MANAGING AND CONTROLLING PROJECT CHANGES IN POST-CONFLICT COUNTRIES: THE CASE OF LIBERIA

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ABSTRACT

Ineffective change management and control practices in donor and government-funded projects served as the major impediment to meeting project completion timelines and possible project failures. Project management professionals globally have attributed multiple requests for cost, scope, or schedule changes to classical project management issues, including cost overruns, schedule overruns, and scope creeps when managing traditional-driven projects. In post-conflict countries, including Liberia, multiple change requests or variation orders are prevalent in various types of projects often driven by political interests, corruption, and other fraudulent practices. In this paper, the author examined some critical change management and control issues, especially regarding little or non-existent institutional framework for change control as well as the lack of a structural and systematic approach for managing and controlling changes during project implementation. To mitigate these situations, the author proffered recommendations aimed at helping project organizations minimize budget and schedule overruns due to scope creep as well as project delays resulting from unregulated change management and control practices in Liberia.

KEYWORDS

Unregulated change management, Change management board (CCB), Multiple change order, Variation order, Regulatory authority for change, Institutional framework,

1. INTRODUCTION

Change management is a systematic process of identifying, documenting, approving, and implementing changes when executing a donor or government-funded project (Wanner, 2013). It is an essential aspect of project management and its application to ensure that a systematic change process is followed in a controlled and coordinated manner. This approach will minimize disruptions in project implementation and increase the chance of project success (Wanner, 2013). Generally, the objectives of change management are to refine, adjust, and effectively manage the change process. Effective change management enhances organizational performance ability and capability through organized actions that can help reduce changes to minimize scope creep or cost overrun (Elton, 2018). The overall goal is to ensure that the cost, scope, and schedule are properly controlled. Project managers should be able to properly communicate the needed scope changes, along with contracts containing those changes to minimize the chance of introducing more scope changes (Elton, 2018).

Changes are inevitable during the project lifecycle given project complexities and unpredictability. These intricacies and improbabilities of events are due to frequent changes in

requirements and other risk factors that can affect major project constraints – cost, scope, schedule, and quality. As a result of these complications, contemporary project management professionals are now turning to *Agile Methodologies*, which are new iterative, adaptive, or incremental methodologies that deliver values earlier for the client. Unlike the predictive (traditional or waterfall) methodology, where values are delivered after project deployment, the Agile methodologies deliver values in increments using several phases or *sprints (*Loayan, 2022).

The Agile approach is a new phenomenon and software-driven, therefore most donor and government-funded projects in post-conflict countries utilize the predictive (traditional) approach which includes initiation, planning, execution, and closing. Monitoring and control, an inherent part of the project lifecycle used in most of these phases, is designed to ensure that inputs, tools, techniques, and outputs (ITTO) during project intervention are properly planned, monitored, and controlled to achieve project success. To achieve this, project managers should adhere to the integrated change management approach detailed in the Project Management Book of Knowledge (PMBOK) by following an effective and efficient change management and control process. Mojica (2018) listed the following as essential steps in implementing change management during project execution:

- Identifying the need for change: Identification is the first step requiring whether the need for change is justified. Change request, in this regard, may be derived from changes in project scope, project environment, implementation changes, or other factors.
- Documenting the change: This step is relevant for describing the change and providing justification for such change. It includes providing any relevant information and analysis concerning the change's impact on cost, schedule, and quality.
- Obtaining change approval: After documenting the change, the next step is to send the change request(s) to the Change Management Board (CMB) or Change Control Board (CCB) for reviewal for possible approval or rejection.
- Implementing the change: Change approval requires revising the project plan, updating project documents, and associated artifacts, and communicating the change to the project team for implementation.
- Monitor and Control change: During the implementation of the change by the project team, the quality analyst or manager monitor and control the change. This process involves tracking change progress, revising the project plan as needed, and conducting periodic reviews to ensure that the change is on track.

The effective planning, execution, management, and control of the change process are critical for achieving project success. The lack, thereof, can lead to scope creep, an uncontrolled change in scope that increase schedule and cost. A study by Khahro et al. (2017) found that multiple change orders, especially in construction projects are due to inadequate drawings and details, specification changes, conflict in contract documents, inadequate designs, and design changes, and errors. Therefore, project management professionals should follow the necessary project management steps including effective scope planning, scope verification, scope control, and integrated change control to minimize scope creep during project implementation.

2. LITERATURE REVIEW

Change Management in project management involves all of the necessary steps required to effectively manage changes that are derived from design errors, scope change, environmental factors, and risk factors, among others. Change management is a complex process requiring the implementation of sets of measures from project initiation to closing (Zachko et al., 2020). The complexity of change is manifested in an organization's inability to predict accurately all of the

resources, scope, cost, schedule, stakeholders, and other project inputs amid varieties of risks and other endogenous and exogenous factors.

In light of this unpredictability of inputs, tools, and outputs, Project Management Institute (2017) asserted that change is inevitable and will be prevalent in different types of projects. Effective management of change will lead to project success knowing that change initiatives are time-consuming and costly. Change Management (CM) in post-conflict countries is more challenging requiring a disciplined approach and effective planning for change. The complexity of CM in post-conflict countries is due to inherent constraints – roads, infrastructure, manpower, institutional capacity, etc. For example, a study by Earnest (2019) asserted that international aid agencies do not work effectively in a service delivery post challenges in various processes of project implementation, stakeholder coordination, communications, cost, quality, procurement, and risk management.

Given the inevitability of change in projects, including post-conflict countries, changes should be properly planned, monitored, and controlled. Change management is elaborated under the process group, *Monitoring and Control*, by providing useful guidance on how to manage and control changes along the 10 project management knowledge areas – project integration management, project scope management, project schedule management, project cost management, project quality management, project resource management, project communications management, project risk management, project procurement management, and project stakeholder management. The overall application of the monitoring and control process group is manifested under the *project integration* knowledge area with emphases on the utilization of an *integrated change control* and *monitor andcontrol project works* (Project Management Institute, 2021).

Integrated change control is an elaborate and coordinated process that allows for the documentation of all requested, approved, or rejected changes to the project in consideration of reducing project risks, cost, and schedule without impacting the overall project plans (Karimi & Munyori, 2018). The change control board (CCB) is responsible for approving and rejecting changes. If the change is approved, all of the associated documents, including project documents, project plans, and schedule baselines, among others are updated to reflect the change. In post-conflict countries, most projects are implemented in an emergency manner reflecting some of the urgencies associated with civil conflict, environmental factors, famine, and other binding constraints. Therefore, most projects are implemented without the CCB or an institutional framework, therefore, changes are implemented by the project manager in concert with the supervising contractor/consultant and the project steering committee.

Effective utilization of an integrated change management project should consider the formulation of a CCB to receive, review, analyze, and approve/reject changes. The CCB will comprise a group of stakeholders from different backgrounds that meet periodically to review changes. This approach can minimize fraud and corruption in the change process. Most post-conflict projects are susceptible to conflict of interest, fraud, and corruption, given that they usually lack a CCB to ably manage the change process.

Project management changes should be handled with adequate levels of planning, monitoring, and control. Planning involves effective scope management, and scope definition while monitoring and control involve scope validation and scope control (Project Management Institute, 2021). Without an effective scope planning, monitoring, and control process, there are consistent and persistent requests for change to project scope, referred to as change order.

Some of these consistent change orders lead to scope creep, an uncontrolled change in the scope resulting in increased cost and time. Scope creep can lead to increase project costs and increased

project timelines. Khahro et al. (2017) stated that change orders disrupt workflow and can lead to cost and schedule overruns at the highest proportion. Some projects in post-conflict countries can have schedule overruns as high as 575% due to a temporarily halt in project implementation (Kanniappan, 2022).

Project scope management is a key project management knowledge area that drives changes. Therefore, effective scope planning, scope definition, scope validation, and scope control are essential for minimizing the changes in projects. The lack thereof can lead to scope creep which increases project cost and schedule. To properly manage change, it should be considered from the period of project initiation and continued up to project closure (Wanner, 2013). In Figure 1, Wanner (2013) displayed integrated change management relating to project management, project scope, and change management.

Figure 1: Integration of Project and Change Management

Figure 1 depicts the relevance of change at all levels of the project lifecycle from initiation to closing. Overall, the Project Management Institute (2013) listed four distinct steps in planning, monitoring, and controlling changes in projects. They include:

- Prepare for the change
- Plan the change
- Manage the change
- Reinforce and sustain the change

2.1. Define the Change Objectives

Change management should be handled from the perspective of processes, technologies, or organizational changes. Overall, the project manager must examine the proposed change and determine the effect the change will have on the project as a whole before allowing the change request to be implemented. To implement change, project managers should be able to properly communicate needed scope changes, along with contracts containing those changes to minimize the chance of introducing more scope changes (Elton, 2018).

Once the objective of the change is clearly defined, the project manager and his team assess the stakeholders who will be impacted by the change to ensure readiness and support. Stakeholder planning and engagement, throughout the project lifecycle, are critical to the survivability of the

project (Riahi, 2017). Scope change impacts cost and schedule, therefore, project managers should also assess the needed resources to manage the team. Thereafter, he/she should be able to properly communicate needed scope changes, along with contracts containing those changes to minimize the chance of introducing more scope changes (Elton, 2018). Finally, the project manager conducts a detailed analysis to assess the impact of the change on the project stakeholders.

2.2. Plan the Change

To effectively manage change, the needed strategy and plan are required to ensure cost, scope, and schedule control. Mulholland (2022) listed eight strategies for effective change management including:

- **Define the change:** this involves setting the definition of what you want to change;
- **Keep it simple:** provide a simple change management process that can be easily understood by everybody;
- **Start at the top:** provision of justification to the project executive board or steering committee for implementing the change.
- **Don't forget the frontlines:** Also include those who will be an inherent part of the change you want to make;
- **Use culture to your advantage:** Make the best use of culture by utilizing organizational culture and culture outside your organization;
- **Tie change to strategic objectives:** Implementation of change should be tied to achieving your strategic objectives including your Development Objectives (DO) and other intermediate and immediate objectives.
- **Encourage behavioral shifts:** mobilize everybody on board to achieve this change, even if it means diverting from original responsibilities;
- **Provide a formal framework:** design a formal process for change.

2.3. Manage the Change

A literature review of institutional authority for project change is the change control board (CCB). Project Management Institute (2021) stated that the CCB is a chartered group responsible for reviewing, evaluating, approving, delaying, or rejecting change to a project and for recording and communicating any decision from the process. All levels of change are channeled through the CCB for effective coordination and communication of the results of the change.

Change management via CCB is not a common practice in most post-conflict countries including Liberia. However, in most donor and government-funded projects, changes are controlled mainly by the project manager/project coordinator with requests from contractors or consultants. The development of CCB or CMB is necessary to curtail fraud, corruption, and other fraudulent behavior by projects. The CCB or CMB must be set up for all projectized or matrix organizations for effective control of project costs, scope, and schedule and should comprise stakeholders that are relevant to the project.

The designation of different stakeholder members as members of the CCB will provide checks and balances and minimize the chance of fraud. For example, a CCB or CMB will be able to convene and assess whether the requested changes are necessary or not. The board will include diverse members from multi-dimensional backgrounds that would contribute to the overall change effort by determining whether changes are necessary or not. Overall, this process minimizes the chances of fraud and corruption. An effective change management and control

process provides a systematic process for change requests, change reviews, change approval/rejections, and change implementation. In Figure 2, Martin (2022) displayed a process flow for change requests including change request analysis and approval/rejection by the CCB.

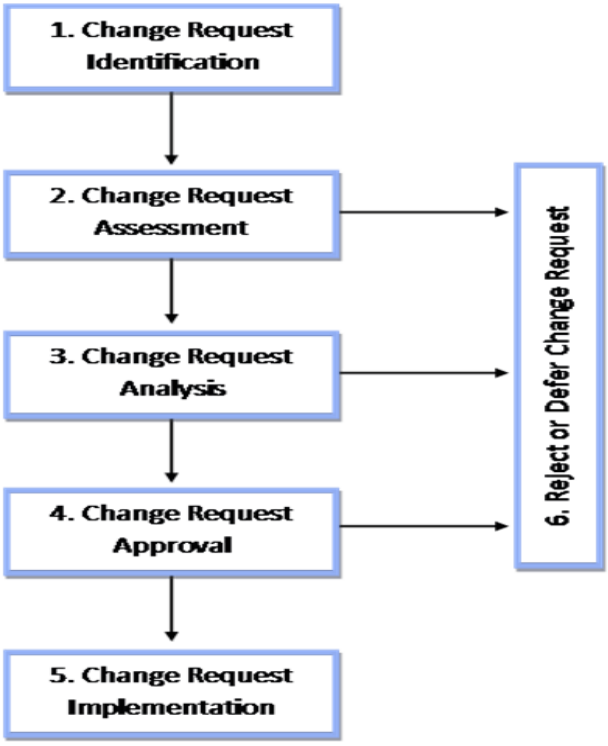

Figure 2: Change Request Process Flow

2.4. Reinforce and Sustain the Change

At this stage, the project manager and team collect feedback on the impact of change implementation, and if necessary, take corrective actions to reinforce the needed changes that will deliver a quality product. To sustain the change, the project manager and team use lessons learned to develop artifacts that can be reused for the implementation of similar changes for the sustainability of the process. Figure 3, elaborated by Project Management Institute (2013) displayed the change management and control processes.

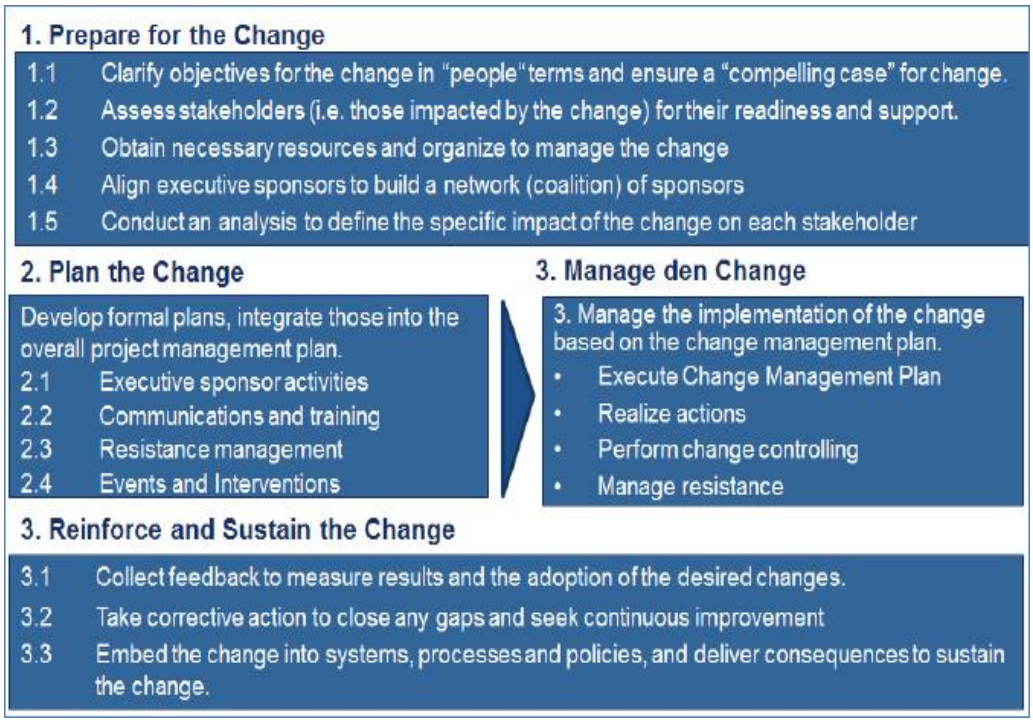

Figure 3: Structural Change Management Process

2.5. Implementing Variation Order

A variation or change order is a formal document for implementing a process or implementation changes. Multiple variation orders during project executive cause increase in project costs (negative cost variance) and schedule overruns. There are numerous factors attributed to variation or change orders during project execution. Islamic Development Bank (2020) listed some of the factors for variation:

- Variation based on change of the original design;
- Variations based on quantities of materials and work;
- Variations from the original scope of work;
- Variations to proposed and actual working conditions; and
- Variations to quality.

Effective change management is the managing of variation orders to minimize scope creep and cost overruns. Ephrem et al. (2019) asserted that cost overruns, especially in construction projects, are due to too many changes in owner's requirements or definitions resulting in many variation/change orders that increase costs. McCord (2015) revealed further that excessive use of variation orders is one of the main causes of overruns and failure of projects.

Variation or change order involves a series of steps for implementation or non-implementation. They are initiated by the Consulting Engineer or Supervision Consultant, based on a request from the contractor, who issues a change or variation proposal (Islamic Development Bank, 2020). The variation proposal includes the justification for the change order, the initial and new cost, and the effect on the project's overall cost, scope, and/or schedule. However, processes for implementing variation orders vary by organization.

3. MANAGING CHANGES IN POST-CONFLICT CONTEXT

The Project Management Institute (PMI) proposed the formulation of a *program governance board (PGB), change control board (CCB), or change management board (CMB)* to facilitate the process of change from planning to its final decision of accepting or rejecting (Project Management Institute, 2017). The role of the program governance or change control board is to assist the approving authority in the review of change requests consistent with projects 'baselines performance requirements, budgeted cost, and schedule (Pollack, 2017). Moreover, the board ensures that the prospective changes are clearly defined and fall within the approved cost, schedule, and performance parameters (Pollack, 2017).

In post-conflict countries administering World Bank (WB), African Development Bank (AfDB), USAID, UNDP, and other donor-funded projects, there are similar institutional frameworks to guide the change process from inception to closing. The World Bank's procurement guidelines required that a change order may be issued if it is necessary to make changes in the Work or the contract due to unforeseen situations at the time of the signing of the contract (World Bank, 2018). This action may be predicated on the fact that neither party was at fault for this occurrence, therefore minor changes in the Work that will not significantly alter the scope, cost, or project completion timelines may be carried out (World Bank, 2018).

The World Bank uses the Project Implementation Manual (PIM) or Project Operational Manual (POM) derived from the Procurement Guide: Contract Management Practices (World Bank, 2018). The PIM or POM guides the entire project implementation relating to financial, procurement, administrative, change management, and communications management, among others. Other donor organizations use similar project implementation guides relating to administrative procedures, procurement, and financial procedures.

The World Bank implementation in post-conflict countries follows a similar change management process provided by the PMI. World Bank (2018) listed the following steps for implementing change management:

- Have appropriate forms and clear procedures for implementing change/variation orders
- Assessing the effect on project scope, cost, implications, and risks
- Clarify who (designated authority) is responsible for implementing changes
- Identify areas susceptible to change, evaluate risk, proactively manage those areas, and
- Ensure timely communication of change information to relevant stakeholders.

Other donor organizations, like the AfDB, UNDP, and USAID follow similar steps for change management specifically when dealing with change orders. For example, like the World Bank, the AfDB provides that a change order may be issued to modify the original contract based on unforeseen circumstances at the time of the award of the control (AfDB, 2015). Similarly, USAID ascribes to comparable provisions like the World Bank and the AfDB. For example, USAID makes provision for change orders if it is necessary to make changes in the scope of work, budget, or period of performance of a contract, including a grant (USAID, n.d.).

Despite these change order provisions by these donor institutions, there are threshold limits that cannot be exceeded. For example, both the World Bank and AfDB propose between 15-20% of the total contractual cost as the maximum threshold of the change order value. Other organizations set values that are higher than 20%. These provisions are provided in the Project Implementation Manual (PIM) or Project Operational Manual (POM) developed by these institutions in concert with the partner organizations. However, in most post-conflict countries,

especially in other donor and government projects, cost variance resulting from change order can go as high as 400%. For example, the cost variance, from multiple change order requests, for the construction of Geekan Market in Grand Kru County, Liberia, was 400%, while the cost variance of construction of 3 markets in Compound #3 in Grand Bass County, Liberia was 307% (Williams, 2021). These high-cost variances are an indication of the effect of multiple change orders on project implementation.

To minimize high cost and schedule variance derived from multiple change or variation orders, the PMI proposed the setting up of a PGB, CCB, or CMB. However, setting up these institutions is not a common practice in most post-conflict countries including Liberia. In post-conflict countries, including Liberia, the processes of issuing change orders are usually complex due to the often fragile political and economic situation in these countries (USIP, n.d.). However, change order requests in these countries are essential in responding to unexpected challenges or opportunities that arise during the implementation of the project. Moreover, the designation of different stakeholder members as members of the CCB or CMB will provide checks and balances and minimize the chance of fraud. These institutions, when formulated, will be able to convene and assess whether the required changes are necessary or not. The board will include diverse members from multi-dimensional backgrounds that would contribute as to whether changes are necessary or not. Overall, this process minimizes the chances of fraud and corruption.

In Liberia, there are reports of CCB or CMB in a few government institutions including the Ministries of Health and Public Works. However, in most donor and government-funded projects, changes are controlled mainly by the project manager/project coordinator with requests from contractors or supervising consultants. Another change management issue of frequent occurrence in post-conflict countries involves the use of multiple change or variation orders. Variable or change order in post-conflict environments mainly Liberia is of serious concern given its excessive use.

There are many instances of excessive variation orders in donor-funded and government projects. However, this situation is more pronounced in very large government or donor-funded projects mainly infrastructure projects relating to construction and road rehabilitation. For example, it was revealed that the Central Bank of Liberia (CBL) project's planned value was US$16 million. However, after the project, it was estimated at US$24 million, a 50% overrun resulting from many variation orders resulting in a change in scope (Central Bank of Liberia, 2015). There are, however, reports that the entire project including furnishing summed up to US$32 million.

There have been many instances of excessive variation orders in various projects in Liberia. For example, CENTAL (2018) reported that the initial cost of the Bong Technical College located in Gbarnga, Bong County was $4.3 million which later increased to $7.6 million, reflecting is 77% cost overrun. There are other instances of excessive cost overruns resulting from changes in other infrastructure projects in Liberia. However, given technological challenges like reliable databases for storing records in some cases and deliberate attempts to hide the contract values in other cases, there are no reliable data available to support cost and schedule overruns data.

4. LESSONS LEARNED AND RECOMMENDATIONS

To effectively manage project management changes, the following recommendations are proposed:

- **Set up Effective Mechanism for Change:** Donor organizations should work with project stakeholders in establishing boards or committees to manage change – CCB, CMB, or PGB.

These institutional frameworks will help projects streamline the change processes in minimizing unnecessary changes that may cause increases in cost and schedule.

- **Minimizing Change Order:** Project implementers should discourage the use of multiple change orders through effective verification of technical drawings, bills of quantities (BoQs), and other planning documentation. Effective verification of products at the project initiation and planning stages will minimize the chances of multiple change requests at the project execution stage.
- **Effective Stakeholder Engagement:** Project management teams need to consult with project stakeholders before initiating projects. Some changes are a result of stakeholders' disagreement often leading to changes in the original designs which can lead to increased costs and schedule.
- **Detailed Risk Management Plan:** Project planners should carry out effective risk identification, planning, and execution to minimize risk impact which leads to changes in project plans and activities. Effective risk planning and management are essential in minimizing multiple change requests derived from scope changes.
- **Effective Scope Control:** the effective management of scope through the scope management plan to minimize the change of unmanageable scope control or scope creep. Scope creep can lead to increase costs and schedule delays. Project managers should effectively manage scope to minimize changes and project delays. Management of scope involves verification of technical drawings, BoQs, and Terms of Reference (ToRs) to minimize changes to these documents during project execution.
- **Effective Planning and Schedule Management:** Effective planning and schedule management are essential for minimizing changes resulting from scope change. Project managers should put in place an effective schedule management plan to minimize changes associated with ineffective planning. To foster effective planning and schedule management, project managers and implementers should be trained to use the basic tool (MS-Project) for project planning and scheduling. These tools are essential for effective cost estimations and the development of needed implementation tools for project scheduling.
- **Cost Control:** Cost overrun is detrimental to the success of the projects. Therefore, project planners and implementors should put in place effective cost control mechanisms that will discourage scope change and other change requests. One of the major cost control mitigation is the provision of requisite training and practices to effectively manage costs (budget tracking, budget revision, and budget control) to minimize cost overruns that cause delays to projects.

5. CONCLUSION

Effective change planning, monitoring, and control, during project execution remains a daunting challenge in post-conflict countries, including Liberia. There are inherent financial benefits for project managers and implementers due to the lack of effective structures to plan, manage and control changes. There is often a form of collusion among the project manager, project implementer(s), and supervising consultant in varying forms. Donors and government organizations should work collaboratively to put in place effective change mechanisms to properly plan, assess, and approve/reject changes. Without an effective structure, like a change management board, projects will continue to incur unnecessary costs, scope, and schedule overruns that would delays project implementations and foster project failures.

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