An Overview of FDA's KASA System

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Introduction

Background

- In the Office of Pharmaceutical Quality (OPQ) we evaluate how a drug is formulated, how it is manufactured, and the facilities used in the manufacturing process to ensure a safe and effective medication is being delivered to the intended population.
- We also look at formulation and manufacturing changes made after a drug is approved to ensure quality is maintained throughout the product's lifecycle.

Introduction

Background

- For a regulatory assessment focused on quality, a lifecycle approach that underscores good knowledge management is essential.
- And to be most efficient its important we take advantage of modern IT tools and platforms that emphasize structured data* and the ability to capture critical information.

* **Structured data** is highly specific and is stored in a predefined format so that its easily searchable, whereas **unstructured data** is a conglomeration of many varied types of data that are stored in their native formats making it difficult to collect, process, and analyze

Current Challenges to Assessing Quality

External Challenges:

- Volume of INDs, applications/supplements for new and generic drugs, plus biologics;
- Expectations related to user fee programs; and
- Being accountable to the Commissioner, Congress, the pharmaceutical industry, and the public.

Current Challenges to Assessing Quality

Internal Challenges:

- Regulatory assessments traditionally based on freestyle narratives (or unstructured text) and a summarization of application information with cut/paste data tables.

- Encumbers best practices for knowledge sharing and managing critical information across a product's lifecycle.
- An outdated approach that hinders the use of modern technology and our ability to maximize efficiency.

Current Challenges to Assessing Quality

A narrative based quality assessment means

- The risk assessment and evaluation of the applicant's mitigation approaches gets dispersed in lengthy text;
- Knowledge management becomes cumbersome and the assessor's ability to compare relative quality and risk across drug products and facilities is hindered;
- The quality assessment becomes subjective and based on the assessor's expertise and knowledge at hand which can lead to inconsistent application of quality standards

Advancing Forward

We recognize the need to modernize

(20th → 21st century technology)

Move from narrative information to **structured data*** in order to best capture/manage knowledge

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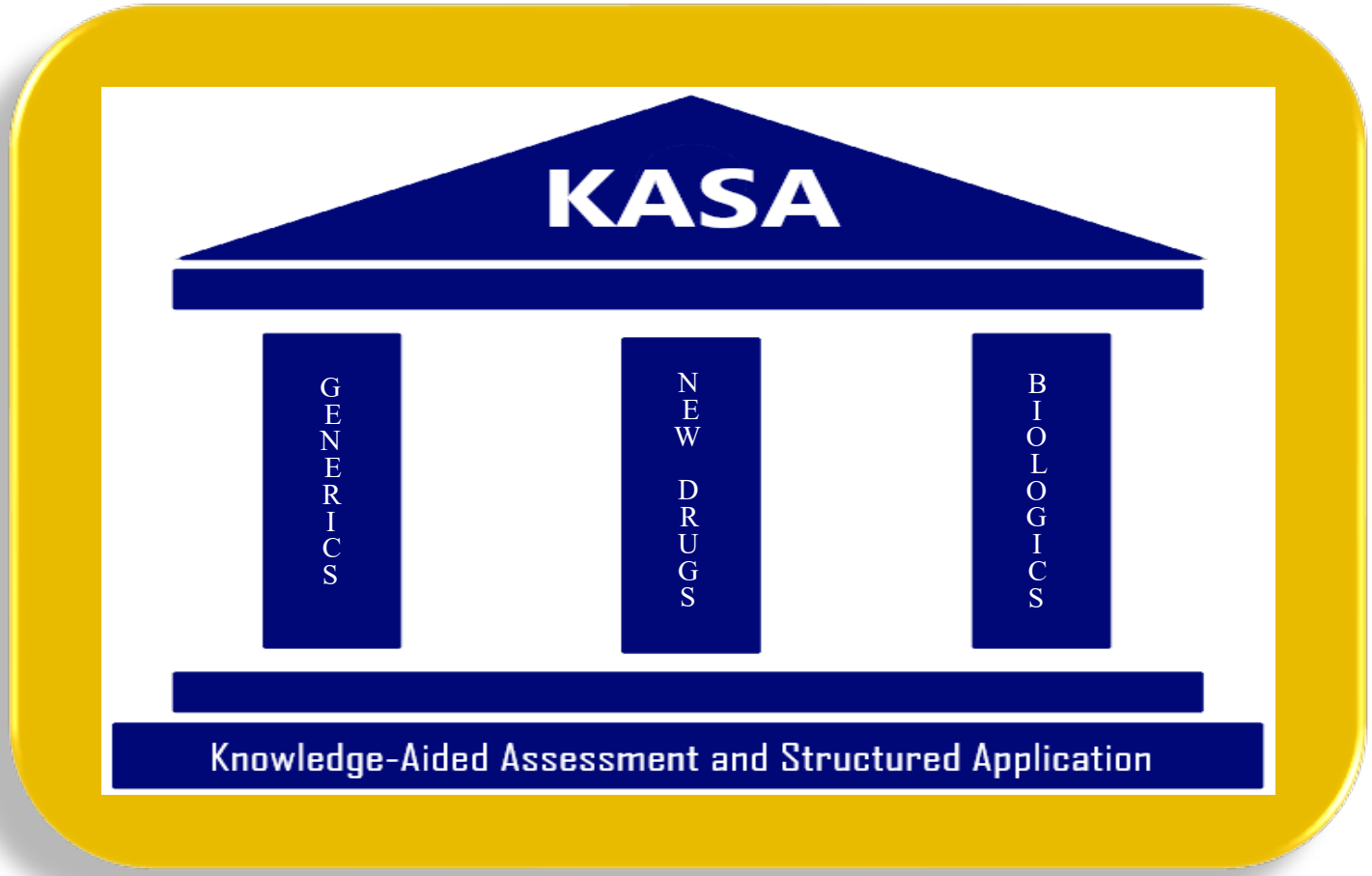
Advancing Forward



The KASA System:
A data-based platform for structured quality assessments and applications that supports knowledge management and advanced analytics

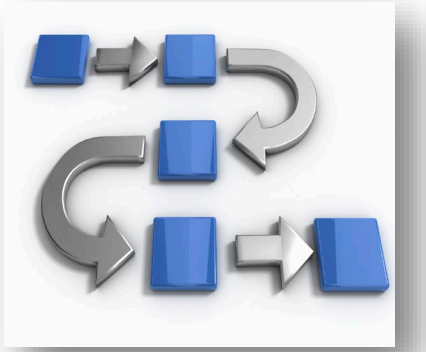
KASA = **K**nowledge-aided **A**ssessment and **S**tructured **A**pplication

Objectives of the KASA System

The KASA system is being designed to:

1. Capture and manage knowledge during the lifecycle of a drug product

2. Include established rules and algorithms to measure the risk associated with how a product is designed and manufactured;

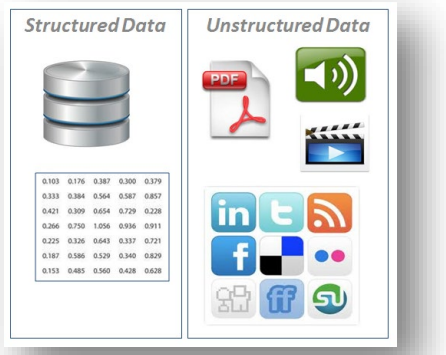


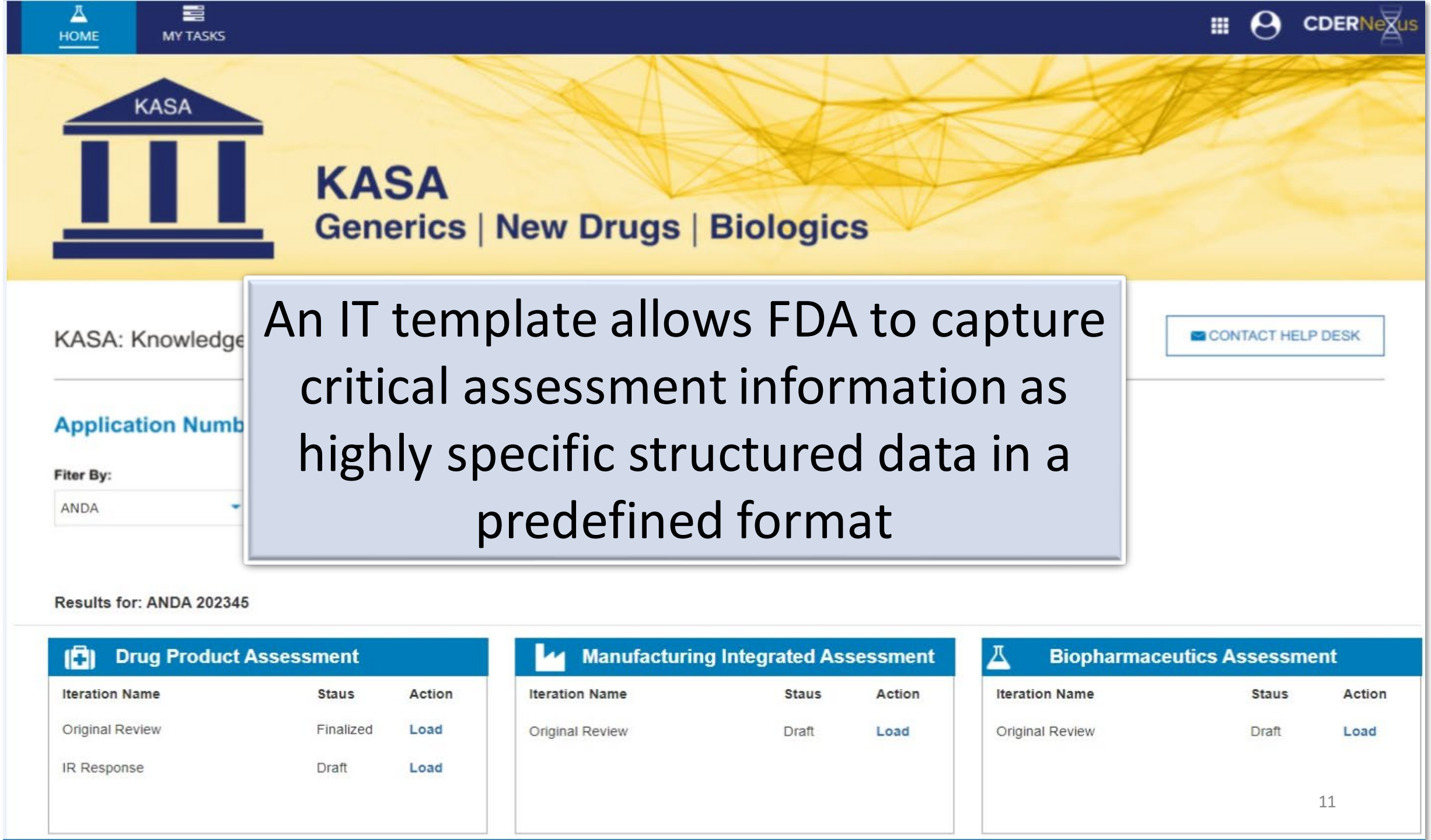
Objectives of the KASA System

The KASA system is being designed to:

3. Perform computer-aided analyses of applications for a comparison of regulatory standards and quality risk across the repository of approved drug products and facilities

4. Provide a structured assessment that radically eliminates text-based narratives and summarization of information from the applications




HOME
MY TASKS
CDERNexus
KASA
KASA
Generics | New Drugs | Biologics
An IT template allows FDA to capture critical assessment information as highly specific structured data in a predefined format
KASA: Knowledge
CONTACT HELP DESK
Application Numb
Fiter By:
ANDA
Results for: ANDA 202345
Drug Product Assessment
Iteration Name
Staus
Action
Original Review
Finalized
Load
IR Response
Draft
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Manufacturing Integrated Assessment
Iteration Name
Staus
Action
Original Review
Draft
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Biopharmaceutics Assessment
Iteration Name
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Original Review
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The KASA Tool

The knowledge captured in KASA:

- Promotes **objectivity** and **consistency** in FDA's regulatory assessments by providing a broad view of critical real-time information across the repository of FDA approved drugs (*e.g., controls on impurities across a drug product line from brand to generic*)
- Aids in **identifying outliers** in applications and facilities so that emerging problems can be addressed quickly (*e.g., the need for inspection based on assessed manufacturing capability*)
- Improves **overall efficiency** and excels regulatory decision making by assuring drugs dependably meet high quality standards

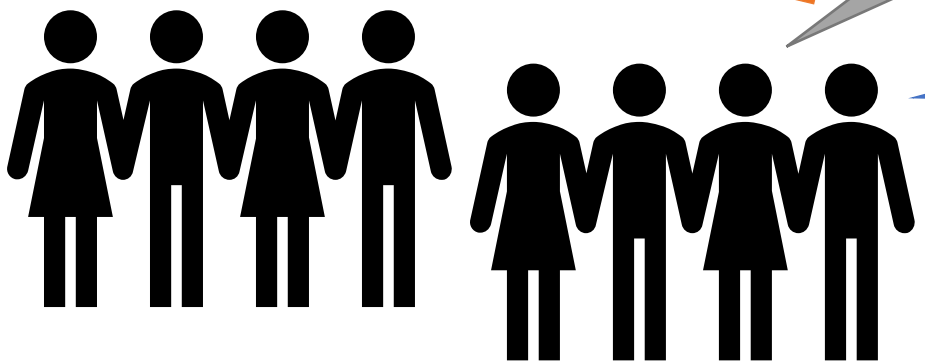
What KASA Means for the FDA Quality Assessor

Enables risk assessment, mitigation, and communication and provides consistency in the quality assessement

This is a more efficient tool for the assessor

KASA saved my time significantly

Enhances the objectivity of the quality assessment and promotes consistency

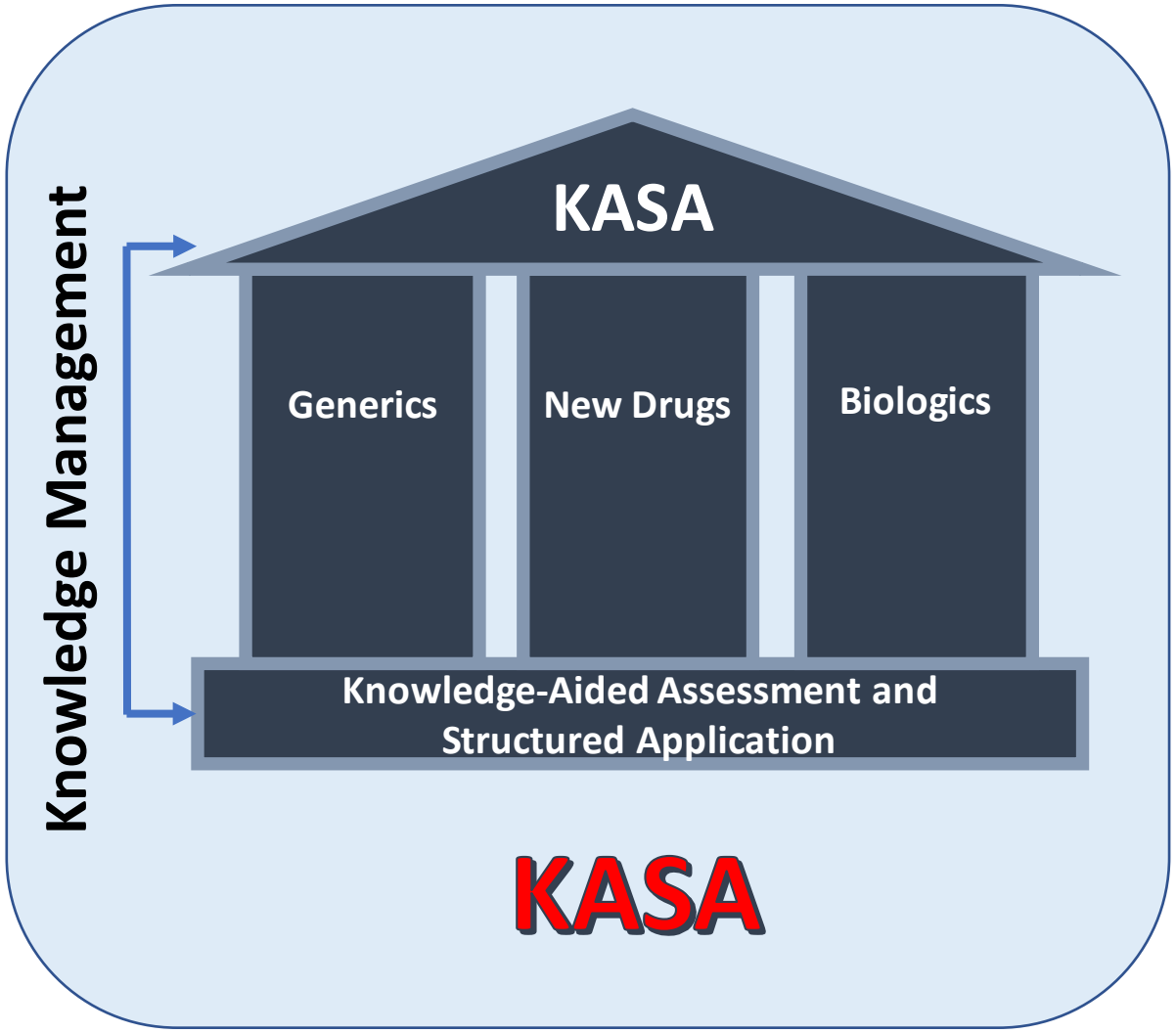


KASA captures and manages knowledge and facilitates access to internal data

The Development Process

- The first KASA prototype developed in 2016 was implemented in the generic space given the large volume of submissions.
- Multiple iterations and improvements were made and tested throughout 2017-2019
- Throughout 2020-21 FDA worked to transfer KASA to the cloud where it is stored on FDA servers under a FISMA high environment, the strictest level of control to ensure protection
- Moving forward there are plans to expand KASA to:
  - Drug substances
  - New drugs (INDs and NDAs)
  - Post-approval changes (i.e., supplements)
  - Biologics (BLAs and biosimilars)

The Future KASA System



"KA" = Knowledge-Aided Assessment
(represents the internal piece)

"SA" = Structured Application
(represents the external piece)

Two separate but linked initiatives that will facilitate the **"SA"** part of KASA:

- ICH M4Q (R1)
- PQ-CMC

The Future KASA System

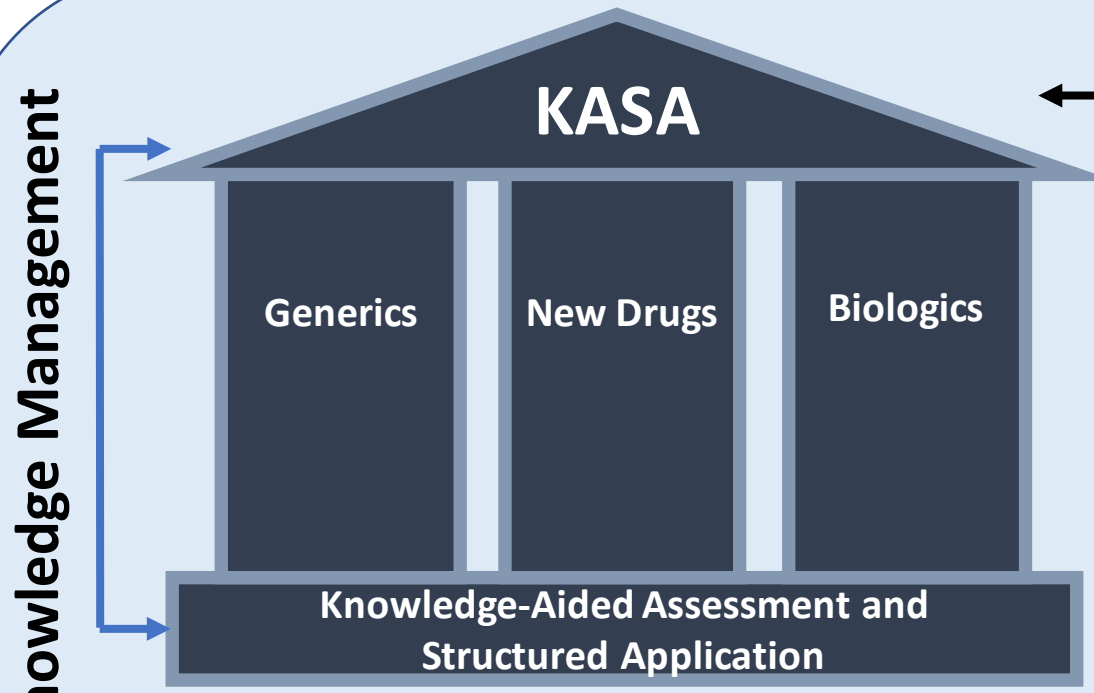
ICH M4Q

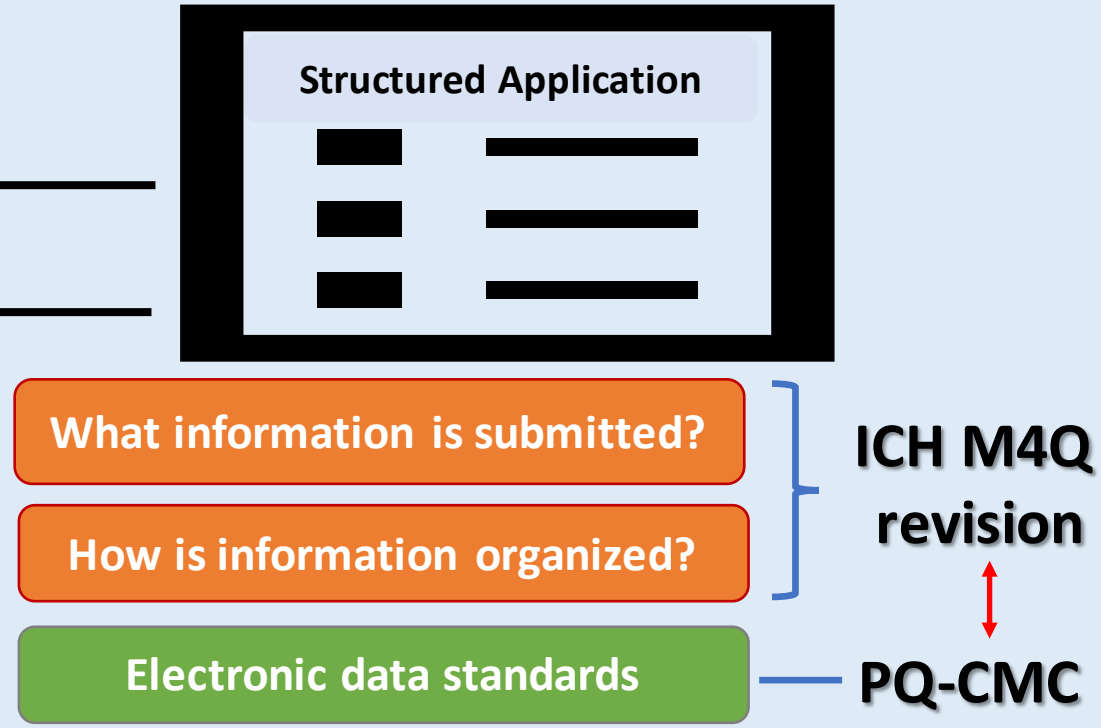
- Provides recommendations for applicants preparing the quality section (Modules 2 and 3) of a drug application
- First drafted in 2002 by the International Conference of Harmonization (ICH)
- Planning a revision process that advances the format of quality information to a structured format for easy access, analysis, and knowledge management by regulatory bodies across the globe
- Will facilitate a structured regulatory assessment in FDA's KASA system

PQ-CMC

- A term used to describe manufacturing and quality control information submitted to FDA in support of drug applications
- Actively establishing electronic standards (data elements and terminologies) that will facilitate the FDA' transition to a streamlined electronic review environment

The Future KASA System





"KA"

integrated set of tools and framework to aid regulatory assessment and knowledge management

"SA"

content and organization of submission and electronic data standards

The End Game

FDA is making IT advancements to modernize how regulatory assessments are conducted

Structured data and knowledge management will ensure consistency and objectivity in regulatory decision making

Leads to quality drugs that are reliable throughout their lifecycle