n8n Workflow Prompt Framework

1. Context Setting

Start your prompt with clear workflow context:

```
Create an n8n workflow that [primary objective] when [trigger condition] by
[key actions].
```

Example: "Create an n8n workflow that synchronizes customer data when a new lead is added to HubSpot by updating Salesforce and sending a Slack notification."

2. Essential Components Checklist

2.1 Trigger Definition

- **What initiates the workflow?**
  - Webhook events
  - Schedule/Cron triggers
  - Manual triggers
  - File/email monitoring
  - API polling

Prompt Structure:

```
TRIGGER: When [specific event] occurs in [application/service]
- Include: frequency, conditions, data expected
```

2.2 Data Flow Specification

- **What data moves through the workflow?**
- **What transformations are needed?**

Prompt Structure:

```
DATA FLOW:
- Input: [describe expected data structure]
- Transformations: [list required modifications]
- Output: [describe final data format]
```

2.3 Integration Points

- **Which applications/services are involved?**
- **What authentication is required?**

Prompt Structure:

```
INTEGRATIONS:
- Source: [app name] - [authentication type]
```

```
- Destination(s): [app names] - [authentication types]
- APIs: [specific endpoints if known]
```

2.4 Business Logic

- **What conditions/rules apply?**
- **What error handling is needed?**

Prompt Structure:

```
LOGIC:
- Conditions: If [condition] then [action]
- Error handling: When [error type] occurs, [fallback action]
- Validations: Ensure [data requirements]
```

3. Detailed Prompt Template

```
# n8n Workflow Request

## Objective
[Clear one-sentence description of workflow purpose]

## Trigger
- **Type:** [webhook/schedule/manual/etc.]
- **Source:** [application/service name]
- **Event:** [specific trigger event]
- **Frequency:** [if applicable]
- **Expected Data:** [describe incoming data structure]

## Workflow Steps
1. **Step 1:** [action description]
   - Input: [data source]
   - Processing: [what happens to data]
   - Output: [expected result]

2. **Step 2:** [action description]
   - Input: [previous step output]
   - Processing: [transformation/action]
   - Output: [expected result]

[Continue for each step...]

## Integrations Required
- **[App Name 1]:** [purpose] - [auth type needed]
- **[App Name 2]:** [purpose] - [auth type needed]

## Data Transformations
- **Field Mapping:** [source field] → [destination field]
- **Calculations:** [any formulas or computations]
- **Formatting:** [date formats, text transformations]

## Business Rules
- **Conditions:** [if/then scenarios]
- **Validations:** [data quality checks]
- **Filters:** [what data to include/exclude]

## Error Handling
- **Expected Errors:** [potential failure points]
```

```
- **Fallback Actions:** [what to do when errors occur]
- **Notifications:** [who to alert on failures]

## Success Criteria
- **Completion Indicators:** [how to know workflow succeeded]
- **Logging Requirements:** [what to track/record]
- **Notifications:** [success confirmations needed]

## Additional Requirements
- **Performance:** [timing constraints]
- **Security:** [data sensitivity considerations]
- **Compliance:** [regulatory requirements]
- **Documentation:** [areas needing explanation]
```

4. Best Practice Guidelines

4.1 Be Specific About Data

❌ "Send data to Slack" ✅ "Send formatted message to #alerts channel including customer name, email, and signup timestamp"

4.2 Define Error Scenarios

❌ "Handle errors" ✅ "If API call fails, retry 3 times with exponential backoff, then send failure notification to admin"

4.3 Specify Authentication

❌ "Connect to Google Sheets" ✅ "Connect to Google Sheets using OAuth2 service account with read/write permissions"

4.4 Include Sample Data

```
SAMPLE INPUT:
{
  "customer": {
    "name": "John Doe",
    "email": "john@example.com",
    "signup_date": "2024-01-15T10:30:00Z"
  }
}

EXPECTED OUTPUT:
- Slack message: "New customer: John Doe (john@example.com) signed up on
Jan 15, 2024"
- Airtable record: [name, email, signup_date, status]
```

5. Common Workflow Patterns

5.1 Data Synchronization

```
Trigger → Fetch Data → Transform → Validate → Update Destination → Log
Result
```

5.2 Notification Workflows

```
Trigger → Process Event → Apply Rules → Format Message → Send Notification
→ Track Delivery
```

5.3 Data Processing Pipelines

```
Schedule → Extract Data → Clean/Transform → Enrich → Load → Generate Report
```

5.4 API Integration

```
Webhook → Parse Payload → Authenticate → Call External API → Handle
Response → Store Result
```

6. Quality Checklist

Before submitting your prompt, verify:

- [ ] Clear trigger definition
- [ ] Specific data requirements
- [ ] Named applications/services
- [ ] Authentication considerations
- [ ] Error handling scenarios
- [ ] Success criteria defined
- [ ] Sample data provided
- [ ] Business rules specified
- [ ] Performance requirements
- [ ] Documentation needs identified

7. Example High-Quality Prompt

````
# Customer Onboarding Automation Workflow

## Objective
Automate customer onboarding process when new user signs up through website
form.

## Trigger
- **Type:** Webhook
- **Source:** Website contact form
- **Event:** Form submission with "signup" intent
- **Expected Data:**
  ```json
  {
    "name": "string",
    "email": "string",
    "company": "string",
    "phone": "string",
    "plan": "starter|pro|enterprise"
  }
````

Workflow Steps
````

1. **Validate Data:** Ensure required fields present and email format valid
2. **Check Duplicates:** Query CRM to prevent duplicate customer creation
3. **Create CRM Record:** Add customer to HubSpot with lead status
4. **Send Welcome Email:** Trigger Mailchimp welcome sequence based on plan
5. **Create Project:** Set up initial project in project management tool
6. **Notify Sales:** Send Slack message to sales team for enterprise plans
7. **Update Dashboard:** Add metrics to company analytics dashboard

Integrations Required

- **HubSpot:** Customer creation - OAuth2
- **Mailchimp:** Email automation - API key
- **Asana:** Project creation - OAuth2
- **Slack:** Team notifications - Bot token
- **Google Sheets:** Analytics tracking - Service account

Business Rules

- **Enterprise plans:** Immediate sales team notification required
- **Duplicate check:** If email exists, update record instead of creating new
- **Email validation:** Must contain @ and valid domain
- **Project setup:** Only for Pro and Enterprise plans

Error Handling

- **Invalid email:** Send admin notification, log error, continue workflow
- **CRM API failure:** Retry 3 times, then queue for manual processing
- **Email send failure:** Log error but don't halt workflow

Success Criteria

- Customer record created in HubSpot
- Welcome email triggered (confirmed delivery)
- Project created (if applicable)
- All steps logged with timestamps

```
This framework ensures you provide comprehensive, actionable requirements
that will generate high-quality n8n workflows with proper error handling,
clear data flow, and complete functionality.
```