# THE PRODUCTION FACTORY: COMPLETE WORKFLOW SPECIFICATION

## OVERVIEW: THE 90-EPISODE STRUCTURE

**3 Series:**

1. The NASA Files (30 episodes)
2. Secrets of the Superstructures (30 episodes)
3. Abandoned (30 episodes)

**Target:** 18 simultaneous edits operational by late April

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## PHASE 1: PROJECT & RESEARCH SETUP

### 1.1 PROJECT CREATION

**Action:** Create master project "Arrow Media - Documentary Series 2025"

**Configuration:**

- Project blueprint uploaded (production standards, compliance requirements)
- Team access defined (Sam, Kieran, series producers, researchers)
- Budget tracking initialized
- Delivery timeline: Series 1 (Feb-Mar), Series 2 (Mar-Apr), Series 3 (Apr-Jun)

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### 1.2 SERIES CREATION (×3)

**For each series:**

**Series Setup:**

```
None
Series: "The NASA Files"
Episodes: 30
Episode duration: 45 minutes
Delivery format: Broadcast HD + streaming
```

```
Series-level documents uploaded:
- Series bible/format document
- Brand guidelines
- Editorial tone guide
- NASA archive access credentials
- Getty licensing agreement
- Legal compliance checklist
```

**Series-Level Knowledge Base:**

- Upload overarching research documents
- NASA historical context
- Key themes across all 30 episodes
- Interview strategy document
- Archive sourcing strategy

**Repeat for:**

- "Secrets of the Superstructures"
- "Abandoned"

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## 1.3 EPISODE CREATION (×30 per series)

**For each episode:**

**Episode Brief Upload:**

```
None
Episode 3: "Apollo 13 - The Untold Story"

Core elements:
- One-paragraph episode summary
- 3-5 key story beats
- Target interviewees (roles, not names yet)
- Archive requirements (Apollo 13 mission footage, Houston control room,
news coverage)
- Unique angle/revelation for this episode
```

**Episode automatically creates:**

- Research bucket (empty, ready to populate)

- Archive bucket (empty, ready to populate)
- Script workspace (empty, awaiting Phase 3)

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## 1.4 DEEP RESEARCH PHASE

**Trigger:** Episode brief approved by series producer

**Automated Research Agent activates:**

**Research Query Construction:**

```
None
Based on episode brief for "Apollo 13 - The Untold Story"

Research agent generates:
- 10-15 specific research questions
- Timeline of key events requiring verification
- Technical concepts requiring explanation
- Potential interview subjects with expertise
- Archive footage categories needed
```

**Research Execution:**

- Perplexity API: Live web research for recent discoveries, academic papers
- NASA API: Direct access to mission archives, technical documents
- NotebookLM: Create episode "Source of Truth" document from uploaded PDFs
- Web search: News coverage, documentaries, books

**Research Output:**

```
None
Episode Research Package:

1. Timeline document (verified dates, events, decisions)
2. Technical briefing (simplified explanations of complex systems)
3. Character profiles (key people involved, their roles, current status)
4. Archive requirements list (specific shots/sequences needed)
5. Fact-check foundation (sources for every major claim)
6. Interview question bank (organized by expertise area)

All sources tagged with:
```

```
- URL/document reference
- Retrieved date
- Confidence level (verified/probable/requires interview confirmation)
```

**Human Review Gate (48 hours):**

- Series producer reviews research package
- Can request additional research on specific areas
- Can upload supplementary documents
- Approves research as complete → triggers Phase 2

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# PHASE 2: ARCHIVE COLLECTION & PROCESSING

## 2.1 ARCHIVE SOURCING STRATEGY

**Two parallel tracks:**

**Track A: Premium Archive (Quickture)**

- Getty Images/Footage
- Pond5
- NASA high-resolution scans
- Custom digitization of physical archive

**Track B: Reference/B-Roll (Direct Upload)**

- News clips
- Public domain footage
- NASA web downloads
- Interview rushes

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## 2.2 QUICKTURE PROCESSING WORKFLOW

**For each episode's archive footage:**

**Upload to Quickture:**

- All premium archive (Getty, Pond5, NASA master files)
- Raw interview recordings
- Any footage requiring professional transcription

**Quickture Processing (1 min per 1 hour of content):**

```
None
Input: 3 hours of Apollo 13 NASA archive footage

Quickture outputs:
- Full transcription/description of visual content
- Metadata extraction (timecodes, shot descriptions, technical quality)
- Scene segmentation
- Keyword tagging
- AI-generated content summary

Export formats:
- CSV log (timecode, description, keywords, file reference)
- Transcript TXT file
- Metadata JSON
```

**Critical: Quickture "Discuss Mode"**

- Series producers can leave comments/questions directly on footage
- Creates feedback loop without requiring editor revision

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## 2.3 ARCHIVE LOG IMPORT

**From Quickture → Production Factory:**

**Episode Archive Bucket receives:**

```
None
Apollo_13_Archive_Log.csv
├─ Columns: Filename, Timecode_In, Timecode_Out, Description, Keywords,
Technical_Notes, Getty_ID
├─ 350 individual clips logged
├─ Full metadata preserved
└─ Links to Quickture project for full-res access

Apollo_13_Interviews_Transcripts.txt
├─ NASA Engineer #1 (45 mins)
├─ Flight Controller #2 (38 mins)
├─ Astronaut Family Member (52 mins)
└─ Full transcription with speaker IDs, timecodes
```

**Alternative: NASA API Direct Integration**

```
None
For NASA-specific episodes:

System queries NASA archives API:
- Episode title + key themes → relevant footage catalog
- Returns metadata, descriptions, access URLs
- No manual upload required
- Automatically populates Archive Bucket
```

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### 2.4 INTERVIEW RUSH PROCESSING

**Uploaded directly to Production Factory:**

- Raw interview files (if under 1GB, transcoded to proxy if larger)
- System auto-transcribes using Gemini 2.0 Flash
- Speaker identification
- Timecode alignment
- Export to structured transcript

**Interview Transcript Structure:**

```
None
[00:00:00] NASA ENGINEER #1
"When we first heard the explosion, the immediate thought was..."

[00:02:34] NASA ENGINEER #1
"The calculations we had to do in real-time, without computers..."

[Metadata: Emotional moment, technical explanation, suitable for voiceover
bed]
```

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## PHASE 3: SCRIPT GENERATION (THE BRAIN)

### 3.1 SCRIPT AGENT SWARM ARCHITECTURE

**Five Specialized Agents:**

**Agent 1: RESEARCH SPECIALIST**

```
None
Role: Foundation & Fact Accuracy
Access to: Episode Research Package (Phase 1)

Responsibilities:
- Verify timeline accuracy
- Ensure technical explanations are correct
- Flag claims requiring interview corroboration
- Suggest narrative structure based on story beats
```

**Agent 2: ARCHIVE SPECIALIST**

```
None
Role: Visual Storytelling
Access to: Archive logs, NASA metadata, Getty catalog

Responsibilities:
- Match archive to script moments
- Identify visual sequences for key story beats
- Flag missing footage that needs B-roll generation
- Suggest pacing based on available footage
```

**Agent 3: INTERVIEW PRODUCER**

```
None
Role: Human Voices & Emotional Beats
Access to: Interview transcripts, question bank

Responsibilities:
- Extract best soundbites from interviews
- Identify emotional peaks in testimony
- Match interview content to script structure
- Suggest interview questions for gaps
```

**Agent 4: SCRIPT WRITER**

```
None
Role: Narrative Construction
```

```
Access to: All above + reference script template

Responsibilities:
- Build voiceover narrative
- Structure story arc (setup, complication, resolution)
- Write to broadcast documentary standards
- Match tone to series bible
```

**Agent 5: FACT CHECKER**

```
None
Role: Verification & Compliance
Access to: All research sources + web search

Responsibilities:
- Cross-reference every major claim
- Flag statements requiring legal review
- Verify dates, names, technical specifications
- Generate source citation log for compliance
```

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## 3.2 SCRIPT GENERATION WORKFLOW

**Input Documents:**

```
None
1. Reference Script Template (NASA_Template.docx)
   ├─ Shows ideal structure: VO, Interview, Archive, Gen AI sections
   ├─ Demonstrates pacing and tone
   └─ Defines segment lengths

2. Episode Research Package (from Phase 1)
3. Archive Logs (from Phase 2)
4. Interview Transcripts (from Phase 2)
5. Series Bible (series-level guidance)
```

**Generation Process:**

**Step 1: Structure Generation**

```
None
Script Writer Agent + Research Specialist:
- Create episode outline based on template structure
- Define 5-7 major story segments
- Allocate approximate timings
- Identify key narrative beats
```

**Step 2: Content Population (Iterative)**

```
None
Loop through each segment:

VO Draft:
- Script Writer creates voiceover narrative
- Research Specialist verifies facts
- Fact Checker cross-references sources

Archive Selection:
- Archive Specialist matches footage to VO moments
- Flags specific Getty IDs or NASA archive references
- Suggests visual sequences

Interview Integration:
- Interview Producer extracts relevant soundbites
- Places sync moments in structure
- Identifies emotional peaks
```

**Step 3: Assembly**

```
None
Combined script format:

SEGMENT 1: THE EXPLOSION

[VOICEOVER]
"On April 13, 1970, at 55 hours and 55 minutes into the mission,
the crew of Apollo 13 heard a loud bang..."

[ARCHIVE: Getty_NA_19700413_056A - Oxygen tank explosion simulation]
```

```
[ARCHIVE: NASA_Apollo13_MissionControl_Reaction]

[INTERVIEW: NASA Engineer #1 - 00:02:34]
"The calculations we had to do in real-time, without computers,
that was the real miracle..."

[ARCHIVE: NASA_Apollo13_FlightPath_Calculations]

[GEN AI VISUAL: Technical diagram - trajectory correction burn]
```

**Step 4: Human Review Gate (72 hours)**

- Series producer reviews draft script
- Can request rewrites of specific sections
- Can add/remove archive references
- Can request additional interview content
- Approve → moves to Quickture for final production

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## 3.3 ITERATIVE REFINEMENT

**Feedback Loop:**

```
None
Producer: "Segment 3 needs more emotion, less technical detail"

System response:
- Interview Producer extracts more emotive soundbites
- Script Writer reduces technical VO, increases human drama
- Archive Specialist finds more character-focused footage
- Regenerates Segment 3 only

Producer reviews → approves → moves forward
```

**Version Control:**

```
None
Script versions tracked:
- V1: Initial AI generation
```

```
- V2: Post first producer review
- V3: Post interview additions
- V4: Final locked script
```

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# PHASE 4: VOICEOVER GENERATION

**Once script is locked:**

**Voiceover Specialist Agent:**

```
None
For each VO section:
- Extract voiceover text
- Apply series-specific voice profile (11 Labs)
- Generate audio with appropriate pacing/emotion
- Add metadata: section reference, timecode target

Output:
- Individual VO clips labeled by segment
- Master VO timeline document
- Delivery to Quickture for final mix
```

**Quality Control:**

- Pronunciation check (technical terms, names)
- Pacing verification (fits intended archive sequences)
- Tone consistency across episode
- Breathing/pause placement

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# PHASE 5: QUICKTURE FINAL ASSEMBLY

**Handoff Package to Quickture:**

```
None
Apollo_13_Production_Package/
├─ Script_V4_LOCKED.docx
```

```
├─ Archive_Log_with_timecodes.csv
├─ Interview_selects_transcripts.txt
├─ Voiceover_audio_files/ (by segment)
├─ GenAI_visual_requirements.txt
├─ Legal_compliance_checklist.pdf
└─ Source_citations_log.csv
```

**Quickture Production:**

- Assemble rough cut based on script structure
- Series producers review in "Discuss Mode"
- Leave frame-accurate comments/revisions
- Eliminates traditional editor revision cycles

**Feedback directly in Quickture:**

- "00:12:45 - This interview bite needs tightening"
- "00:23:10 - Replace this Getty shot with NASA alternative"
- AI assistant in Quickture can make instant adjustments

**Final Output:**

- Locked picture
- Audio mix
- Deliverables for broadcast/streaming

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# PARALLEL SCALING: THE 18-EDIT GOAL

**How this workflow enables simultaneous production:**

**Episode States:**

```
None
Week 1:
- Episodes 1-6: Phase 1 (Research) - Automated
- Episodes 7-12: Phase 2 (Archive processing via Quickture)
- Episodes 13-18: Phase 3 (Script generation) - Multi-agent swarm

Week 2:
- Episodes 1-6: Phase 4 (VO generation) + Phase 5 (Quickture assembly)
```

```
- Episodes 7-12: Phase 3 (Script generation)
- Episodes 13-18: Phase 2 (Archive processing)
- Episodes 19-24: Phase 1 (Research)
```

**Bottleneck Management:**

- Phase 1 & 2: Fully automated, unlimited parallel processing
- Phase 3: Limited by human review gates (48-72hr turnaround)
- Phase 4 & 5: Quickture capacity (18 edit seats)

**Human Touch Points:**

- Series producer approves research (once per episode, 30 mins)
- Series producer reviews draft script (once per episode, 1-2 hours)
- Series producer final review in Quickture (once per episode, 1 hour)

**Total human time per episode: ~4 hours vs traditional 40+ hours**

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# METADATA & COMPLIANCE (CONTINUOUS)

## EXIF/Metadata Fingerprinting

**Every AI-generated asset includes embedded metadata:**

**For Gen AI Visuals:**

```
None
EXIF Data includes:
- Model: "Gemini 2.0 Flash" or "DALL-E 3" etc.
- Prompt: Full text prompt used
- Reference images: Source file IDs if used
- Generation date/time
- User: Sam Wilkinson / Arrow Media
- License: "AI Generated - Arrow Media Production"
- Training data disclaimer: "No copyrighted material used as reference"
```

**For Research/Script Content:**

```
None
Source Citation Log (auto-generated):

Claim: "Apollo 13 explosion occurred at 55:55:55 mission time"
Source: NASA Mission Report Apollo 13, Page 47
Retrieved: 2025-02-01
URL: https://nasa.gov/apollo13/mission-report.pdf
Verification: Cross-checked with Houston Chronicle April 14, 1970
```

**For Archive Usage:**

```
None
Archive Asset Tracking:

Clip: Getty_NA_19700413_056A
Used in: Episode 3, Segment 1, 00:02:34-00:02:51
License: Getty Images Standard Broadcast License
Cleared by: Sarah Dello, 2025-02-03
Metadata: Embedded in final timeline XML
```

**Compliance Export:**

- One-click generation of full production audit trail
- Required for Fremantle legal/compliance sign-off
- Includes all AI fingerprints, source citations, archive licenses
- Formatted for broadcast industry standards

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# KEY SYSTEM REQUIREMENTS (FOR GRAHAM'S BUILD)

## Data Structure

```
None
Project
└── Series (×3)
    └── Episodes (×30)
        ├── Research Bucket
        │   ├── Uploaded documents
        │   ├── Research agent outputs
```

```
|   ├── NotebookLM source of truth
|   └── Fact-check sources
|
├── Archive Bucket
|   ├── Quickture CSV logs
|   ├── NASA API metadata
|   ├── Interview transcripts
|   └── Reference footage (proxies only)
|
├── Script Workspace
|   ├── Reference template
|   ├── Agent-generated drafts
|   ├── Version history
|   └── Producer feedback/notes
|
└── Compliance Package
    ├── EXIF metadata logs
    ├── Source citations
    ├── Archive license tracking
    └── Legal sign-off checklist
```

### Agent Orchestration (Anti-gravity)

```
None
Phase 3 Script Generation:

Trigger: Producer approves Phase 2 archive logs
→ Research Specialist analyzes research bucket
→ Archive Specialist analyzes archive logs
→ Interview Producer analyzes transcripts
→ Script Writer synthesizes all inputs using template
→ Fact Checker verifies every claim
→ Output: Draft script V1
→ Human review gate
→ Loop if revisions requested
→ Lock script when approved
→ Trigger Phase 4 (VO generation)
```

### UI/UX Critical Screens

**1. Project Dashboard**

- Visual overview of all 90 episodes
- Status indicators: Research / Archive / Script / VO / Quickture
- Bottleneck alerts (episodes waiting on human review)

**2. Episode Workspace**

- Tabbed interface: Research / Archive / Script / Compliance
- Upload documents to research bucket
- View archive logs (with Quickture "Discuss Mode" link)
- Script editor with agent suggestions
- Version comparison view

**3. Script Generation Interface**

- Reference template viewer (side panel)
- Agent activity monitor (show which agent is working)
- Segment-by-segment review
- Inline feedback mechanism
- One-click regeneration of specific sections

**4. Compliance Dashboard**

- Asset usage tracking
- Missing metadata alerts
- Export audit trail (PDF + XML)
- Legal review status

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# SUCCESS METRICS

**Velocity:**

- Episode research: 24 hours (automated)
- Archive processing: 48 hours (Quickture + import)
- Script generation: 4-6 hours (agent swarm + producer review)
- Total: 5-7 days per episode vs 4-6 weeks traditional

**Quality:**

- 99%+ fact-check accuracy (verified sources)
- Zero compliance violations (automated metadata)
- 30% fewer revision cycles (Quickture Discuss Mode)

**Scale:**

- 18 simultaneous edits operational by April
- 90 episodes delivered June 2025

- System ready for future series without rebuild

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# WHAT THIS GIVES KIERAN TO SHOW FREMANTLE

**"We're not building a GPT wrapper - we're building broadcast-grade AI production infrastructure."**

**Demonstrated capabilities:**

1. **Multi-series project management** with full episode tracking
2. **Automated research** with verified sourcing and fact-checking
3. **Archive orchestration** integrating Quickture, NASA, Getty workflows
4. **AI agent swarm** for script generation with human creative control
5. **Compliance-first architecture** with automatic metadata fingerprinting
6. **Scalable to 18 parallel edits** with minimal human bottlenecks