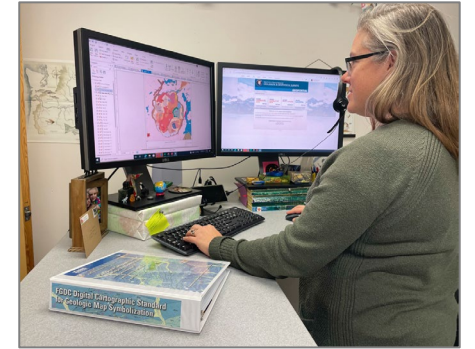


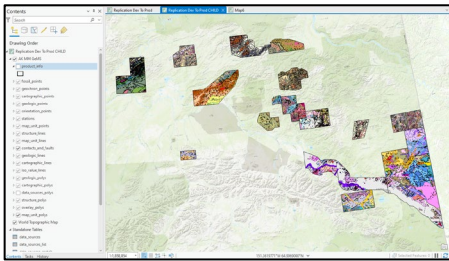
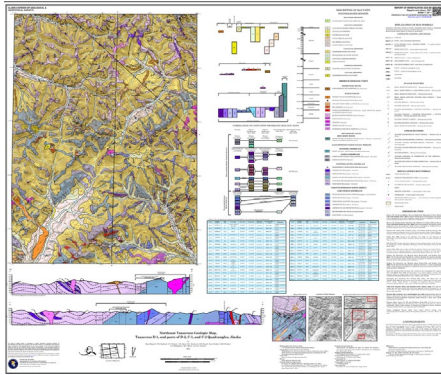
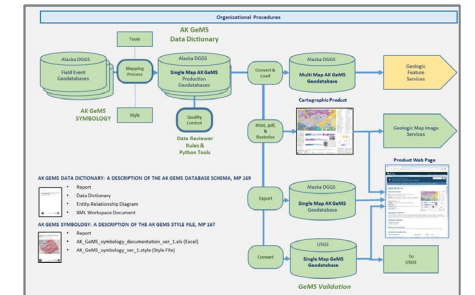
# Designing a Standards Based GIS Production System in Alaska

The Alaska Division of Geological & Geophysical Surveys (DGGs) produces and publishes numerous geologic maps each year.

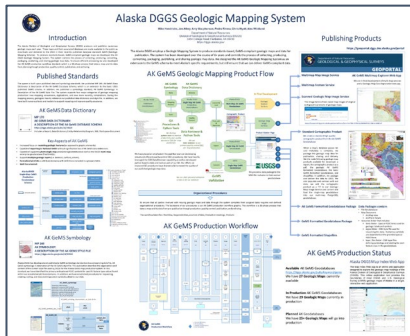


To produce standards-based geologic maps we developed the **AK DGGs Geologic Mapping System**

This system controls the process of: *collecting, producing, converting, packaging, publishing, and sharing* geologic maps and data.



Poster View of System



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3354 College Rd, Fairbanks AK 99709

<https://doi.org/10.14509/30864>



October 25 - 27, 2023

# Why have a GIS map production system?

The efficient production of high-quality, standards-based geologic maps requires more than GIS software and a data standard

A comprehensive map and data production system is essential

An effective production system must address a wide range of related components that include:

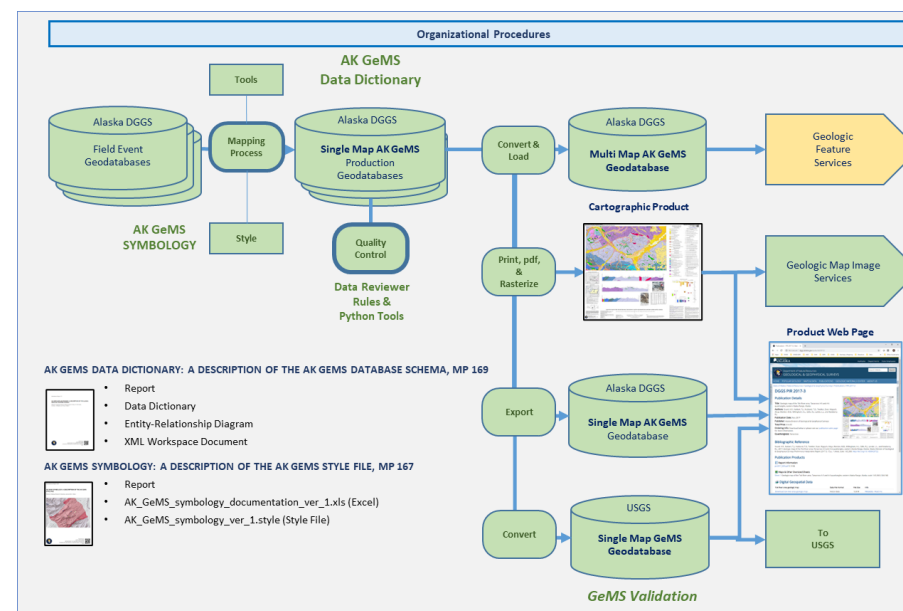
- data standards
- symbology standards
- flexible field data collection methods
- rigorous quality assurance and quality control (QA/QC) procedures.

These components must all be supported by:

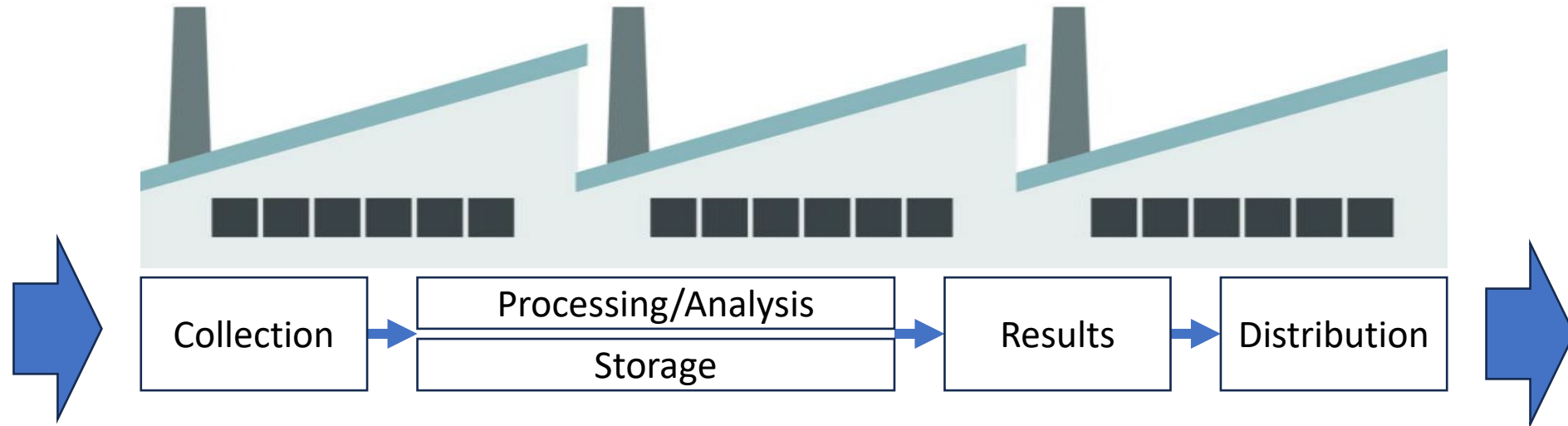
- Dedicated and embedded IT and GIS support
- Built upon a robust IT architecture.

In addition, these components must be:

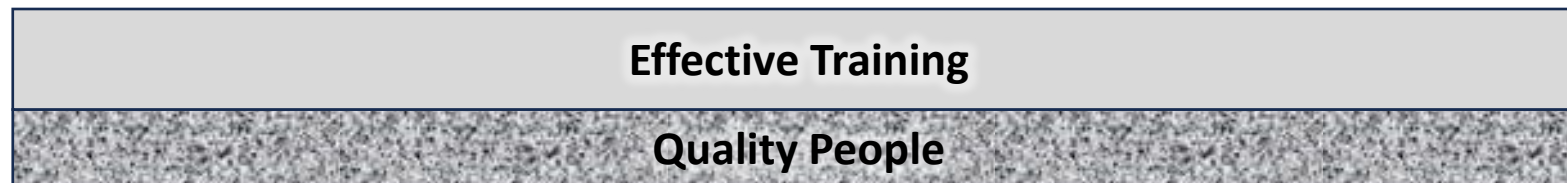
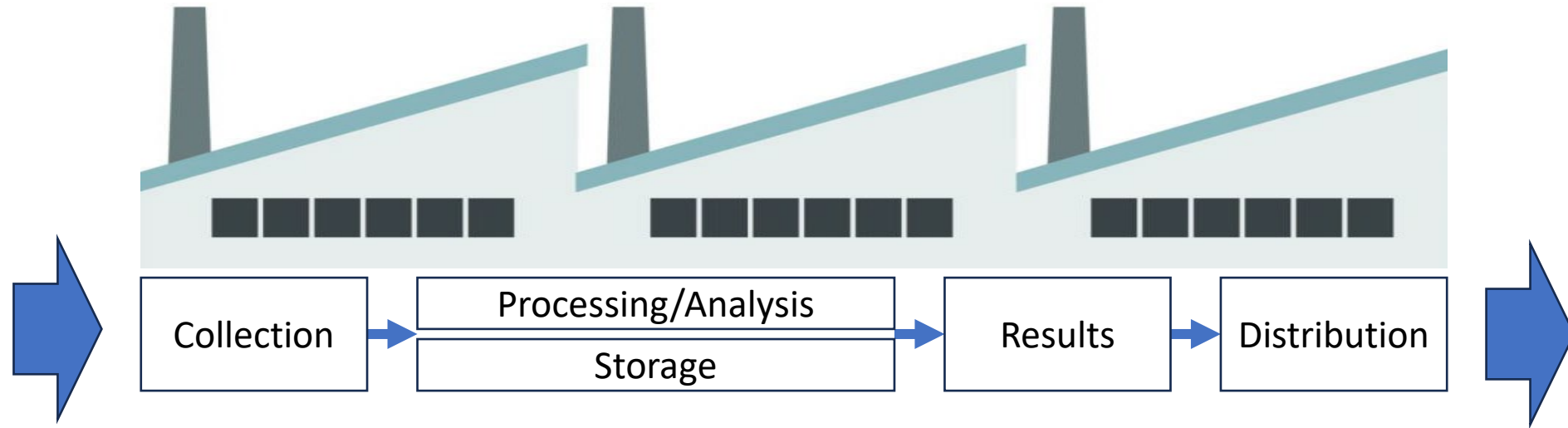
- Integrated with quality documentation
- Well-known organizational processes
- Supported by regular, first-rate training of quality people



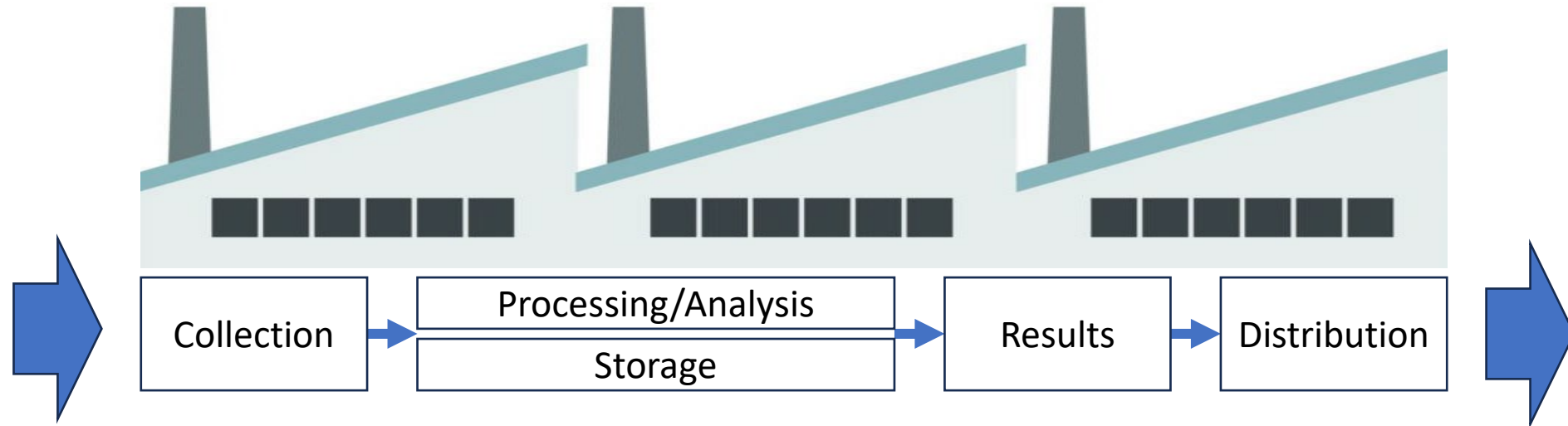
# GIS Production System Components



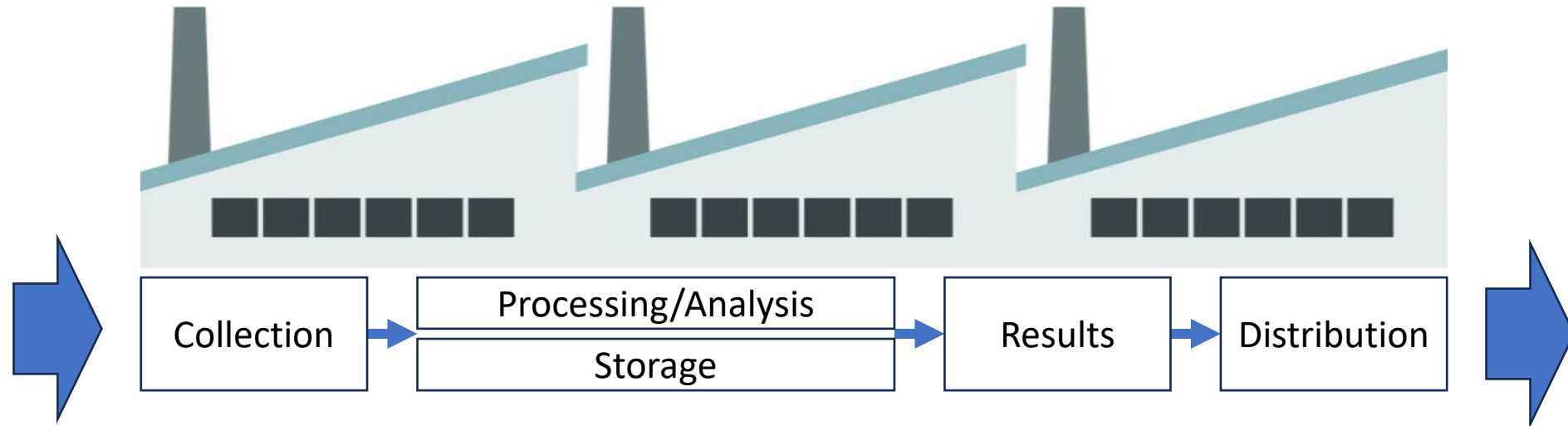
# GIS Production System Components



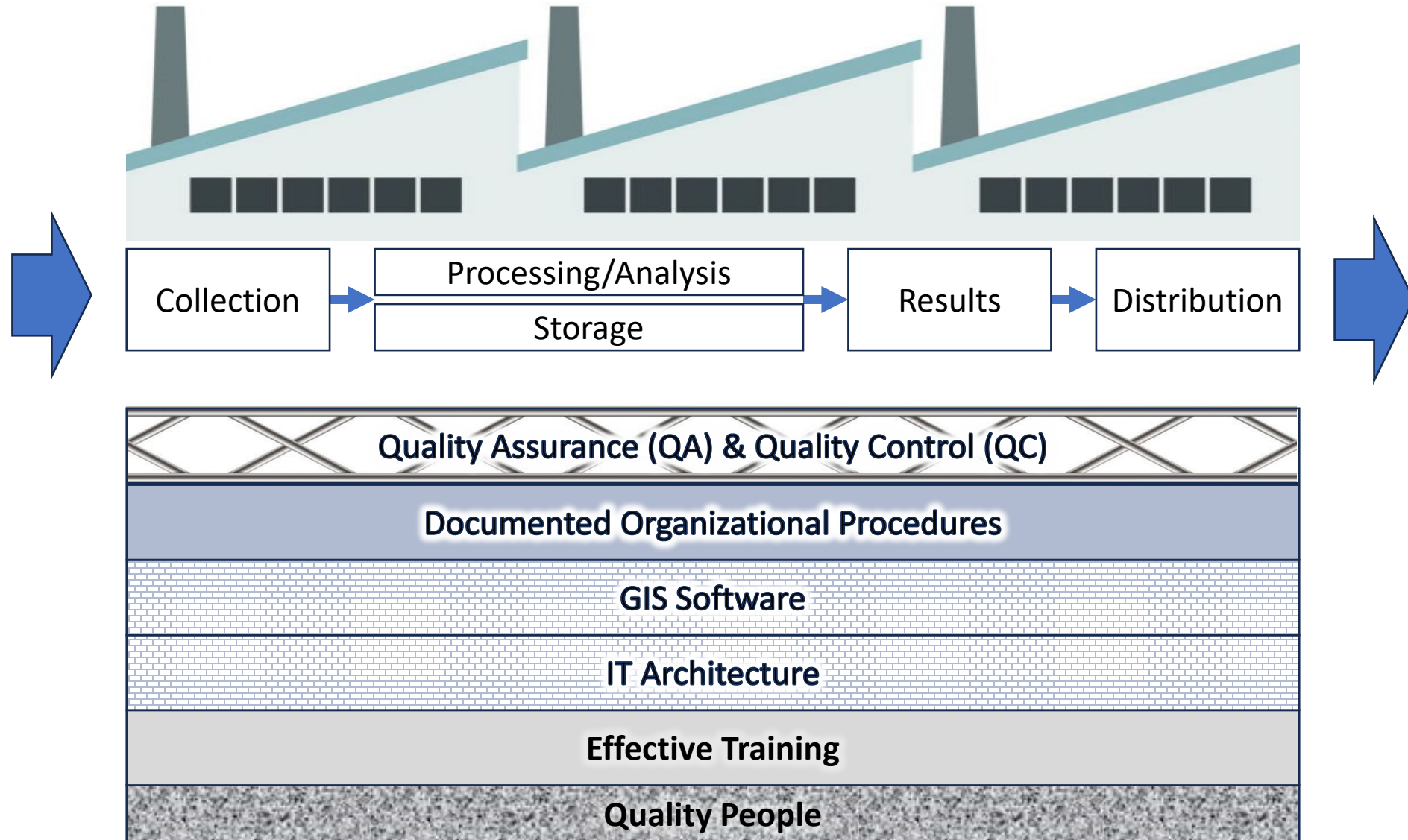
# GIS Production System Components



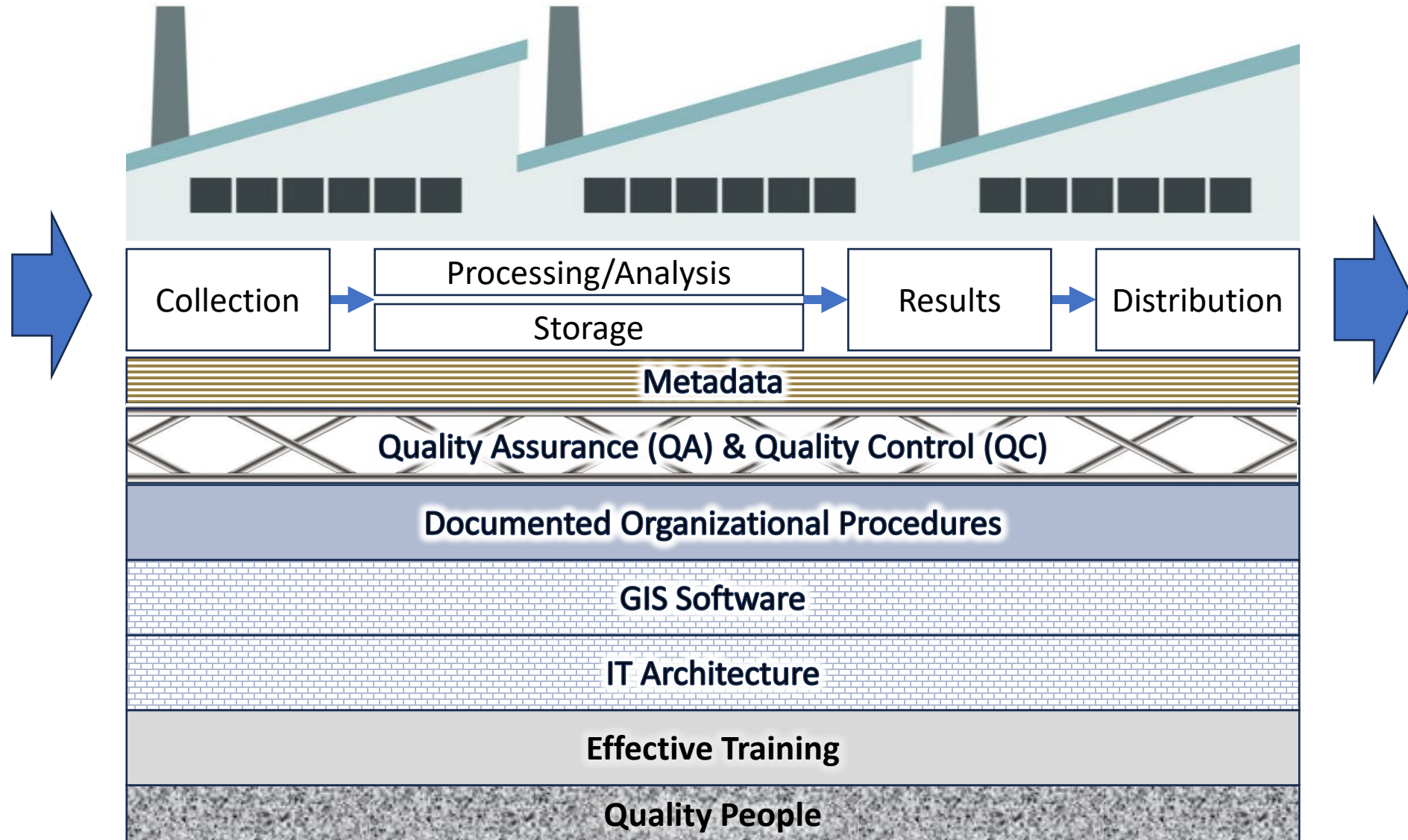
# GIS Production System Components



# GIS Production System Components



# GIS Production System Components





# Integrated Team Is Essential!

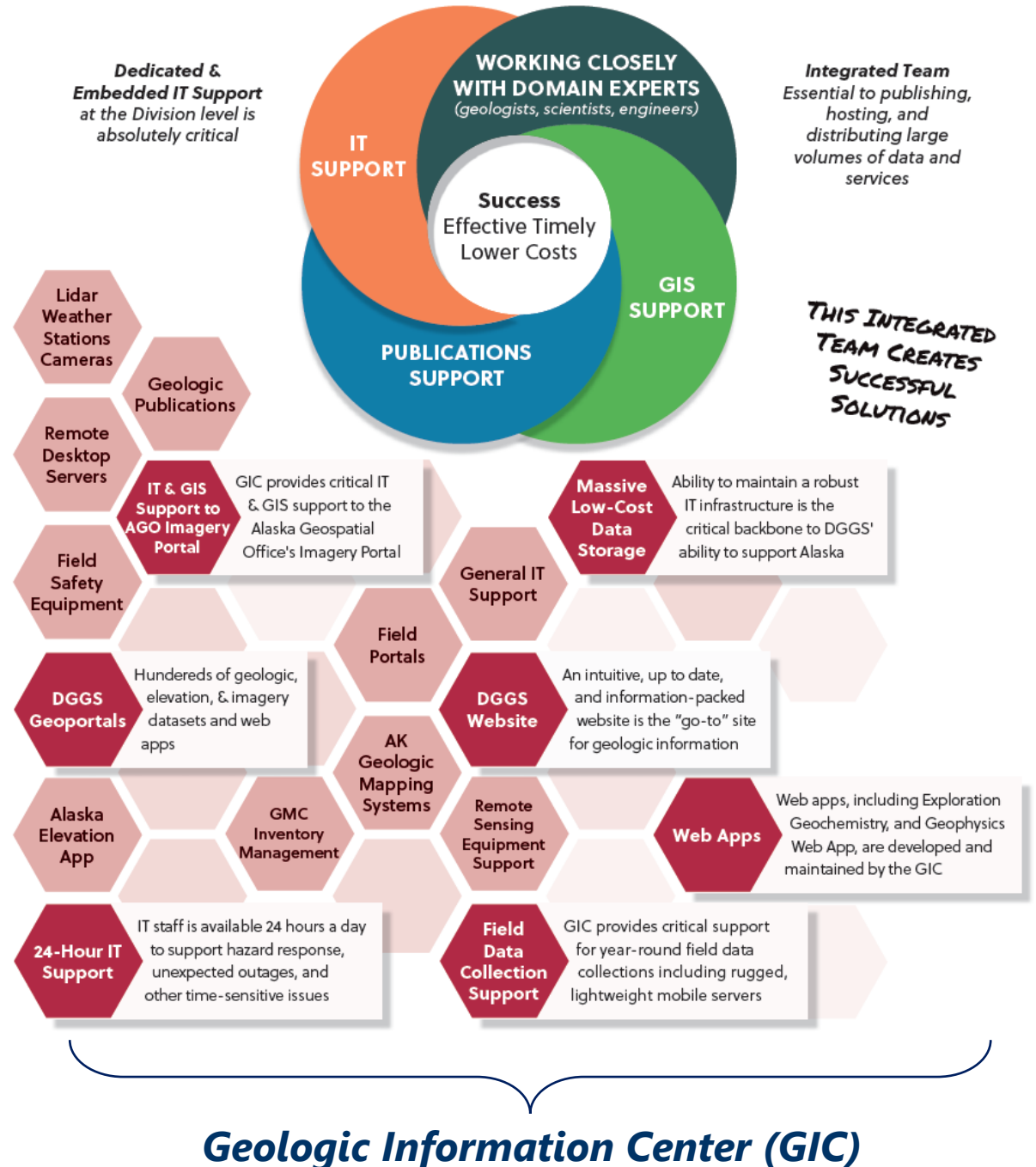
Dedicated and Embedded IT support at the Operational Level is Absolutely Critical

Regularly scheduled coordination meetings:

- Weekly GEDI meetings (Geologic Data Inquiry)
- Bi-weekly Division Publications Meetings
- Weekly GeMS Multimaps Meetings
- Individual Product Production Status Meetings
- Other Spin Off Meetings

Emphasis on Training:

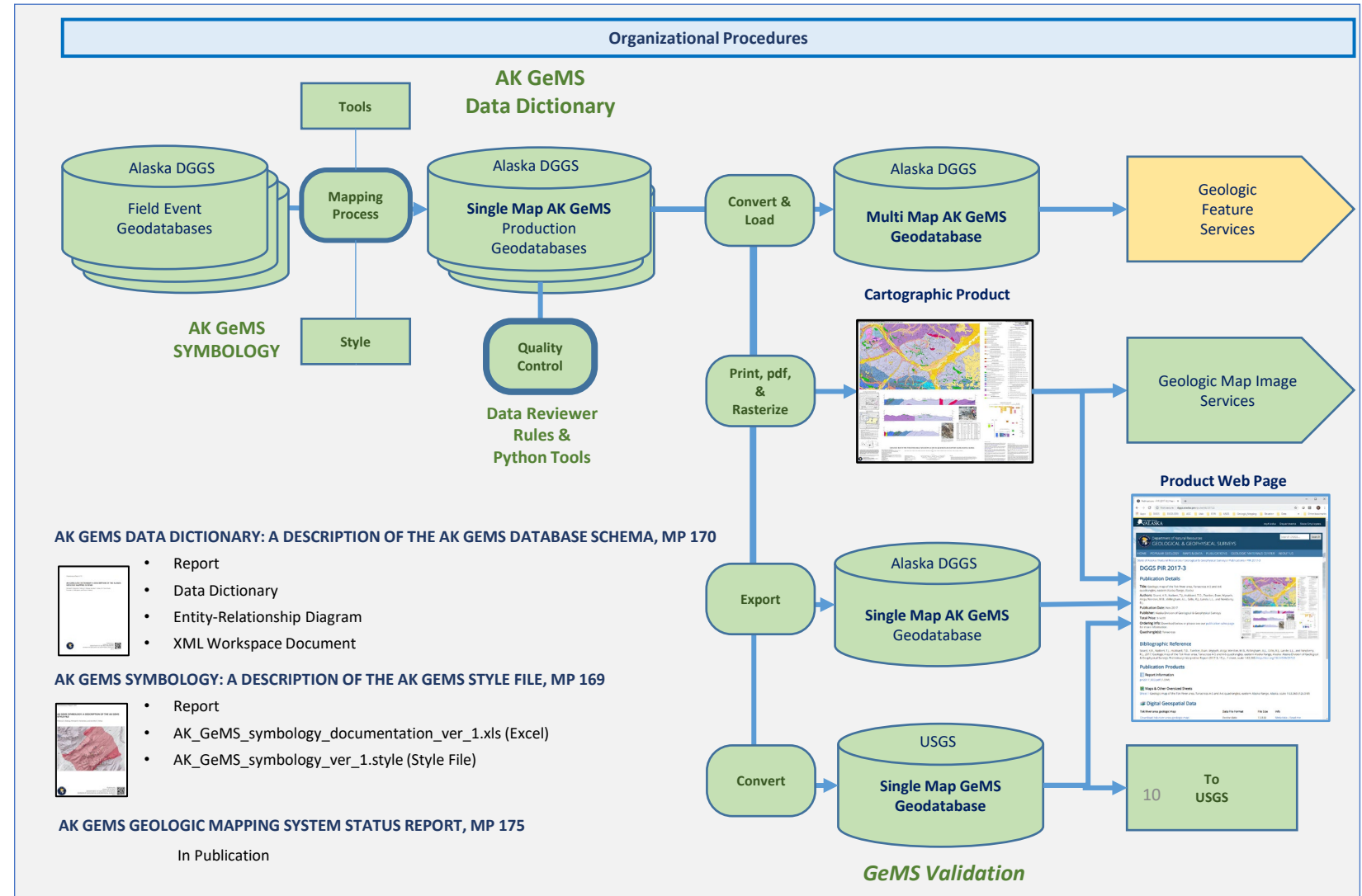
- Weekly GIS Tips & Tricks
- Illustrator sessions
- ESRI Training emphasis
- One-on-one training and support from IT, GIS, & Publications



# AK GeMS Geologic Mapping System

## AK GeMS Recent Efforts

- Developed a **comprehensive AK GeMS Production Workflow & Task List**
- Developed a semi-automated **quality control process, upgrading to ArcPro**
- Published **50+ AK GeMS Databases**
- Populating our **multi-map geodatabase** and began development of multi-map services and web apps
- Working on **Version 2.0** of Published Standards



# Well-defined organizational procedures are critical.

## AK GeMS Production Workflow

The backbone of our procedures is our **AK GeMS production workflow graphic**

This workflow is a **16-phase process** that takes a map and its data from pre-publication through production, quality control, publication, and archiving.

The workflow identifies:

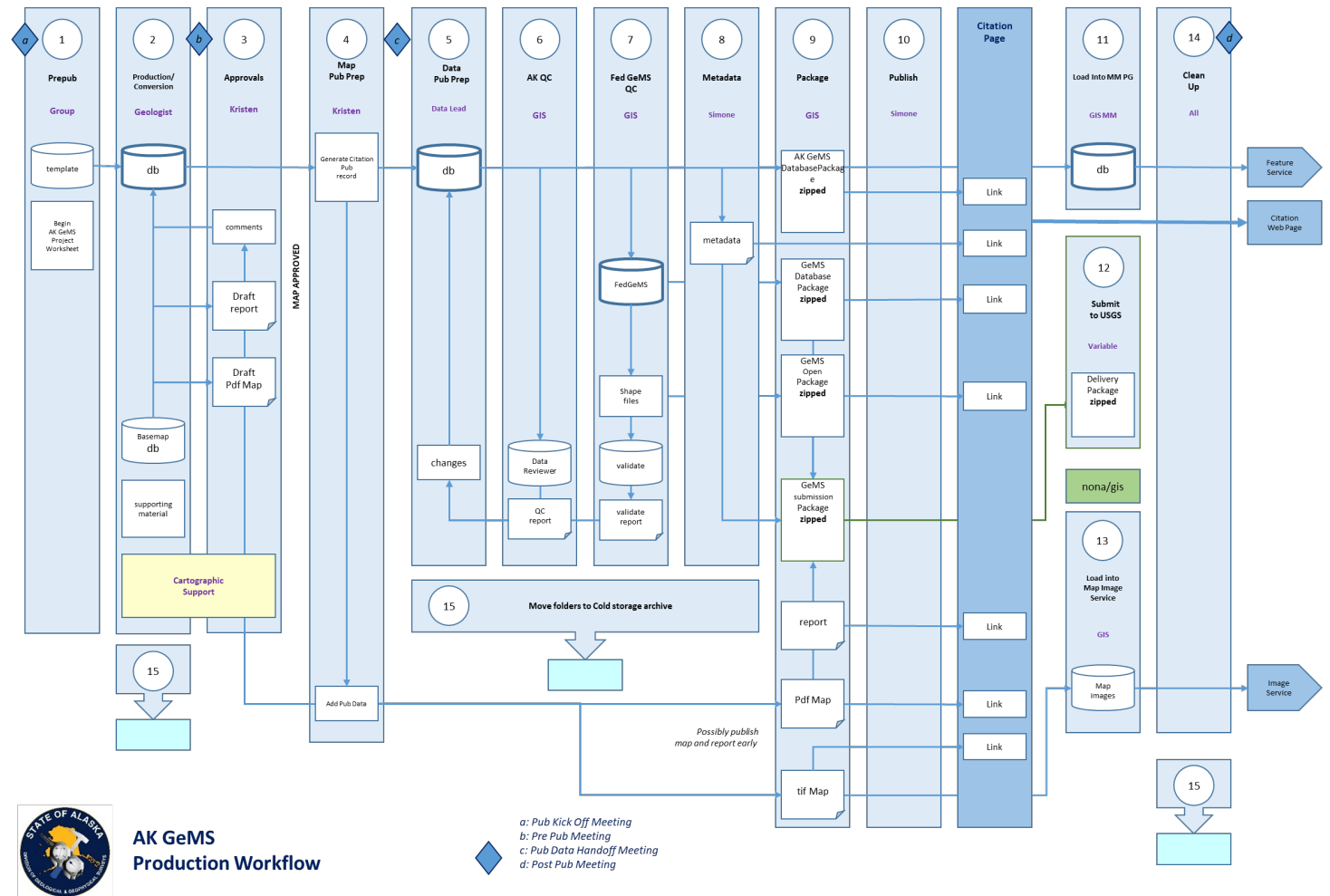
- **Order**
- **Responsibilities**
- **Location of data**
- **Production meetings**
- **Products**

QA (don't make mistakes) Phases

- Phase 2: Production
- Phases 5: Data Prep

QC (find mistakes) Phases

- Phase 3: Approvals
- Phases 6-7: GeMS QC



AK GeMS  
Production Workflow

a: Pub Kick Off Meeting  
b: Pre Pub Meeting  
c: Pub Data Handoff Meeting  
d: Post Pub Meeting



# We are using Microsoft Teams Planner App to track map production through the AK GeMS Production Workflow

The screenshot displays the Microsoft Teams Planner interface for the AK GeMS Production Workflow. At the top, a horizontal timeline shows 14 numbered steps, each with a responsible party: 1. Prepub (Group), 2. Production/Conversion (Geologist), 3. Approvals (Kristen), 4. Map Pub Prep (Kristen), 5. Data Pub Prep (Data Lead), 6. AK QC (GIS), 7. Fed GeMS QC (GIS), 8. Metadata (Simone), 9. Package (GIS), 10. Publish (Simone), 11. Citation Page, 12. Load into MM PG (GIS MM), 13. Clean Up (All). Below this, the main workspace is divided into columns corresponding to these steps. Each column contains task cards with details such as task names, due dates, and status. A detailed view of a task card for 'caribou\_creek' is shown in a separate window, displaying metadata, progress, start and due dates, notes, checklist, attachments, and comments.

Reviewed:

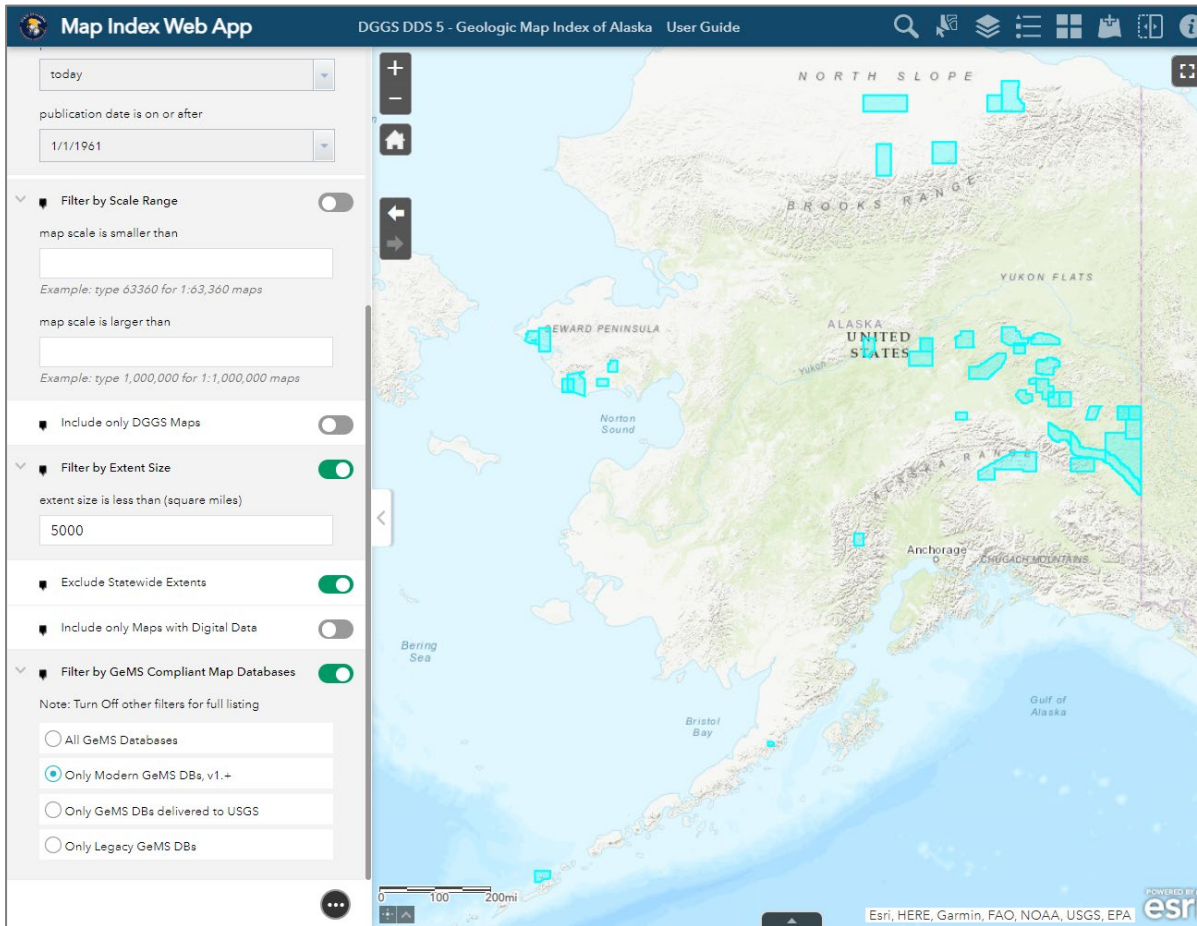
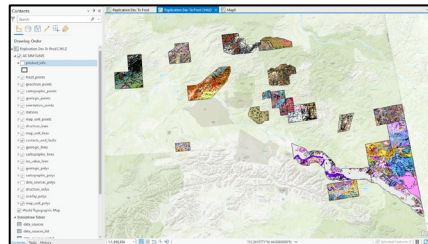
- Weekly at our GEDI (*Geologic Data Inquiry*) Meeting
- Bi-weekly Publications Meeting
- Quarterly at Division Publications Status Review

# Geologic Map Index Web App

<https://maps.dggs.alaska.gov/mapindex>

## AK GeMS Availability

- **Available:** 43 AK GeMS Map Databases currently available for download
- **In Production:** 20 Geologic Maps currently in production
- **Planned:** We have 40+ Geologic Maps that will go into production this next year
- Populating our **multi-map PostgreSQL geodatabase** and begun development of multi-map services and web apps



**For additional Information & related Presentations and Publications**

<https://dggs.alaska.gov/pubs/project/1607>

# Conclusion

Establishing a more standardized and documented system based on published data and symbology standards is a success.

DGGS now produces higher quality standards-based map products at a significantly faster rate than in the past.

Between 2013 and 2020 we published 19 new geologic maps, (in various data formats), at a production rate of 2.4 a year.

With the Alaska Geologic Mapping System operational we have published, since 2021, 7 new maps and converted 45 maps into our AK GeMS data standard, at a production rate of 18 a year.

This is over a 7-fold increase in productivity!

