City's commitment to successfully transition the City's existing unstructured electronic records into a custom-built application that provides records management throughout the information lifecycle; and to provide a sustainable foundation for e-business standardization, workflow integration, enterprise-wide collaboration and paper reduction, in a business environment characterized by continued rapid growth.	From the Drive Migration Case Study proposal, p. 3.
Employee Request for Missing Record	Some records that were not migrated may be needed by City staff and, since all files are renamed and refiled before migration, and staff are new users of the ECM system, they may not always immediately find the record they are looking for. In this case staff will make a request for the missing record.	Share care 7.4 (v01-0)
Existing Corporate File Plan	The existing catalogue of classification numbers that are used to code records.	The City's Corporate File Plan is the corporate standard for records classification at the City and is centrally maintained by the Records Manager.
Existing Digital Records	Information about active and legacy, structured and unstructured digital records of the City that predate development and implementation of the ECM system and that need to be incorporated into the ECM system.	
Facilities	Physical space and infrastructure needed to manage the lifecycle of records.	
File Share Backup Tape Tracking Sheet	A list which tracks the activities, dates and location (i.e. tape 1 or tape 2) of the backup.	Share Care page 3-11 (v01-0)
File Share Backup-Restore Checklist	A list of metadata gathered through the process of creating the file share appraisal copy, to be reviewed by the records manager.	Share Care page 3-9 (v01-0)
File Share Data Collection Database	Spreadsheet(s) designed to hold the collected file share data.	
File Share Data Dictionary	A document that holds collected data about the file shares.	
File Share Inventory Data Dictionary	Identification of file share metadata elements to be collected.	
File Share Inventory List	Preliminary list of file shares that may contain recordkeeping systems.	Share Care 2.4 (v01-0)
File Share Records to be Migrated	The appraised records from the file shares to be migrated to the ECM	Share Care 7.1 (v01-0)
File Share Type Distribution Chart	A list that indicates the number and location of file share types.	Share Care page 2-18 (v01-0)
File Share Types List	A list of identified file share types and their functions.	Share Care page 2-17 (v01-0)
File Shares Administrative History	History of business units collected from available information.	Available information: City of Surrey's Annual Reports, Department websites, Business Units Year End Reports, etc. Share Care 4.3 (v01-0)

Arrow Name	Arrow Definition	Arrow Note
File Shares Inventory	The finalized list of file shares that may contain recordkeeping systems.	Share Care 2.4 (v01-0)
File Shares Users List	List of file share users.	
Final Server Inventory	Documentation identifying all existing City servers.	
Information About City Recordkeeping	Information about the City's existing file classification plan, retention and disposition schedules, and other records management knowledge.	Includes: Corporate File Plan, Records Census 2008, Records Management Database
Information About Existing Digital Records	Documentation about the character and extent of the active and legacy, structured and unstructured digital records of the City that predate development and implementation of the ECM system.	
Information About Existing Server System	Documentation about the existing servers of the City that predate development and implementation of the ECM system.	
Information About Migrated Appraised Records	Information about migrated appraised records kept in database tables.	Includes file property metadata, default settings metadata and import metadata. Share Care 7.2 (v01-0)
Information About the City	Documentation concerning the City's mission, organizational structure, activities, and existing technological, financial and human resources, as well as information about records related needs and risks.	
Inventory of Non-File Share Servers	Documentation identifying all existing City non-file share servers.	
Inventory of Potential File Share Servers	Documentation identifying all existing City potential file share servers.	
IT Knowledge	The state of technology and the skills of the IT personnel.	
IT Staff Data	Server data collected from IT staff using their knowledge about the City's servers.	
List of File Share Information Sources	A list of all visible file shares identified using network software, and other useful information collected using asset software.	
List of Server Information Sources	Identification of sources used to collect data about City servers.	
LST <File Share> Application Users	List of IDS and other data of file share users collected from the Application file properties.	Share Care 4.2 (v01-0)
LST <File Share> Windows Directory Owner File Properties	List of IDS and other data of file share users collected from the Windows Directory.	Share Care 4.2 (v01-0)
LST Active Directory User History	A comprehensive history of all Active Directory account IDS and any associated information.	Share Care 4.2 (v01-0)
Map of File Shares to Drive Letters	Verified log-on scripts which identify drive letter mappings to file share.	
Merged Server Data File	Consolidated Excel spreadsheet of all collected server data.	

Arrow Name	Arrow Definition	Arrow Note
Migrated Appraised Records	The records that have been appraised and migrated to the ECM.	
Network Applications	The applications used to determine servers of interest.	
Network Software Data	Server data collected using network software that allows different computers to communicate within a local area network and that can be used to identify Domain Name System (DNS) name.	
Network Software File Share Data	File Share data collected using network software that allows different computers to communicate within a local area network and that can be used to identify Domain Name System (DNS) name.	
Personnel	The knowledge and skills of City of Surrey employees specific to varying units involved in developing the ECM.	Includes records manager, IT personnel, technical analyst, allocation analyst
Record History	The established context, ownership, access, retention, and compliance requirements for records.	Share Care 5.1 (v01-0)
Records Appraised for Migration	List of records identified for migration to the ECM.	
Records Appraised for Stay-in-Place or Destruction	List of records identified for stay-in-place on the file share or destruction.	
Records Census	Census of records taken in 2008 and held in the records management database.	
Records Identified for Appraisal	Minimum best set of records for appraisal for migration, stay-in-place, or destruction.	Share Care 5.2 and 5.3 (v01-0)
Records Management Database	Database used by Records Centre to track boxed semi-active records submitted to their care by Central Filing Areas.	
Records Management Knowledge	The concepts, principles and methodologies governing the treatment of records, including the requirements for maintaining authentic copies of records. Includes results of extensive literature review.	
Records Manager	The individual responsible for managing the records of the City of Surrey.	
Request to Migrate Missing Record	Dedicated staff request that missing records be migrated from the backup tapes to the ECM.	Share Care 7.4 (v01-0)
Request to Revise Server Inventory	Instructions to update documentation about the City's existing servers.	
Required Permissions	The permission of the senior management of the City of Surrey (we need Lois' input here)	City Manager, Deputy City Manager, 8 General Managers, City Solicitor, Office of the City Clerk
Response to Request for Missing Records	Dedicated staff locate the requested record on backup tapes and migrate them to the ECM.	Share Care 7.4 (v01-0)
Revised Server Inventory	Updated draft documentation identifying all existing City servers.	

Arrow Name	Arrow Definition	Arrow Note
Script Data	Server data collected using customized Visual Basic Script created to 'ping' servers to determine if they are on/offline.	
Server Data Collection Database	Spreadsheet(s) designed to hold the collected server data.	
Server Inventory Data Dictionary	Identification of server metadata elements to be collected.	
Server Inventory Needing Revision	A draft server inventory.	
Server Ratings	The list of servers of Primary, Secondary and Limited Interest.	
Server Role Definitions	Defined and classified server roles.	
Standards	Sets of rules or guidelines co-operatively adhered to by peer entities.	e.g., MoReq2
Testing Environment Guidelines	Guidelines for using the testing environment and when to move to production.	
Testing Environment Guidelines		
Tools	Information, technology and other equipment and supplies used to manage the lifecycle of records.	
Training Programs	ECM education program and courses for City staff.	e.g., Corporate Records Training Program
Unvalidated File Share Appraisal Copy	Preliminary file share appraisal copy of the file share.	
Updated File Share Backup Tracking Sheet	An updated list which tracks the activities, dates and location (i.e., tape 1 or tape 2) of the backup.	
Utility Applications	Software applications to assist in managing the migration.	
Validated File Share Appraisal Copy	The file share appraisal copy that has been validated through the quality assurance process.	

Appendix 3: Generic IDEFØ Model – Manage Migration of Shared Drive Records into an Enterprise Content Management System

(version 1.1, 13 October 2010)

Preface

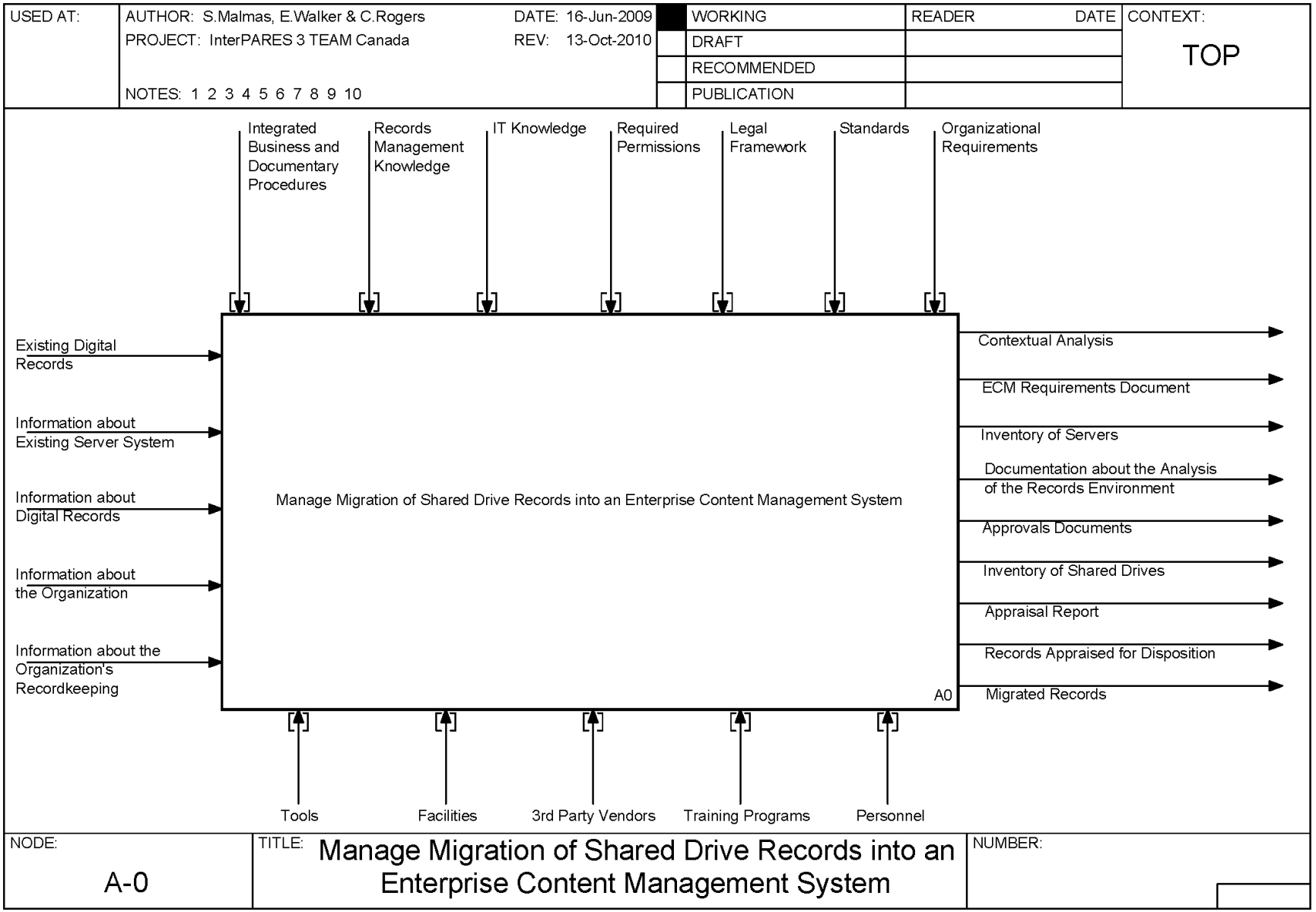
The Graduate Research Assistants (GRAs) generalized the model of the process used by the City of Surrey in developing its drive migration project (see Appendix 2). The GRAs used the InterPARES Creator and Preserver Guidelines,[11] and matched the requirements found there against the actions taken by the City of Surrey as outlined in the Share Care Toolkit (v01-0) presented at the InterPARES 3 TEAM Canada Workshop 05 as a guide for the activities to be modeled. The GRAs also consulted the Shared Drive Migration Toolkit (v02-0).[12]

The modeling activity was carried out using the IDEFØ function modeling method, which "is a method designed to model the decisions, actions, and activities of an organization or system."[13] This modeling technique uses simple box and arrow graphics in an organized and systematic way to depict how the various activities in a 'system' interrelate and operate.[14]

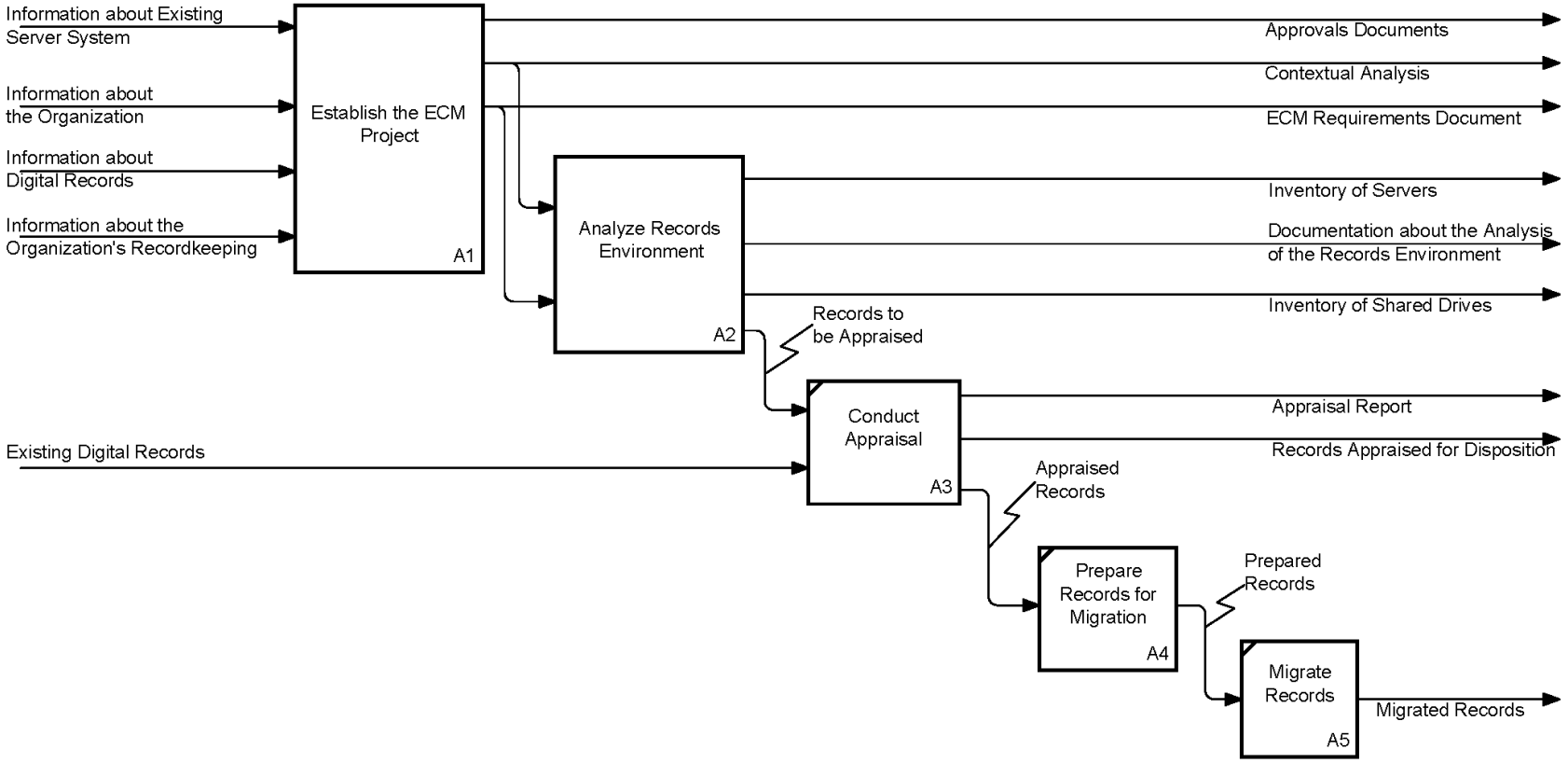
Appendix 3a: Generic IDEFØ Model — Diagrams
Appendix 3b: Generic IDEFØ Model — Definitions of Activities and Arrows

[11] Available at http://www.interpares.org/ip2/display_file.cfm?doc=ip2_book_appendix_20.pdf and http://www.interpares.org/ip2/display_file.cfm?doc=ip2_book_appendix_21.pdf, respectively.
[12] Available at http://www.interpares.org/ip3/ip3_cs14_report.cfm.
[13] Knowledge Based Systems (2010), "IDEFØ Function Modeling method." Available at http://www.idef.com/IDEF0.htm.
[14] For an overview of the IDEFØ modeling method and an introduction to the symbols and elements that appear in the diagrams, see http://www.idef.com/IDEF0.htm and Randy Preston, "Integrated Definition Function Modeling (IDEFØ): A Primer," InterPARES 2 Project (4 Aug 2007), available at http://www.interpares.org/ip2/display_file.cfm?doc=idef0_primer.pdf.

Appendix 3a: Generic IDEFØ Model — Diagrams



USED AT:	AUTHOR: S.Malmas, E.Walker & C.Rogers	DATE: 16-Jun-2009		WORKING	READER	DATE	CONTEXT:
	PROJECT: InterPARES 3 TEAM Canada	REV: 13-Oct-2010		DRAFT			
				RECOMMENDED			
	NOTES: 1 2 3 4 5 6 7 8 9 10			PUBLICATION			A-0



NODE:	TITLE:	NUMBER:
A0	Manage Migration of Shared Drive Records into an Enterprise Content Management System	

USED AT:	AUTHOR: S.Malmas, E.Walker & C.Rogers	DATE: 30-Jul-2009	WORKING	READER	DATE	CONTEXT:
	PROJECT: InterPARES 3 TEAM Canada	REV: 13-Oct-2010	DRAFT			
			RECOMMENDED			
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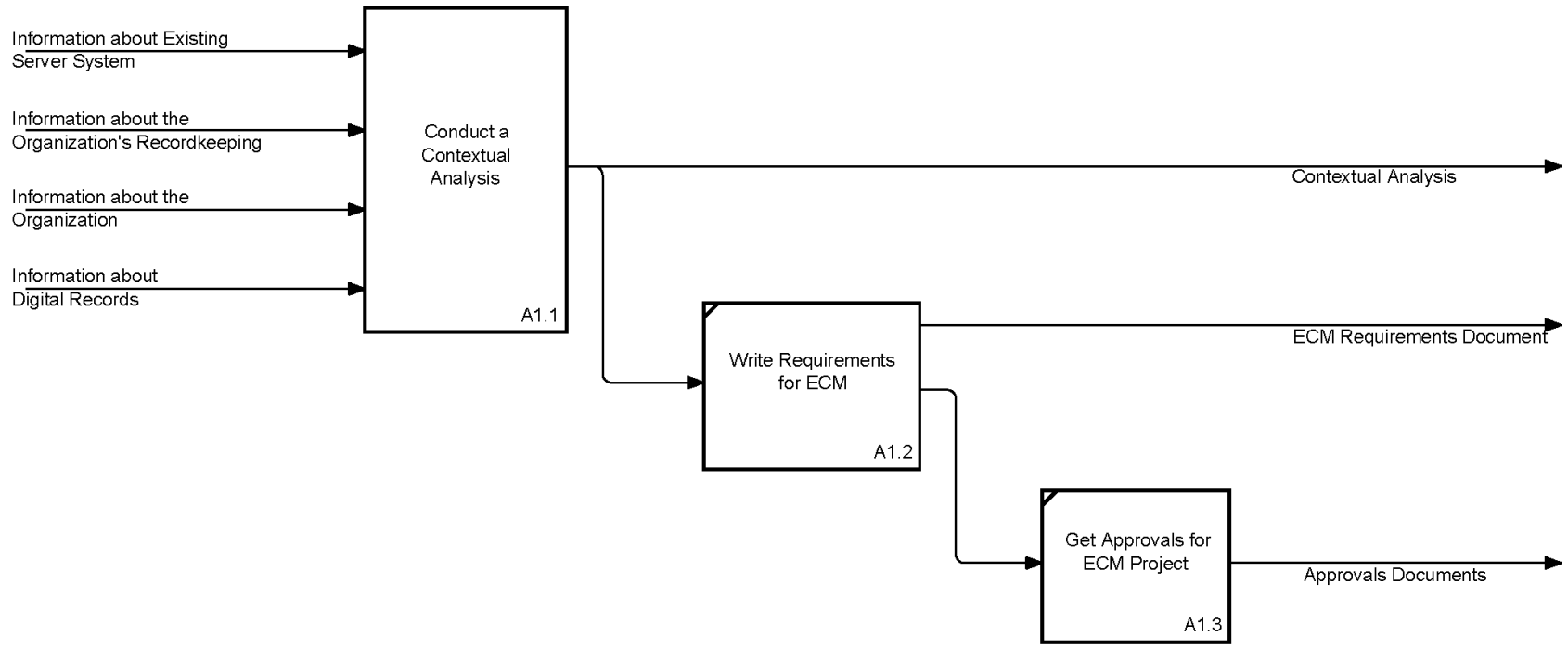

NODE:	TITLE:	NUMBER:
A1	Establish the ECM Project	

USED AT:	AUTHOR: S.Malmas, E.Walker & C.Rogers	DATE: 30-Jul-2009		WORKING	READER DATE	CONTEXT:
	PROJECT: InterPARES 3 TEAM Canada	REV: 13-Oct-2010		DRAFT		
				RECOMMENDED		
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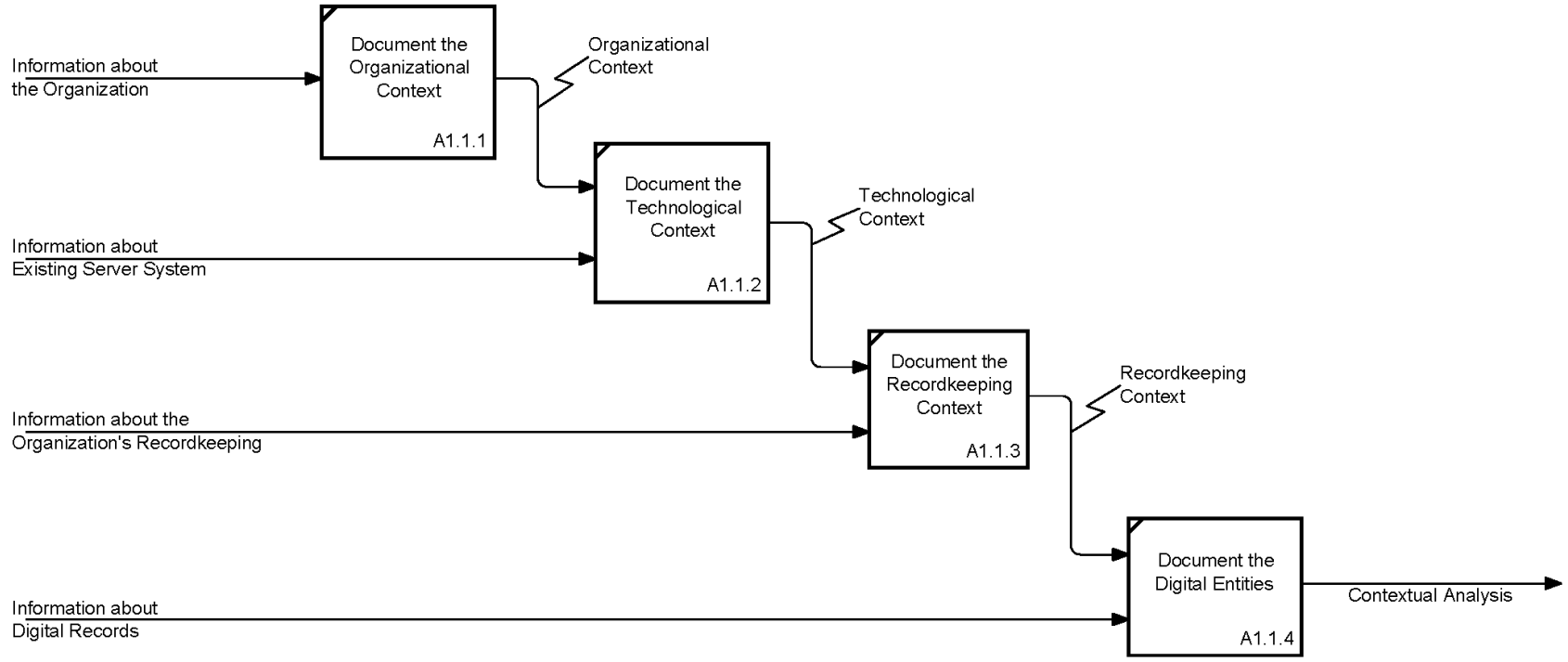

NODE:	TITLE:	NUMBER:
A1.1	Conduct a Contextual Analysis	

USED AT:	AUTHOR: S.Malmas, E.Walker & C.Rogers	DATE: 17-Aug-2009		WORKING	READER DATE	CONTEXT:
	PROJECT: InterPARES 3 TEAM Canada	REV: 13-Oct-2010		DRAFT		
				RECOMMENDED		
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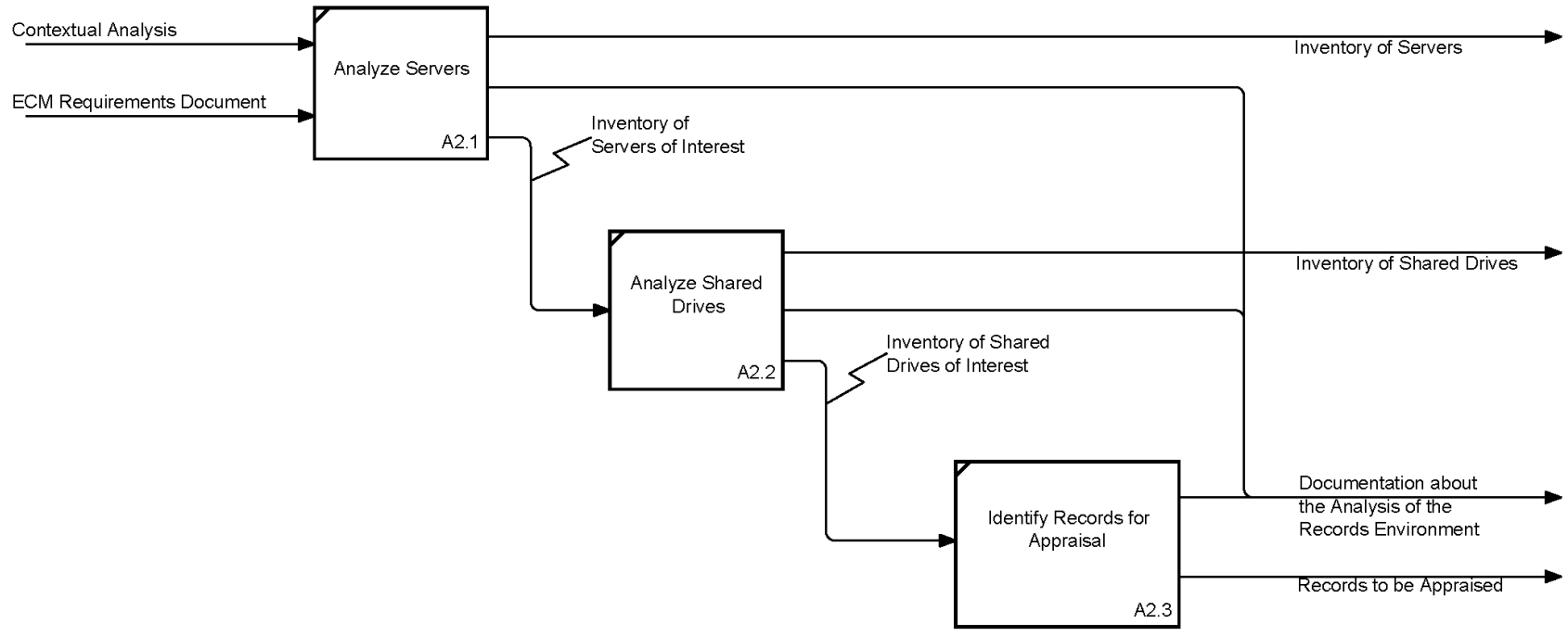

NODE:	TITLE:	NUMBER:
A2	Analyze Records Environment	

Appendix 3b: Generic IDEFØ Model — Definitions of Activities and Arrows

CS14 Generic IDEFØ Model, v1.1 (13 October 2010)			
Activities			
Activity Name	**Activity No.**	**Activity Definition**	**Activity Note**
Manage Migration of Shared Drive Records into an Enterprise Content Management System	A0	To inventory city records, develop an appraisal framework, appraise city records and import appraised records into an Enterprise Content Management system.	
Establish the ECM Project	A1	To identify requirements for all aspects of the electronic recordkeeping system and digital records it will contain.	
Conduct a Contextual Analysis	A1.1	To define the organizational, technological and business context.	
Document the Organizational Context	A1.1.1	To document the name, location, origins, legal status, norms, funding, physical resources, governance, mandate, philosophy, mission, policy, functions and recognitions of the organization.	
Document the Technological Context	A1.1.2	To identify the architecture and document all aspects of the technological infrastructure.	
Document the Recordkeeping Context	A1.1.3	To identify the administrative and managerial framework of record creation.	
Document the Digital Entities	A1.1.4	To document the contexts of records creation and the resulting digital records.	
Write Requirements for ECM	A1.2	To document requirements for the ECM.	
Get Approvals for ECM Project	A1.3	To receive approvals from required authorities.	
Analyze Records Environment	A2	To identify the records' locations to prepare for appraisal.	In a large organization this might require an analysis of servers and file shares, in a smaller organization this might only require an analysis of the file shares.
Analyze Servers	A2.1	To identify and analyze servers that contain records for appraisal.	
Analyze Shared Drives	A2.2	To identify and analyze the shared drives that contain records for appraisal.	
Identify Records for Appraisal	A2.3	To identify records for appraisal.	
Conduct Appraisal	A3	To appraise the organization's records.	

Activities			
Activity Name	**Activity No.**	**Activity Definition**	**Activity Note**
Prepare Records for Migration	A4	To undertake activities that prepare records for migration to the ECM.	
Migrate Records	A5	To transfer records from shared drives to the ECM.	

Arrows		
Arrow Name	**Arrow Definition**	**Arrow Note**
3rd Party Vendors	The organizations authorized vendors for offsite responsibilities for records of the organization.	
Appraisal Report	An analysis for appraisal of all the information collected about all the files on the file shares.	
Appraised Records	Records appraised for long-term preservation.	
Approvals Documents	The authorization to conduct the ECM project.	
Contextual Analysis	Contextual analysis includes information about the organizational context, the technological context, and the business context.	
Documentation about the Analysis of the Records Environment	The report about the analysis of servers, file shares, and records both of interest for appraisal or for destruction or other management activities.	
ECM Requirements Document	The document outlining the requirements to establish an ECM.	
Existing Digital Records	The active and legacy, structured and unstructured digital records of the organization that are being considered for incorporation into the ECM.	
Facilities	The physical space and infrastructure needed to manage the lifecycle of records.	
Information about Digital Records	Documentation about the character and extent of the active and legacy, structured and unstructured digital records of the organization.	
Information about Existing Server System	Documentation about the existing servers of the organization.	
Information about the Organization	Documentation about the organizations mission, structure, activities, and existing technological, financial and human resources, as well as information about records' related needs and risks.	
Information about the Organization's Recordkeeping	Information about the organizations existing file classification plan, retention and disposition schedules, and other records management knowledge.	
Inventory of Servers	The inventory of all servers of the organization.	
Inventory of Servers of Interest	The inventory of all servers suspected of containing records for migration.	
Inventory of Shared Drives	Inventory of all shared drives.	

Arrows		
Arrow Name	**Arrow Definition**	**Arrow Note**
Inventory of Shared Drives of Interest	The inventory of share drives of containing shared drives of interest for further analysis.	
IT Knowledge	The state of technology and the skills of the IT personnel.	
Legal Framework	The relevant legal and statutory regulations which govern the management of records throughout their lifecycle.	
Migrated Records	The records which have been appraised and migrated to the ECM.	
Organizational Context	The information about the administrative and organizational context within which records are created.	
Organizational Requirements	The ways in which the organization fulfills legal, operational, administrative, financial and historical obligations.	
Personnel	The people with knowledge, skills, and responsibilities specific to managing records throughout their lifecycle.	
Prepared Records	Records prepared and ready for migration.	
Recordkeeping Context	The information about the classification, retention and disposition, and other tools used to manage the creation, use, maintenance and disposition of records throughout their lifecycle.	
Records Appraised for Disposition	Records identified for destruction, "stay-in-place", or transfer to trusted repository for long-term preservation.	
Records Management Knowledge	The concepts, principles and methodologies governing the treatment of records, including the requirements for maintaining authentic copies of records and the records lifecycle.	
Records to be Appraised	The records identified for appraisal.	
Required Permissions	The permission of senior management to manage the records lifecycle.	
Standards	Electronic Records Requirements detailed in standards such as (in Canada) the Canada Evidence Act and Canadian General Standards Board Guidelines 72.11 "Microfilm and Electronic Images as Documentary Evidence" 72.34 "Electronic Records as Documentary Evidence."	
Technological Context	The information about the hardware and software used to create records.	
Tools	The Information, technology and other equipment and supplies used to manage records throughout their lifecycle.	
Training Programs	The ECM education training program and courses for the organizations staff.	