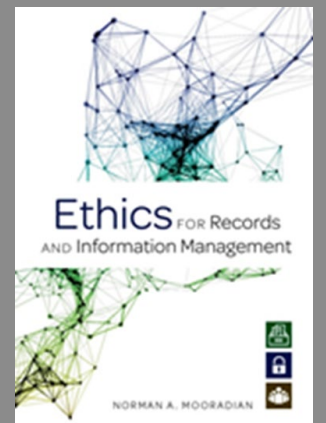


Digital Ethics and ECM: A Design Perspective

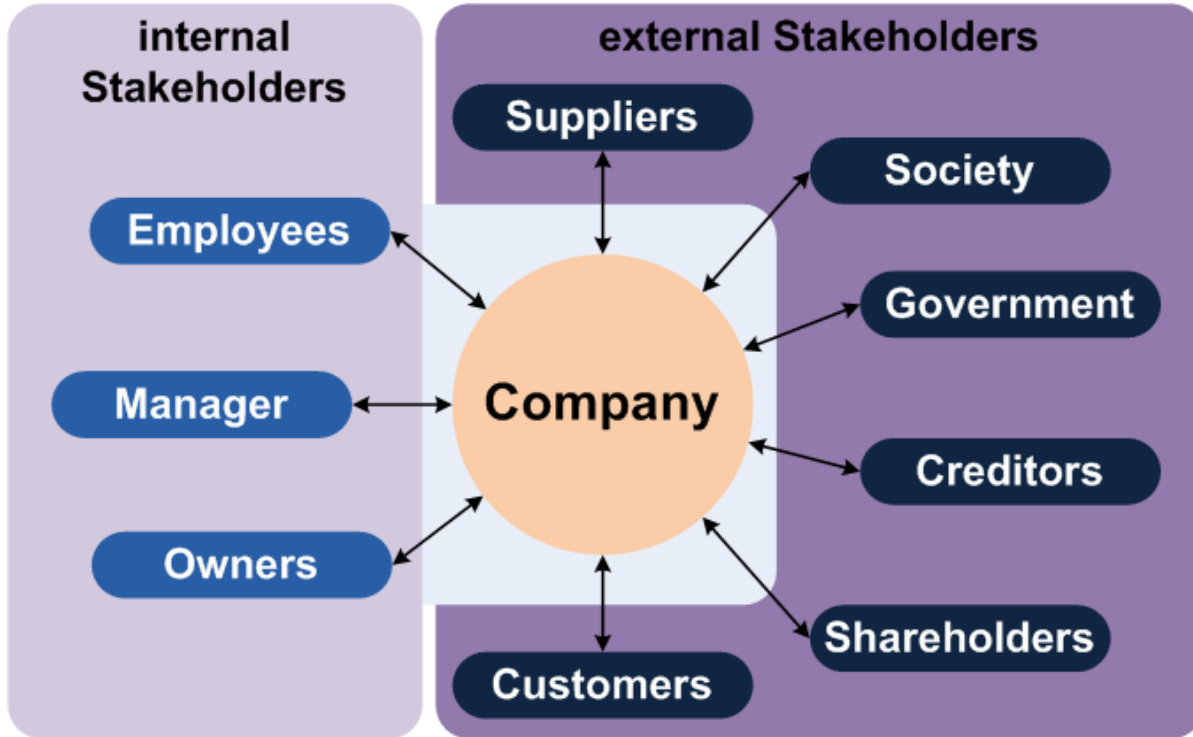
Norman Mooradian, Ph.D., CIPP/US
Education Services Lead
Enterprise Content Management
Konica Minolta Business Solutions USA



Stakeholder Concerns

Gartner Report:

Digital ethics and privacy are becoming critical elements of any technology decision. Best practice means focusing not only on what you *have* to do but on what you *should* do ethically . . . (Gartner 10 top trends report, page 5).



Pew Research Center 

Majorities of Americans find it unacceptable to use algorithms to make decisions with real-world consequences for humans

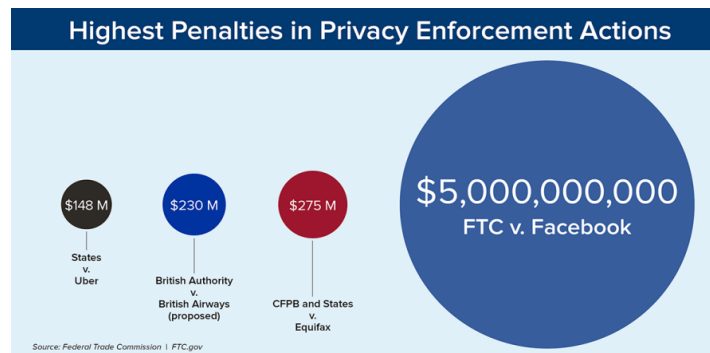
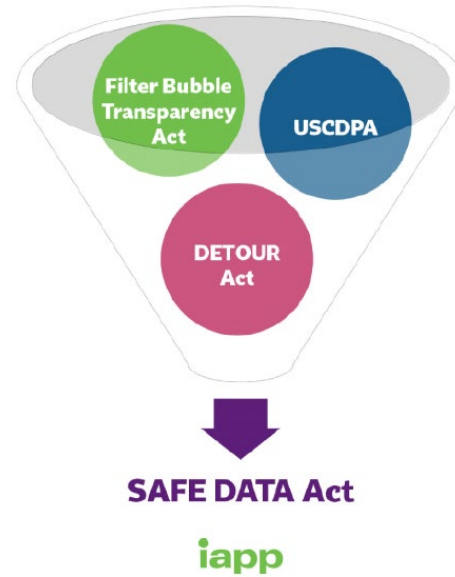
- **Customers**
 - Information Privacy / Identity Theft
 - Confidentiality
 - Automated Decision Making
- **Employees**
 - Workplace Privacy / Surveillance
 - Confidentiality
 - Work Automation
- **Suppliers**
 - Confidentiality
 - Intellectual Property
- **Society**
 - Liberty / Autonomy / Surveillance
 - Fairness / Justice
 - Employment / Economics
 - Democracy / Stability
- **Government**
 - Regulating all of the above

Regulatory Landscape – Data Privacy



HOUSE OF COMMONS OF CANADA
BILL C-11

FIRST READING, NOVEMBER 17, 2020



Data Breach Laws

Regulatory Landscape – Artificial Intelligence



OECD Principles on AI



Art. 22 GDPR

Automated individual decision-making, including profiling



Directive on Automated Decision-Making



A Regulatory Framework for AI:
Recommendations for PIPEDA Reform



CAN/CIOSC 101:2019
Ethical design and use of automated decision systems



WEF Report

“The guidelines provide fundamental considerations that a government should address before acquiring and deploying AI solutions and services.”

“Incorporate those rules and norms into the RFP . . .



FEDERAL TRADE COMMISSION
PROTECTING AMERICA'S CONSUMERS

Digital Ethics

Definitions

Digital Ethics = (Information Ethics +
Data Ethics + (AI Ethics – Robot Ethics))

(Narrow) AI refers to computer systems that are able to perform tasks or simulate cognitive tasks such as are reasoning, predicting, planning, understanding, explaining, speaking, perceiving, learning, deciding.

Lawrence Lessig

Ethics for Records and Information Management

DIGITAL ETHICS AND OTHER LABELS

6/13/20

INTRODUCTION

As interest in the ethics of artificial intelligence and other digital transformation technologies intensifies, a number of labels have been added to the existing set to denote the relevant areas of research in law and ethics. This short article is a survey of labels past and present.

MORE RECENT LABELS

Information Ethics

Of the labels still in currency, **information ethics** has been used for at least a few decades.

Its focus is the uses of information, mainly in digital form or contexts, though its concerns apply to physical and analogue information as well.

Central topics include **privacy, confidentiality, disclosure and intellectual property.**

The label resonates with phrases such as “**information society**” and “**information revolution.**”

Information ethics has been a well-entrenched label with broad scope. This scope includes the uses of **information and associated technologies** through the entire content lifecycle. The label also has a parallel in law in such terms as “**information law**” and “**information privacy law**”.

Data Ethics

“**Data ethics**” is a more recent coinage. It is beginning to be used instead of “information ethics” and can be pretty much be considered a synonym. It resonates with some more recent phrases such as “**big data**”, “**data analytics**” and “**data driven**”. It does have a slightly different shade of meaning from “information ethics” that reflects these resonances and the technological developments behind them. Reading “big” into “data ethics”, the focus of analysis turns to large data sets and algorithms that operate over them (as the Oxford professors of philosophy Luciano Floridi and Mariarosalia Taddeo observe in their paper “What is data ethics?” (2018)). Human interpretable information objects such as documents and reports are still ethically salient, but the more elemental data that generate information algorithmically take on primacy.

Florida and Mariarosalia propose using the term “data ethics” as an umbrella term that includes the concerns of information ethics but adds concerns about algorithms (including AI) and professional practices. It is doubtful that “data ethics” will be used in precisely this way by the larger community of information / technology professionals, as data has a very well established meaning in relation to information that will likely shape the meaning of “data ethics” as a broadening of focus to include both information and data, as well as data processing.

AI Ethics

“AI ethics” is also a more recent label that reflects a newer area of ethical concern, namely, the impacts of artificial intelligence and AI systems on society and persons. AI ethics issues include **magnified privacy concerns** (e.g., face recognition), **fairness** (non-bias) and **due process** in decision making, **opacity, risk and responsibility** for AI based decisions and acts, the **effects of automation on employment**, and **control/manipulation** of persons. (See “Ethics of Artificial Intelligence and Robotics”, published online in the Stanford Encyclopedia of Philosophy.)

Digital Ethics Issues

Information Ethics

- Data Privacy
- Confidentiality/Disclosure
- Cybersecurity
- Intellectual property; copyright, trade secrecy
- Lifecycle management / information governance.

+

AI Ethics

- Magnified privacy concerns
- Bias (Invidious discrimination)
- Inclusion / Exclusion
- Due process
- Opacity (black boxes) / Explainable AI (XAI)
- Risk and responsibility
- Automation and employment
- Public good (government, healthcare, environment)

ECM and Digital Ethics

Intelligent Information Management

AIIM Moving from ECM to Intelligent Information Management 2017

Leveraging analytics & machine learning.	AI, content analytics & semantics	Data recognition, extraction & standardization	Metadata & taxonomy management	Document classification & PII identification
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AIIM State of the IIM Industry 2020

- 1. Creating, Capturing, and Sharing Information** (i.e., Multi-Channel Capture, Document Management, Collaboration, Content Migration & Integration, Knowledge Management)
- 2. Digitalizing Information-Intensive Processes** (i.e., Business Analysis, Business Process Management, Robotic Process Automation, Case Management, Decision Management)
- 3. Extracting Intelligence from Information** (i.e., Metadata, Taxonomies, Data Recognition/Extraction/Standardization, Analytics/Machine Learning/AI, Search)
- 4. Automating Governance and Compliance** (i.e., Information Governance, Records Management, Information Security, Privacy and Data Protection, eDiscovery, Digital Preservation)

Artificial Intelligence into Your Information Management Strategy (AIIM Report)

Document Management

- Document Sorting and Categorization
- Document Topic Recognition
- Named Entity Recognition

Images and Computer Vision

- Optical Character Recognition
- Handwriting Recognition
- Face Recognition/Detection
- Image Object Detection
- Automated Image Tagging

Speech and Natural Language Processing

- Text to Speech Conversion
- Speech to Text Conversion
- Language Translation
- Automated Content Generation
- Web chat bots
- Sentiment Analysis
- Emotion Detection
- Interactive Digital Assistant

ECM Components and Risk/Opportunity Areas

Core Repository	Risk / Opportunity Areas
Metadata / database search Full text search File storage management Security	Data Privacy, Confidentiality/Disclosure Cybersecurity; Intellectual property; copyright, trade secrecy
Lifecycle Management	
Capture Collaboration Records Management Retention Management	Lifecycle management / information governance. Data Privacy, Confidentiality/Disclosure Cybersecurity; Intellectual property; copyright, trade secrecy
Integration and Access	
Systems Integrations Cloud computing Public Access	Data Privacy, Confidentiality/Disclosure Cybersecurity; Intellectual property; copyright, trade secrecy
Business Process Automation	
Digital forms Workflow Case Management Reporting / Visualization	Data Privacy, Confidentiality/Disclosure Cybersecurity;
Intelligent Automation	
RPA	Employment Employee Experience
AI/ML Content analytics & semantics Document classification & PII identification Data Recognition and Extraction	Data Privacy, (Invidious) Bias, due process & rights Employment Employee Experience

ECM Ethics By Design

Ethics by Design Principles

Incorporate the **requirements for Trustworthy AI from the earliest design phase**: Accountability, Data Governance, Design for all, Governance of AI Autonomy (Human oversight), Non-Discrimination, Respect for Human Autonomy, Respect for Privacy, Robustness, Safety, Transparency. (EC High Level Expert Group on AI).

Business Analysis

Business Analysis is the practice of enabling change in an organizational context, by defining needs and recommending solutions that deliver value to stakeholders. IIBA BABOK.

Business analysts use analytical thinking by rapidly assimilating various types of information (for example, diagrams, stakeholder concerns, customer feedback, schematics, user guides, and spreadsheets) and identifying which are relevant. (pg. 188)

Ethical Analysis

Ethical analysis consists in breaking down complex ethical issues, situations, systems, etc. into their elements in order to understand their ethically relevant features and how they impact values, rights, and norms individually and combination.

Its goal is to arrive at defensible moral judgements about concrete situations, policy questions and societal issues.

Solution Development Lifecycle

Ethical & Legal Framework

Organizational Policy

Business Requirements

Functional Requirements

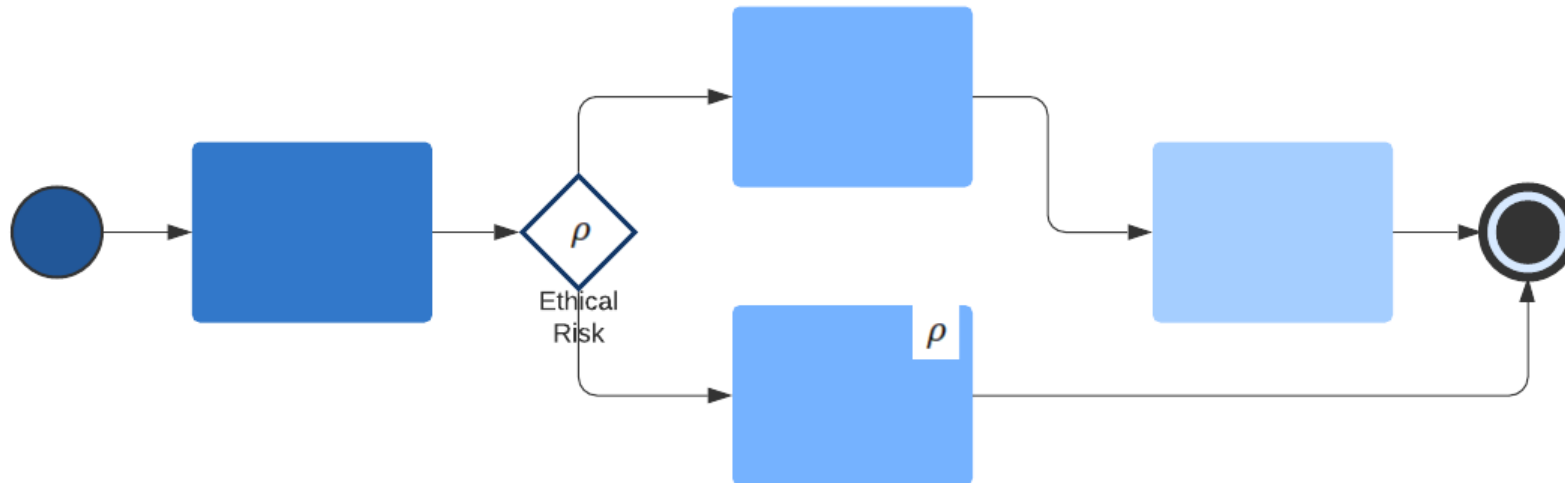
Technical Design

Digital Ethical Component | Feature

Requirements Analysis Techniques

Integrating ethical thinking with design thinking

- Document Analysis
- Data Dictionary
- Data Modeling
- Data Flow Diagrams
- Decision Analysis
- Decision Modeling
- Business Rules Analysis
- Process Analysis
- Process Modelling
- Concept Modeling



FIPPs – IACPA Generally Accepted Privacy Principles

1. Management.	The entity defines, documents, communicates and assigns accountability for its privacy policies and procedures.
2. Notice	The entity provides notice about its privacy policies and procedures and identifies the purposes for which personal information is collected, used, retained and disclosed
3. Choice and consent.	The entity describes the choices available to the individual and obtains implicit or explicit consent with respect to the collection, use and disclosure of personal information.
4. Collection.	The entity collects personal information only for the purposes identified in the notice.
5. Use, retention and disposal.	The entity limits the use of personal information to the purposes identified in the notice and for which the individual has provided implicit or explicit consent. The entity retains personal information for only as long as necessary to fulfill the stated purposes or as required by law or regulation and thereafter appropriately disposes of such information.
6. Access.	The entity provides individuals with access to their personal information for review and update.
7. Disclosure to third parties.	The entity discloses personal information to third parties only for the purposes identified in the notice and with the implicit or explicit consent of the individual.
8. Security for privacy.	The entity protects personal information against unauthorized access (both physical and logical).
9. Quality.	The entity maintains accurate, complete and relevant personal information for the purposes identified in the notice.
10. Monitoring and enforcement.	The entity monitors compliance with its privacy policies and procedures and has procedures to address privacy-related complaints and disputes

Canadian Directive - Automated Decision- Making

Impact Assessment Criteria

the rights of individuals or communities,
the health or well-being of individuals or
communities,
the economic interests of individuals, entities,
or communities,
the ongoing sustainability of an ecosystem.

Impact Assessment Levels

Level I (1) decisions will often lead to impacts that are reversible and brief.
Level II (2) decisions will often lead to impacts that are likely reversible and short- term.
Level III (3) decisions will often lead to impacts that can be difficult to reverse, and are ongoing.
Level IV (4) decisions will often lead to impacts that are irreversible, and are perpetual.

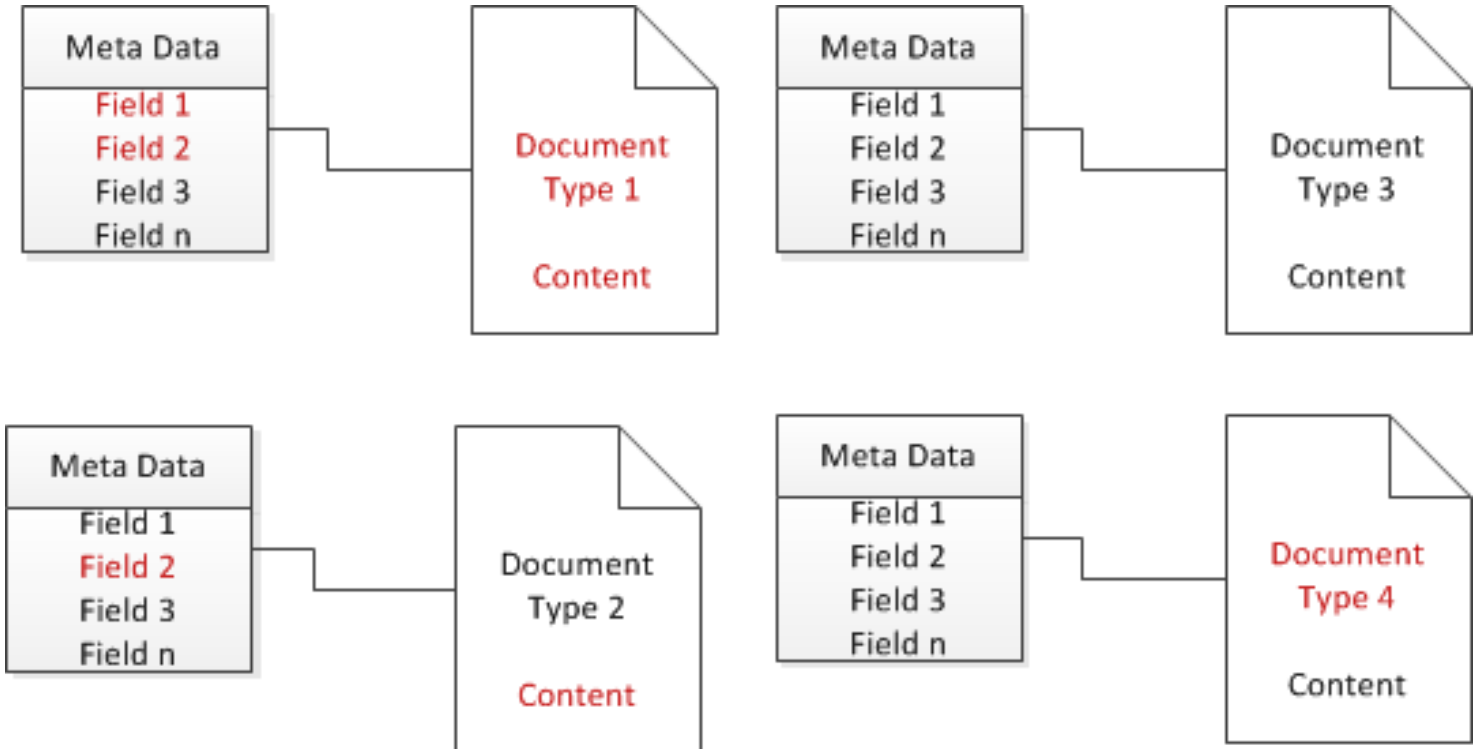
Core Repository

Privacy Design

- Data minimization
- Minimum necessary use
- Security
- Provable authorization

Solution Features

- Document type level security
- Metadata level security
- Document specific security
- Sub-document level security (redaction, form section control)
- Secure capture channels
- Data and document encryption
- Audit trails
- Linkable authorization records
- Automated retention



Business Process Automation

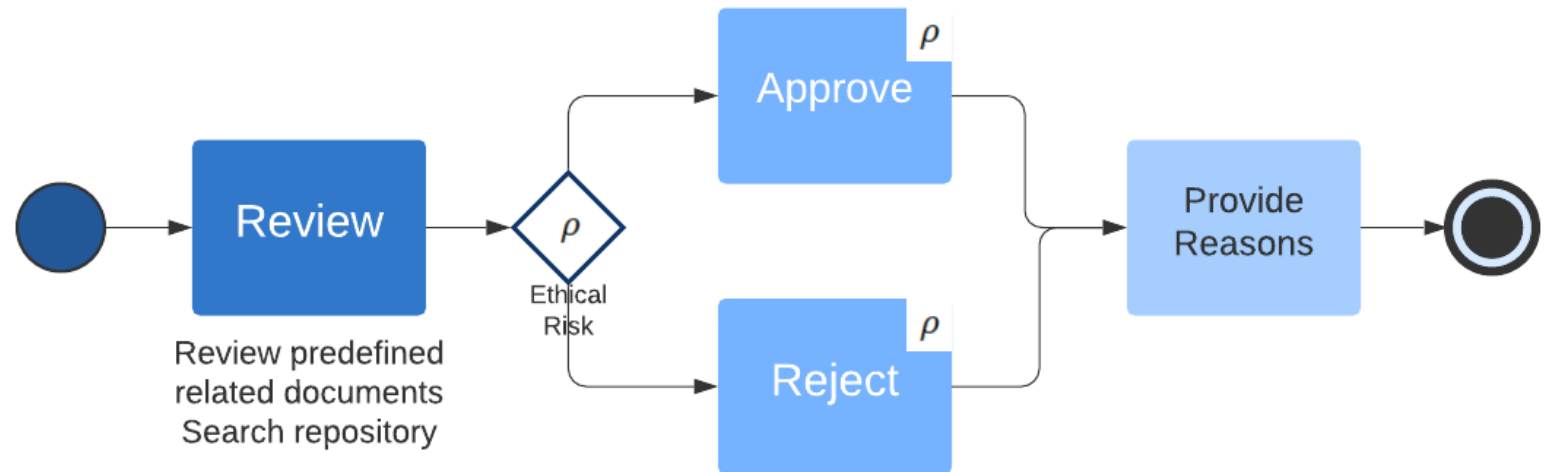
Ethical Design

- Accountability
- Privacy
- Data Governance
- Human oversight
- Non-Discrimination
- Transparency / explainable
- Employee Experience

Solution Features

- Rules based – documented
- Privacy by design
- Human driven decisions
- Full and relevant information
- Decision explanations
- Appeal step
- Reporting

Promotion Review Workflow



Intelligent Automation

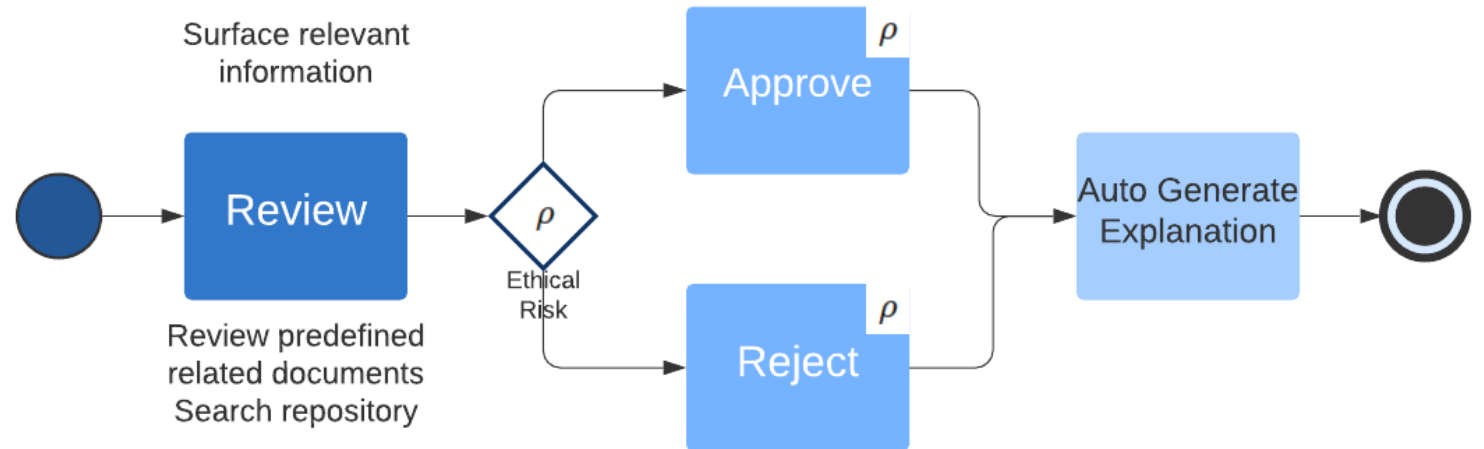
Ethical Design

- Accountability
- Privacy
- Data Governance
- Human oversight
- Non-Discrimination
- Transparency / explainable
- Employee Experience

Solution Features

- Algorithms documented
- Privacy by design
- AI-based document classification
- Data quality (training samples)
- Human in the loop
- Surfacing relevant information
- Decision Recommendation
- Decision explanations
- Appeal step
- Reporting

AI Enhanced Promotion Review Workflow



Questions



For more information see [AIIM.org](https://www.aaim.org) Digital Ethics Forum