Implementation of Rest Api–Calls Journey Automation in Salesforce Marketing Cloud

Research Paper

Salesforce Marketing Cloud | REST API | Journey Automation | Real-Time Personalization

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Abstract

Salesforce Marketing Cloud (SFMC) is a cloud-based platform used to manage customer communication, campaign execution, personalization, and automated customer journeys. Conventional campaign workflows may require customer information to be collected, prepared, uploaded, and processed through scheduled or manually initiated activities, introducing delays when an organization needs to respond to a customer event. This research examines a REST API–based approach to journey automation in SFMC. The proposed workflow connects an external application with SFMC through authenticated API requests. Customer or event information is transferred to the platform, associated with a Data Extension or event definition, and used to initiate a Journey Builder journey. The study follows a secondary-research and implementation-oriented approach, reviewing research literature and Salesforce technical documentation and mapping the workflow from the external event to customer communication. The analysis identifies potential operational benefits, including reduced manual intervention, more responsive processing, repeatable data movement, scalability within platform limits, and personalized communication. It also identifies constraints involving authentication, API limits, data quality, duplicate events, external-system dependency, monitoring, and security. Because the available material does not provide a controlled experimental dataset, the paper does not claim statistically measured improvements in engagement or response time. Instead, it presents an implementation framework and proposes performance indicators for future validation.

Keywords
Salesforce Marketing Cloud; REST API; Journey Automation; Journey Builder; Data Extension; Email Personalization; Real-Time Systems; Marketing Automation; Data Integration.

1. Introduction

The growth of digital communication has increased the need for organizations to interact with customers at the appropriate time and through relevant channels. A customer may submit a form, register for a service, make a purchase, request information, or perform another action that should result in a communication. In these situations, a marketing platform must receive the event and respond without unnecessary manual processing.

Salesforce Marketing Cloud provides tools for email communication, customer data management, journey orchestration, and automation. Journey Builder supports event-driven customer journeys, while APIs allow developers to interact with Journey Builder programmatically. REST APIs provide a standardized way for independent applications to communicate. An external system can send an authenticated HTTP request, and the receiving platform can validate and process the information according to its configured workflow.

1.1 Background of the Study

The study is based on the relationship between marketing automation, customer journey management, and application integration. REST API integration can connect business applications, customer data, event definitions, Data Extensions, and Journey Builder. A Data Extension provides structured customer or event data, while an event definition specifies how an event can initiate journey entry.

1.2 Problem Statement

Traditional or semi-manual campaign processes can create delays between the occurrence of a customer event and the communication sent in response. Repeated manual uploads can increase operational effort and create opportunities for inconsistent data. The central problem is how an API-driven workflow can connect external data with an SFMC journey so that customer communication can be initiated more efficiently.

1.3 Research Objectives

- To study REST API–based automation in Salesforce Marketing Cloud.
- To examine how API-driven event processing can reduce manual intervention in journey activation.
- To analyze the roles of Data Extensions and Journey Builder in the automation workflow.
- To evaluate the approach conceptually in terms of response time, scalability, personalization, and operational efficiency.
- To identify implementation challenges related to authentication, data quality, API limits, security, and dependence on external systems.

1.4 Research Questions / Hypothesis

- How can REST APIs be used to initiate event-driven journeys in Salesforce Marketing Cloud?
- How does API-driven automation affect manual effort and response time compared with a manually initiated workflow?
- What technical factors influence reliability and scalability in an API-triggered journey?
- How can personalization be incorporated while maintaining data quality and security?

The paper does not test a statistical hypothesis using a controlled dataset. These questions guide the implementation-oriented analysis.

1.5 Scope of the Study

The study focuses on an SFMC workflow in which an external system sends customer or event data through an authenticated REST API, the event is associated with a Data Extension or event definition, and Journey Builder initiates configured communication. The scope includes conceptual workflow design, API security, data processing, personalization, operational comparison, evaluation criteria, and implementation challenges. It does not include a large-scale production experiment or measured engagement uplift.

2. Literature Review

Previous research on marketing automation indicates that customer information, digital content, and business processes can be connected to support timely and relevant interactions. Järvinen and Taiminen (2016) examined marketing automation in B2B content marketing and discussed behavioral targeting, content personalization, lead generation, and integration between marketing and sales.

Research on customer journeys treats marketing automation as a way to manage multiple customer touchpoints, including lead generation, lead qualification, nurturing, and interactions across digital channels. This provides a conceptual foundation for considering Journey Builder as an orchestration layer rather than simply an email-sending tool.

Santos, Gonçalves, and Teles (2023) examined audience characteristics and real-time marketing content in relation to social media engagement. Chae, Rodríguez-Vilá, and Bharadwaj (2025) examined real-time marketing messages and consumer engagement, highlighting that the development process and context of messages matter. Together, these studies support the principle that timely communication should also be relevant to the recipient.

2.1 Existing Research

The literature reviewed in the source paper covers marketing automation, B2B content marketing, customer journey management, real-time marketing, personalization, and digital engagement. Salesforce developer documentation provides technical material on Journey Builder APIs, authentication, event definitions, and journey specifications.

2.2 Comparison of Existing Methods

Dimension	Manual/Scheduled Approach	API-Driven Approach
Response time	Depends on upload or schedule	Can respond to an incoming event
Manual effort	Repeated preparation, upload, and checks may be required	Lower after integration is configured
Scalability	May require repeated operational handling	Supports programmatic event volumes within platform limits
Personalization	Depends on prepared data	Can use event and contact data dynamically
Monitoring	May rely on manual checks	Can be supported with logs and API monitoring
Failure handling	Issues may be discovered after processing	Can use status checks, retries, and alerts

2.3 Research Gap

Existing research often discusses marketing automation at a broad organizational level, while technical documentation explains API capabilities. The gap addressed here is the combination of these perspectives into an implementation-oriented framework showing how an external event moves through authentication, data handling, journey entry, and communication. A second gap is quantitative performance evaluation. Measures such as API latency, event-processing time, journey-entry success rate, delivery rate, processing failures, and engagement should be collected in a controlled study; the current source material does not provide such a dataset.

3. Research Methodology

The research uses secondary data from journals, research papers, industry reports, Google Scholar, IEEE, and Salesforce documentation. It retains the source paper's literature-based method and adds a structured implementation analysis to relate the technical workflow to prior findings.

3.1 Research Design

An exploratory and implementation-oriented design is used. First, literature is reviewed to identify the business value and challenges of marketing automation. Second, the technical workflow is mapped from the external source system to customer communication. Third, components are classified into API, authentication, data, processing, communication, and monitoring layers. Finally, evaluation indicators are identified for future quantitative validation.

3.2 Data Collection

- Peer-reviewed research papers on marketing automation, real-time marketing, customer engagement, and digital customer journeys.
- Salesforce developer documentation describing Journey Builder APIs, event definitions, authentication, and journey specifications.
- Industry and technical material related to API integration and marketing automation.

3.3 Dataset

The study does not use a primary experimental dataset or report a defined number of records, samples, or features. Its evidence consists of secondary literature and technical documentation. Consequently, no training/testing split is applicable. A future empirical study should define the observation period, sample size, event volume, and comparable manual and API-driven workflows.

3.4 Tools and Technologies

- Salesforce Marketing Cloud (SFMC) as the marketing automation platform.
- Journey Builder for journey orchestration and event-driven entry.
- REST API for communication between an external application and SFMC.
- OAuth access tokens and installed-package credentials for API authentication.
- Data Extensions for structured customer and event data.
- Salesforce developer documentation and academic literature as research sources.

3.5 Proposed Methodology

The proposed workflow begins when an external application records a customer event. The application obtains an authorized API token and sends a request to SFMC. The request and data are validated and processed according to the configured event structure. The Data Extension and event definition support journey entry, after which Journey Builder executes the configured communication activities. Monitoring records request outcomes and failures.

3.6 Algorithms

The source paper does not propose a new mathematical algorithm or machine-learning model. The process is a rule- and event-driven integration workflow: authenticate the caller, validate the event payload, associate data with the configured event and Data Extension, trigger journey entry, personalize communication from contact/event attributes, and monitor the outcome. Duplicate-event handling, retries, and error checks are important operational controls.

3.7 System Architecture / Flowchart

External System → REST API Request → OAuth Authentication → Event/Data Validation → Data Extension / Event Definition → Journey Builder → Personalized Email / Communication → Customer Response

The API layer receives requests; the authentication layer verifies identity and authorization; the data layer structures customer and event information; the processing layer determines journey entry; the communication layer sends configured messages; and the monitoring layer records outcomes, errors, and latency.

4. Implementation / Experimental Setup

The source paper describes a logical implementation framework rather than a documented production deployment with measured experimental results. The following subsections therefore explain the proposed setup and the technical activities analyzed; they do not claim that an unreported experiment was performed.

4.1 System Design

The external application acts as the source of the customer event. REST API communication transfers the event to SFMC, authentication verifies the calling application, and the event is processed according to the configured structure. A Data Extension provides structured data, and an event definition determines the conditions for journey entry.

4.2 Authentication and API Security

The integration should use credentials configured through an installed package, obtain an OAuth access token, and include the token in subsequent API requests. Client credentials should be stored securely and not hard-coded in source code or exposed in public repositories. Recommended controls include least-privilege permissions, incoming-data validation, protection of personally identifiable information, and monitoring of failed authentication attempts.

4.3 Data Extension and Event Processing

A Data Extension stores structured customer or event data. Event definitions can be associated with a Data Extension, and API-fired events can send data into the appropriate journey. Correct schema design, consistent identifiers, and accurate field mapping are important to prevent incomplete or incorrect personalization.

4.4 Journey Builder Processing

Journey Builder uses an entry event to determine when a contact enters a journey. The Journey Builder API includes a Fire Entry Event operation, while event definitions determine the entry settings. The journey then executes its configured activities.

4.5 Personalization

Contact attributes and event data can be used to personalize communication. Data binding allows journey activities to reference contact and event information at runtime. Personalization should be tested with multiple customer scenarios to ensure that the correct recipient and event context are used.

4.6 Experimental Setup and Parameters

A quantitative experiment has not been reported in the source material. For future testing, the manual/scheduled and API-driven workflows should use comparable customer segments and communication content. Record API response latency, time to journey entry, processing success rate, delivery outcomes, failures, data accuracy, personalization accuracy, engagement where available, and operational effort.

4.7 Implementation Challenges

- API rate limits may restrict request volume or frequency.
- External-system outages can prevent events from reaching SFMC.
- Incorrect field mapping can lead to incomplete or incorrect personalization.
- Authentication and credential management require security controls.
- Duplicate events may cause unintended multiple journey entries unless event handling is designed appropriately.
- Monitoring and error handling are necessary for production reliability.

5. Results and Discussion

The implementation analysis indicates that REST API–based journey automation can reduce the number of manual steps between a customer event and execution of a communication workflow. Its principal operational benefit is connecting an external event to a predefined journey rather than relying on repeated manual preparation and activation.

Once the event schema, authentication mechanism, Data Extension, entry event, and journey logic are configured, the workflow can be executed programmatically for subsequent events. This may be useful when an organization receives a continuous stream of customer interactions. Event and contact data can also support personalized message content and subsequent journey activities.

5.1 Results

The qualitative result is a proposed end-to-end architecture connecting an external system, authenticated REST API, event/data processing, Data Extension, Journey Builder, and personalized communication. The framework identifies expected operational benefits and implementation dependencies. No measured response-time reduction, engagement uplift, or other numerical result is available in the source material.

5.2 Performance Evaluation

Metric	Meaning / How to Measure
Latency	Time between the external event and successful processing
Delivery speed	Time required for communication to reach the delivery stage
Success rate	Proportion of API/event requests processed successfully
Data accuracy	Correctness and completeness of customer attributes
Personalization accuracy	Whether the message reflects the correct recipient and event context
Engagement	Opens, clicks, or conversions, where data is available
Operational effort	Time and manual steps needed to operate each workflow

5.3 Comparison

Compared with a manual or scheduled approach, the API-driven approach can respond to incoming events programmatically, reduce repeated operational handling after configuration, and use event/contact data dynamically. These benefits depend on platform limits, accurate configuration, external-system reliability, and monitoring. This comparison is conceptual and is not based on controlled numerical measurements.

5.4 Discussion

The findings align with the broader marketing automation literature, including Järvinen and Taiminen (2016), which links automation with behavioral targeting and personalization. The present work focuses on the API and event-trigger mechanism that can technically initiate a journey. However, speed should not be confused with effectiveness: message relevance, audience characteristics, and context also influence engagement. API automation is therefore an enabling technology, not a guarantee of improved customer outcomes.

6. Conclusion

This research examined REST API–based journey automation in Salesforce Marketing Cloud. The proposed architecture connects an external system to SFMC through authenticated API communication and uses event-driven processing to initiate a Journey Builder workflow. It addresses limitations of manual data movement by establishing a repeatable programmatic process.

The analysis indicates that API-based integration can support faster responses, lower manual effort, scalable event processing within platform limits, and personalized communication when the data and journey configuration are reliable. At the same time, security, API limits, data quality, monitoring, external-system reliability, and message relevance remain important. The main contribution is an implementation-oriented framework for connecting external customer events with Journey Builder. Future work should validate the framework with primary performance data and investigate predictive analytics, AI-driven personalization, and multi-system customer journey orchestration.

7. Future Scope

Future research can extend the architecture by integrating artificial intelligence and predictive analytics. Predictive models could classify customer behavior or estimate engagement probability before a journey path is selected. AI-based approaches may assist with content selection, send-time optimization, segmentation, and anomaly detection.

Further work can explore deeper CRM integration by combining CRM information, marketing interaction history, and real-time events. Different integration patterns—including direct REST API calls, middleware-based architectures, event queues, and scheduled automation—could also be compared.

A controlled experiment could compare a manual workflow with an API-triggered workflow using identical customer segments and communication content. Response latency, processing success, delivery, engagement, and operational effort could then be statistically compared.

8. References

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9. Acknowledgment (Optional)

[Add acknowledgment if applicable: research guide/supervisor, department, institution, or others who supported the work. Remove this section if not required.]

Appendix A. Research Limitations

- The research relies significantly on secondary literature and technical documentation.
- No large-scale experimental dataset is provided.
- No numerical improvement percentage is claimed because quantitative measurements were not supplied.
- The analysis focuses on Salesforce Marketing Cloud and may not generalize directly to other marketing automation platforms.
- API limits, account configuration, data architecture, and organizational processes can influence real-world performance.

Appendix B. Practical Recommendations

- Use least-privilege API permissions and protect OAuth credentials.
- Validate event data before it enters the journey.
- Design clear retry and failure-handling mechanisms.
- Monitor API responses and journey-entry outcomes.
- Use consistent customer identifiers and field mappings.
- Test personalization with multiple customer scenarios before production deployment.
- Measure technical performance and customer outcomes rather than assuming automation alone improves engagement.