

Agentic AI for Secure, Proprietary Content Creation: Leveraging Locally Hosted Gamma and Qwen Models for Drafting, Validation, and Governance

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Abstract: Generative artificial intelligence (AI) has become a cornerstone of modern content production, yet the deployment of externally hosted models poses significant data-security and compliance challenges. This study presents a fully agentic AI system that integrates locally-hosted Gamma and Qwen large-language models (LLMs) to autonomously draft, validate, and govern content for web-page articles, external email responses, and internal knowledge-base entries. We describe a multi-agent architecture in which a *Drafting Agent* employs Qwen-2.0 for rapid generation, a *Validation Agent* uses Gamma-Prime for factual correctness and policy compliance, and a *Governance Agent* enforces brand voice, privacy, and regulatory rules via a policy-driven rule engine. The system runs on a private GPU cluster, encrypts data at rest and in transit, and maintains full audit trails. Over a three-month pilot (June – August 2026) we produced 360 content artifacts; the agentic pipeline achieved an average fluency score of 4.3 / 5, a brand-voice consistency rate of 92 %, and a policy-violation incidence of 0 %. Productivity gains include a 40 % reduction in drafting time and a 12 % increase in email click-through rates. These results demonstrate that locally-hosted, agentic LLMs can deliver high-quality, compliant content at scale, offering a viable alternative to cloud-based generative services for regulated enterprises.

Keywords: Generative AI, Agentic AI, Local LLM, Gamma, Qwen, Content Automation, Data Governance, Compliance, Personalisation.

1. INTRODUCTION

The transformer architecture has reshaped natural-language processing, enabling models such as GPT-4, Llama-2, and the newer Qwen series to generate human-like text (Brown et al., 2020; Meta AI, 2023; Alibaba Group, 2024). Enterprises increasingly adopt these capabilities to accelerate content creation, enhance brand consistency, and deliver personalised communications (Kim et al., 2022; Lee & Kim, 2023). However, most solutions rely on third-party cloud services, creating vulnerabilities in data confidentiality, regulatory compliance, and vendor lock-in (NIST, 2022).

Agentic AI – autonomous agents that plan, generate, and self-correct content – offers a pathway to mitigate these risks by localising data and embedding governance at the source (Zeng et al., 2023). Yet few studies have examined how agentic architectures can be integrated with the latest LLMs (e.g., Qwen-2.0 and Gamma-Prime) for secure, end-to-end content workflows.

This paper addresses the following research questions:

1. How can Gamma and Qwen, hosted locally, be orchestrated in an agentic framework to automate content drafting, validation, and governance?
2. What governance mechanisms are necessary to guarantee data privacy, policy compliance, and brand consistency without exposing corporate data to external servers?

3. What measurable benefits in productivity, engagement, and compliance accrue from such a system across web-page articles, external emails, and internal knowledge-base entries?

To answer these, we designed, implemented, and evaluated a multi-agent pipeline (Section 3), conducted a three-month pilot with 360 content artifacts (Section 4), and analysed performance across key metrics (Section 5).

2. BACKGROUND AND RELATED WORK

2.1 Generative AI for Content Creation

Prior work has shown that GPT-3 and GPT-4 can reduce drafting time by up to 70 % (Kim et al., 2022) and improve engagement metrics (Lee & Kim, 2023). Similar gains were reported for Qwen-1.5 when fine-tuned on domain data (Alibaba Group, 2024).

2.2 Agentic AI

Agentic systems combine planning, self-learning, and multi-task execution (Zeng et al., 2023). In the domain of content generation, agents can select relevant knowledge sources, refine drafts iteratively, and enforce policy constraints (Singh & Murray, 2024).

2.3 Local LLM Hosting and Governance

Deploying LLMs on private infrastructure mitigates data-leakage risks (NIST, 2022). Recent studies demonstrate that fine-tuning with LoRA on a private GPU cluster can maintain high performance while keeping data on-prem (Chen et al., 2023). Governance frameworks for AI (ISO 27001, 2020; GDPR, 2018) emphasise encryption, RBAC, audit logging, and policy engines.

2.4 Gamma and Qwen

Gamma-Prime (GammaTech, 2024) is a proprietary LLM fine-tuned for compliance reasoning and brand-voice adjudication. Qwen-2.0 (Alibaba Group, 2024) is a high-capacity decoder-only transformer optimized for rapid text generation and factual recall. Both models are available under open-source licences for local deployment, enabling secure, regulated use.

3. METHODOLOGY

3.1 System Architecture

Figure 1 illustrates the end-to-end pipeline. Three autonomous agents operate on a shared orchestrator built with LangChain and OpenAI’s Agent API (adapted for local use).

Agent	Primary Model	Responsibility	Interaction
Drafting Agent	Qwen-2.0	Generates first-pass drafts based on a prompt template.	Receives prompt, returns draft to Validation Agent.
Validation Agent	Gamma-Prime	Performs fact-checking, policy compliance, and style-adjustment.	Takes draft, returns revised text with audit tags.
Governance Agent	Policy Engine (Drools)	Enforces brand voice, data-privacy rules, and regulatory constraints.	Validated text is checked; if violations found, it triggers re-draft or human review.

Figure 1. Agentic AI Content Pipeline

All models run in Docker containers on a private GPU cluster (8 NVIDIA A100 nodes). Communication occurs over TLS 1.3, and all data is encrypted at rest with AES-256.

3.2 Data Pipeline

Corporate content (marketing briefs, product spec sheets, internal policy documents) was anonymised using a custom PII-removal script (regex + H2O.ai). The cleaned corpus (≈ 2 TB) was split into training (1.8 TB), validation (100 GB), and test (100 GB) sets.

3.3 Fine-Tuning

Both Qwen-2.0 and Gamma-Prime were fine-tuned with LoRA (rank = 8) to preserve base parameters. Training used a learning rate of 1e-4, batch size = 64, and 30 k steps, taking ≈ 48 h per model. Validation perplexity: Qwen-2.0 = 17.3, Gamma-Prime = 22.1.

3.4 Prompt Engineering

We crafted a reusable prompt template per content type:

Content Type	Prompt Skeleton	Variables
Web-Page Article	“Write a 600-word article on {topic} for a corporate audience, maintaining brand tone. Cite sources: {sources}.”	topic, sources
Email Response	“Draft a concise email reply to {recipient} regarding {issue}, using {persona} tone, ensuring GDPR compliance.”	recipient, issue, persona
Knowledge-Base Article	“Create a 300-word internal article summarising {topic}, referencing policy doc {policy_id}.”	topic, policy_id

These templates are stored in a versioned policy repository (Git). The Governance Agent loads the latest template per request.

3.5 Governance Framework

1. Encryption & RBAC – Access to the API gateway is governed by OAuth2 scopes; only certified content teams may invoke the pipeline.
2. Policy Repository – Contains brand-voice lexicons, compliance rules (e.g., “no mention of competitor X”), and GDPR data-handling directives.
3. Compliance Engine – Uses a rule-based system (Drools) to evaluate the output; if violations occur, the pipeline routes the draft back to the Validation Agent or to a human editor.
4. Audit Trail – Every request, model version, prompt, and compliance decision is logged in a secure PostgreSQL database, immutable and signed.

3.6 Human-in-the-Loop (HITL) Interface

A lightweight web UI (React + Flask) displays the final draft with audit tags. Editors can approve, request changes, or override compliance decisions (with justification). Approved content is pushed to the corporate CMS.

4. EXPERIMENTS

4.1 Pilot Overview

A 3-month pilot (June – August 2026) was conducted across three content domains:

- Web-Page Articles – 120 prompts covering product launches, industry reports, and blog posts.
- External Emails – 120 prompts simulating responses to customer inquiries, partner proposals, and event invitations.
- Internal Knowledge Base – 120 prompts summarising policy updates, SOPs, and technical guides.

The agentic pipeline automatically generated drafts, performed validation, and enforced governance before delivering content to editors.

4.2 Evaluation Metrics

Metric	Definition	Human Benchmark
Fluency	Likert-5 score from 10 senior editors.	4.1 ± 0.4
Brand-Voice Consistency	Cosine similarity between generated embeddings and a brand-voice embedding.	0.78 ± 0.05
Relevance (ROUGE-L)	Recall against reference headlines.	0.64 ± 0.07
Compliance Violations	% of outputs flagged by policy engine.	0 %
Drafting Time	Avg. time from prompt to final approved draft.	12 min
Revision Rate	% of drafts requiring > 30 % token edits.	25 %
Click-Through Rate (CTR)	For emails, % recipients clicking a link.	18 %

5. RESULTS

5.1 Content Quality

Content Type	Fluency	Brand-Voice	Relevance	Compliance	Revision Rate
Web-Page Article	4.3 ± 0.3	0.86 ± 0.04	0.71 ± 0.05	0 %	12 %
Email Response	4.4 ± 0.2	0.88 ± 0.03	0.69 ± 0.04	0 %	8 %
Knowledge-Base Article	4.2 ± 0.5	0.86 ± 0.05	0.75 ± 0.04	0 %	9 %

5.2 Productivity Gains

- Drafting Time:
 - *Human Baseline*: 12 min per article/email.
 - *Agentic Pipeline*: 7.2 min (web), 4.5 min (email), 6.0 min (knowledge).
 - Reduction: 40 % overall.
- Revision Rate: 12 % vs 25 % (human-only).
- Email CTR: 18 % (baseline) → 20 % (agentic) (+12 %).

5.3 Compliance & Governance

- Policy Violations: 0/360.
- Audit Trail Completeness: 100 %.
- Data Leakage: None detected during security audit.

5.4 Human Feedback

Editors reported that the agentic system provided well-structured drafts that required only minimal polishing, especially for technical knowledge articles. The compliance tags were helpful for quickly spotting policy concerns.

6. DISCUSSION

6.1 Strengths

- Data Sovereignty – All models run on premises; no data leaves the corporate firewall.
- Fine-Grained Governance – Policy engine and audit logs provide traceability required for GDPR and ISO 27001.
- High-Quality Output – Fluency and brand-voice scores rival or exceed human drafting.
- Scalability – Multi-agent orchestration allows parallel processing of hundreds of requests per day.

6.2 Limitations

- Model Drift – Corporate knowledge evolves; periodic re-fine-tuning (monthly) is required.
- Resource Cost – 8 NVIDIA A100 nodes represent significant capital and operational expense.
- Human Oversight – Despite zero violations, some content still benefits from human nuance (e.g., tone for high-stakes partner emails).

6.3 Future Work

- Dynamic Prompt Adaptation – Use reinforcement learning to optimise prompts based on editorial feedback.
- Knowledge Retrieval – Integrate vector-search to fetch up-to-date facts before generation.
- Cross-Domain Transfer – Evaluate the pipeline on social media, podcasts, and video scripts.

7. CONCLUSION

This study demonstrates that an agentic AI system, built around locally-hosted Gamma-Prime and Qwen-2.0 models, can autonomously draft, validate, and govern content for web pages, external emails, and internal knowledge bases. The pipeline achieves high quality, zero compliance violations, and significant productivity gains while maintaining strict data-governance standards. The results validate the feasibility of secure, proprietary generative AI for enterprise content creation and provide a blueprint for other organisations to adopt similar architectures.

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