ERASMUS+ PROJECTS' RESILIENCE DURING COVID-19 PANDEMIC: THE CASE OF BENEFIT PROJECT "BOOSTING INNOVATION IN EDUCATION AND RESEARCH OF PRECISION AGRICULTURE IN PALESTINE"

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Abstract

During the global COVID-19 pandemic, project implementation plans have become excessively difficult to execute as initially planned. The workload, giving the impossibility of meeting other team members, has been postponed and outcomes have become difficult to achieve within the specified time-frame. Project managers' endeavors to possess better performance are under increasing scrutiny during global disruptive events. Therefore, several contingency measures should be taken into account in order to tackle and mitigate the effects caused by the COVID-19 pandemic. This research seeks to fill this void. In particular, by taking the BENEFIT "Boosting Innovation in Education and Research of Precision Agriculture in Palestine" project as a case study, this research potentially attempts to explore how to manage project resilience during uncertain events, as well as identifying the different mechanisms to ensure project success.

BENEFIT is an international cooperation project funded by the Erasmus Plus of the European Union (Project #: 609544-EPP-1-2019-1-PS-EPPKA-CBHE-J). It seeks to facilitate knowledge transfer between European (Slovakia, Greece, Bulgaria and Czech Republic) and Palestinian Higher Education Institutions in the field of "agriculture".

The research provides a practical understanding of how to manage international cooperation projects during uncertain times, and a guide for further similar actions. It is concluded that the project consortium engaged in a number of practices in order to keep the project on track during uncertain situations, those are: revision and approval, adaptation, and goal-oriented monitoring. The findings also suggest that international cooperation projects can sustain resilience through maintaining efficient communication, information exchange, and flexibility across the project consortium. These mechanisms allow project partners to find constructive ways and context-specific approaches to carry out project activities, alleviate any raised problems, while addressing the negative implications caused by global issues such as COIVD-19 pandemic. The results of this case can be considered a modest step toward a more efficient and resilient project management of international cooperation projects during uncertain times.

Keywords: Project resilience, COVID-19, Project management, Erasmus+, Agriculture.

1 INTRODUCTION

In recent years, project management has been regarded as an important development tool in many Higher Education Institutions. A systematic methodology is still dominant today in most Higher Education Institutions to manage project, which emphasizes planning, communication, and control as important tools to achieve the desired outcomes. Planning contains detailed actions which should be followed in order to achieve the project objectives, within specific time frame, budget, and quality. Although action plans and their related activities are necessary, it is indeed not sufficient for project success [1]. Unexpected events and environmental turbulences are common during project lifecycle which might impact the implementation process [2].

In the context of project management, plans should be executed as effective and efficient as possible. Rigorous and detailed plans are developed and compliance to these plans is monitored on regular bases [3] in order to identify and avoid potential risks that may affect the project from achieving its intended outcomes [4]. However, it is almost an impossible endeavours to predict and realize all combinations of risks that may happen during the life cycle of the project [2], [3].

Risk management is a core knowledge areas in project management [5]. It consists of different mechanisms that reduce the probability of occurrence of an event or its impact on the project

outcomes [4]. Foreseen or known risks are identified early in the project planning phase and are included as a main component in the project plan. These known risks can be handled through excessive planning and control practices. However, project managers should be careful of excessive process control and enforcement policies since they might have adverse effect on productivity [6]. Therefore, target controls might be utilized in which the project manager monitors the achievement of outputs/outcomes instead of the actual work done by individual team members [3].

It appears that project management tools are suitable for projects with clear objectives and risks [3]–[5]. However, projects are unique and complex undertakings with unexpected events that may emerge over the lifecycle of the project. When risks are unavoidable and unforeseen, managers should go beyond traditional approaches to risk management by giving less attention to mechanisms that focus toward planning/controlling and more attention toward mechanisms that promote flexibility and learning [4], [7].

Unknown risks and events are more difficult to handle due to their unforeseen consequences [3], [7]. They might need learning strategy which might involve more problem solving skills, collaboration, and flexibility [3], [7], [8]. Although many research reviews have been established to explore known risks and their mitigation strategies, unknown occurrences and their impact on project resilience have received limited attention [4] [7]. Resilience can be described as the ability of a project to perform under disruptions and its capability to return to a stable state [9], [10]. In recent years, resilience has become an important concept that complement risk and uncertainty management [10].

Soderhom [2] suggested four different approaches to deal with unforeseen risks: innovative action, applying detachment strategies, setting up intensive meeting schedules and negotiating project conditions. In addition, the existing literature has advocated collaboration as an effective approach to respond to uncertainty, while ensuring project resilience [7], [10]–[13]. Furthermore, besides constant revision of the action plan, Soderholm [2] emphasized the importance of fine tuning, which is “a constant flow of information, experience, and people in to and out from the project” in order to meet environmental unexpected turbulences.

Moreover, Stock stated that “a greater extent of knowledge sharing secures success in the face of uncertainty because it facilitates a shared interpretation of unexpected alterations, emerging problems, and potential solutions… the level of project uncertainty reduces by acquiring essential, expert knowledge” [11, p. 2]. However, the efforts to resolve unknown risks and uncertainties might stagnate due to the introduction of new risks and challenges along the project implementation bath, and what is learned might become obsolete in a short period [3].

International cooperation projects are complex and many are executed under different cultural norms and regulations. Furthermore, some events in the external environment are difficult to recognize early during the project planning stage. Uncertainty may arise due to volatile market structures, changing stakeholders’ requirements, technological advancements, and environment turbulences [11], [14]–[17].The implications of uncertainty on project resilience and performance can be disastrous, such as delays, misunderstanding among project partners, opportunistic behaviour, over budgeting, and wasted knowledge [1], [2], [11], [12], [18]–[20].

The management of international cooperation projects involves a number of decision bodies and rules that are normally defined in the management manual of the project (a document established early in the project to define decision bodies, rules, and general policies). The primary focus in these projects is how to identify known risks and design proper responses. In the face of a changing environments, the project consortium might have to reconfigure existing internal capacities and potentially develop new capabilities in order to meet these risks [5]. There might be a need to adapt new resources and exploit specific competencies in order to address the unexpected situations and to ensure project resilience [21].

In summary, project resilience depends on how well the project is able to deal with uncertainties in the turbulent external environment [22]. Traditional approach to project management leads to the fact that projects are becoming less flexible to cope with uncertainty. Stock et al. [11] emphasized the importance of promoting adequate knowledge exchange and appropriate communication structures to reduce the impact of unforeseen uncertainties and risks. In addition, for projects in highly uncertain environment, promoting effective communication and coordination between the involved parties, e.g. through formal or informal coordination mechanisms, is important to ensure project resilience [22].

Although the literature related to the management of known risk is well established in the literature, there is a lack of literature related to project resilience under uncertain environment [7]. The question

of how Higher Education Institutions must act under high levels of uncertainty, such as COVID-19, to manage projects' resilience and achieve the desired outcomes is critical and should be addressed in forthcoming literature on project management. Exploring the relationship between project resilience and uncertainty/risk management in international cooperation projects is interesting for two reasons. Firstly, each project consists of a consortium with several partners. In addition, each partner in the project is subject to different internal policies and operates under different cultural environments. Therefore, different approaches might be utilized to ensure project resilience.

This research attempts to develop a framework that describes the process to mitigate risk and facilitate project resilience. It strives to explore the different mechanisms that reinforce project success during high uncertainty. The paper is expected to advance the international development projects management by providing Higher Education Institutions with a set of guidelines that may be helpful for effective uncertainty and risk management of educational, multi-cultural, international projects.

2 METHODOLOGY

The main aim of this research is to put forth a clear understanding of how to manage international cooperation projects under uncertain situations, such as COVID-19 pandemic. The research seeks to answer the following questions:

1. How to manage project resilience during unexpected events such as COVID-19 outbreak?
2. What are the different mechanisms that reinforce project resilience during high uncertainty?

To answer these questions, this research utilizes case study approach to investigate project resilience during uncertain times. It advocates in-depth analysis to explore the management approach of international cooperation project. It is based on an Erasmus Plus project entitled "Boosting Innovation in Education and Research of Precision Agriculture in Palestine - BENEFIT". This case project consists of ten sub-cases (10 partners), that have an ultimate aim to achieve the BENEFIT project objectives.

The case selection criteria were primarily based on the project type (international cooperation project) and the start date of the project. The BENEFIT project has started during the COVID-19 pandemic; this will facilitate the investigation of the issue in more details. Indeed, international cooperation projects have been under increasing pressure to mitigate and control risks caused by COVID-19 pandemic. They have advocated new mechanism to manage international relationships to reinforce project resilience and to ensure the achievement of project outcomes. Although all partners follow the same action plan and seek to achieve similar objectives, these partners have slightly different governance structures, operate under different cultural norms, and follow different policies. Therefore, each partner in the consortium can be considered a separate sub-case.

Data was collected based on semi-structured interviews, both face-to-face and via Zoom, with the project manager/coordinator in each consortium member. A total of ten interviews were performed, each interview lasted at one hour. Main topics discussed during interviews were project progress, the challenges faced by the project manager and actions taken at different points in time, and the process to manage change in projects during the pandemic. Data was then analysed and themes were established. The results were compared to existing literature and the contribution was highlighted.

3 RESULTS

The research is based on a case study of an international cooperation project, "BENEFIT". Data was collected and analysed to explore the different mechanism and the process adopted by participating Higher Education Institutions to manage international cooperation projects during COVID-19.

3.1 Description of the BENEFIT Project

BENEFIT is an international cooperation project funded by the Erasmus Plus of the European Union (Project #: 609544-EPP-1-2019-1-PS-EPPKA-CBHE-J). It seeks to facilitate knowledge transfer between European (Slovakia, Greece, Bulgaria and Czech Republic) and Palestinian Higher Education Institutions in the field of "agriculture". In particular, the project focuses on the integration of smart technologies in agriculture, while developing a joint, contemporary, and flexible curriculum in precision agriculture. Smart and precision agriculture have the potential of producing yields more efficiently and flexibly, while at the same time reducing the environmental impacts.

The project consists of five work packages. Each work package contains a systematic build-up of activities. The work packages are established based on a systematic review of institutions' needs in Palestine and an intensive consultation with partners from Europe. The work packages are:

- WP1: Capacity Building & Training.
- WP 2: Development, Implementation and Deployment.
- WP 3: Evaluation & Quality Assurance.
- WP 4: Dissemination and Piloting.
- WP 5: Project Management.

The project coordinator facilitates the coordination and communication process among partners. In addition, the coordinator is responsible for communication and reporting to the funding agency. The project has established an innovative management structure that will ensure successful implementation of all activities and effective collaboration of all partners to achieve the intended results and impact. The hierarchical structure of the project is shown in Figure 1. Furthermore, the management bodies and their role are listed below:

- The Project Coordinator: coordinate the communication process, while managing and following up on the work package leaders to ensure timely execution of activities.
- The Project Management Board (PMB): ensure smooth flow of project activities, ensure the achievement of outcomes, and also responsible for conflict resolution.
- Steering Committee: follow up the execution of the different work packages.
- Quality Assurance Committee (QA): responsible for the preparation of the quality management plan. It is also responsible for establishing clear procedures to measure the quality of the project and its outputs.

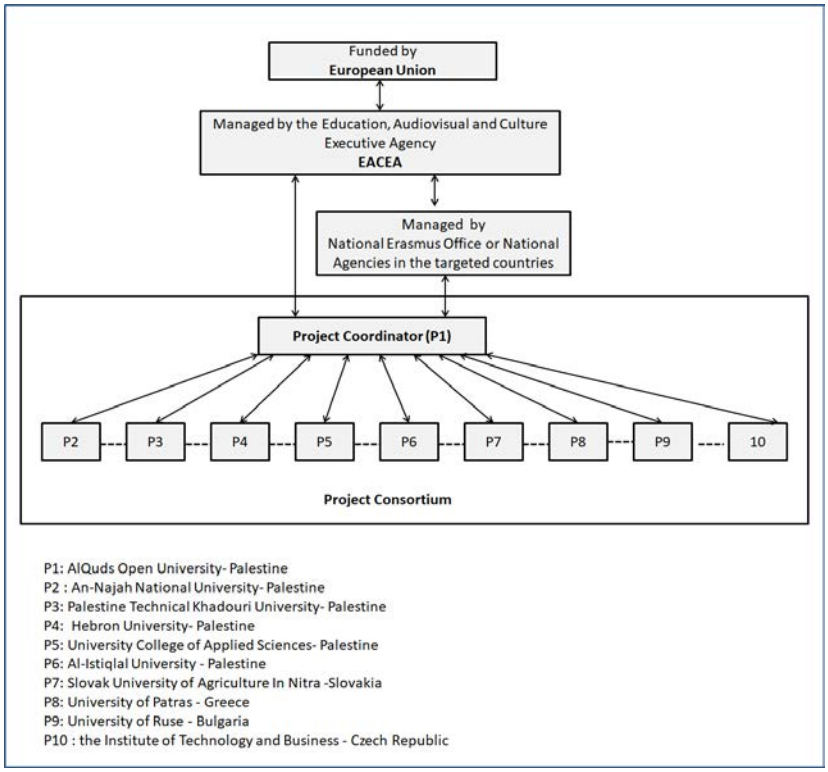

Figure 1: Project Management Structure.

3.2 Management for Resilience: The COVID-19 Uncertainty in BENEFIT Project

International cooperation projects run through different phases on their way to completion [2]. In the case of Erasmus Plus projects, these phases are: (a) Initiation, (b) Planning and proposal writing, (c)

Implementation/execution – if accepted for funding-, (d) Monitoring and evaluation, and (e) Project closure. These projects incorporate different expertise and skills over an extended period of time (up to three years). In addition, most projects have implementation teams in each institution. The team is assigned to the project and is led by a project manager responsible for the organization of activities, following up on team members, and gathering and validating project requirements. In this research we will focus only on the implementation/execution phase when the project progress is actually being achieved [2].

According to the analysis, uncertainties are divided into two major part, i.e. foreseen and unforeseen. Uncertainty had a direct negative impact on project performance [22]. The interviewees argued that foreseen uncertainties were detailed in the project plan and proposal, and the mitigation actions were well-established early during the planning and proposal writing phase. Plans were prepared as a mean to ensure the fulfilment of project objectives within a specific timeframe, quality, and cost limits [2]. In addition, the project manual was established early in the project lifecycle, and was shared with all partners. The manual states the different challenges and risks that might be faced during the project lifecycle. It proposes the procedures that should be followed if certain risks occur and mitigation plan to eliminate those risks. The Manual gives clear instruction to sustain continuity when known and foreseen risks occur. However, the interviewees believe that shifts and unforeseen risks in the external environment would impede the effective of planning and control approaches.

The project coordinator holds the responsibility to foresee potential issues and unexpected events, monitor the sources of uncertainty, and request change requirements if the issues become inevitable [2]. Indeed, departure from existing routines and established instructions will create anxiety among team members, which will impact project progress and productivity. In the case of COVID-19, contingent actions were established to address unforeseen uncertainty. These contingent actions resulted in changes in existing process and governance structure to ensure resilience and mitigate the impact of the COVID-19 pandemic on project progress and performance.

From the start of the COVID-19 pandemic, the EACEA has communicated clear instructions on how COVID-19 is affecting the different activities, what changes are taking place, and what help is available for project consortiums. The EACEA has adopted the progressive approach to manage the risk, which is focused on continuous adaptation to the unprecedented situation as it evolves. The agency has clarified and simplified the application of rules and procedures in collaboration with the National Erasmus Plus Office or the National agencies of the targeted countries. Indeed, flexibility measures have been taken by allowing replacement activities where the implementation of the project is impeded because of the coronavirus (for example, the unavailability of staff, inability to travel, impossibility of carrying activities due to the wide spread of COVID-19 in specific area).

The project coordinator has negotiated with partners how to deal the changes needed to mitigate the impact of the unexpected event. The consortium members, based on the instructions from the EACEA, have established a contingency plan. They have revised the existing plan and then proposed a new one with updated timeframe to execute the project activities. The revised plan was discussed with the Management Board as well as the quality assurance committee in order to approve the changes, e.g. changes in the timeframe, delays in activities, resource re-allocation. Detailed and extensive online meeting schedules have been established to closely monitor change and control project progress. These meetings stimulated information flow across the different implementation teams (exchange of experience), which is necessary to reduce the impact of uncertainty.

As a result, each institution has utilized its existing resources in a different way to keep the project on track. Changes to the initial plan are common during uncertain times, in particular for projects that extend over a period of time (three-year project in our case) [2]. The new plan was intuitive, i.e. depends on the past experience of the project managers, and goal-oriented. Goal-oriented approach is based on measuring productivity based on the achievement of outputs and outcomes instead of monitoring the actual work of team members. To ensure timely execution of project activities, the project consortium has developed an effective communication and coordination process to exchange practices and discuss project progress on regular basis. They utilized technological tools in order to discuss emergent issues and monitor the achievement of outputs.

The interviewees emphasized that risks during uncertain times should follow an adaptive approach, rather than following a strict risk management plan. This specifically true since COVID-19 outbreak was not only unforeseen, but also the impact on projects and when the pandemic will end is still unknown. Therefore, greater flexibility and adaptation should be encouraged and information sharing should be promoted in order to manage the situation and reduce its impact on the project progress.

However, the interviewees have emphasized that flexibility and adaptation require greater levels of empowerments and should be supported by web tool to enable project teams to communicate. The project coordinator has emphasized that the implementation team in each institution were empowered to make the necessary decisions to keep the project progress according to the defined schedule, at least as much as possible. Nevertheless, some of these decisions required re-shuffling of resources and activities [2], as well as the governance structure of the project at each institution. Changing the governance structure includes changes in decision bodies (involving staff with more technical knowledge), assigning new people to the implementation teams, and establishing new guidelines to control the project (e.g. movement to goal-oriented approach to follow up on team members).

According to the interviewees, effective communication and knowledge sharing among partners is vital to manage uncertain situations and allows rapid decision-making regarding the alternative actions in response to the emergent issues during execution [1]. In addition, knowledge and information sharing have helped in building team members' competencies and facilitated the integration of actions in overcoming unexpected situations [11]. Moreover, communication channels have facilitated the creation of a common frame of reference (a common understanding) among the different implementation teams.

The interviewees have highlighted that it is indeed difficult for the project coordinating team to develop formal plans and control mechanisms during uncertain events to monitor project progress. Implementation teams belong to different institutions and located in different countries, where face-to-face interactions are not allowed due to the pandemic. Therefore, the interviewees believe that promoting effective coordination and communication among the different teams, through formal or informal mechanisms, is more crucial during uncertain times [22]. Communication can promote different interpretation to deal with unexpected events, this is specifically crucial in international cooperation projects.

4 CONCLUSIONS

Based on a case study of an Erasmus Plus international cooperation project, this research strives to contribute to the stream of the literature exploring project resilience and risk management. It attempts to fill a gap in the literature by describing how project resilience can sustain and thrive during environmental variations [10]. The research brings a broader perspective to project resilience and offers an integrated framework for managing uncertain situation in international cooperation projects.

It is concluded that uncertain events negatively impact international cooperation project performance. However, the results show that projects that are subject to unexpected event should call for lower levels of formal planning and control and higher levels of flexibility, information sharing, interaction and collaboration. This appears to be consistent with the existing literature [11]–[13], [22]. It is concluded that the project consortium engaged in a number of practices in order to keep the project on track during uncertain situations, as depicted in Figure 2. The practices that have been observed are:

- Revision and Approval: the consortium have revised the existing plan and then proposed changes to cope with the uncertainty in the external environment. Approvals were taken internally (from the management board and quality assurance committees), and from the management/funding agency.
- Adaptation: since the end of pandemic and its consequences is still unknown, managers have continued to adapt to this unprecedented situation as it evolves. As a consequence, project activities have been rescheduled when possible, governance structure have been re-configured by involving new staff and applying new rules and procedures to follow up the progress of the project, and finally resources have been re-allocated across the different activities. Adaptation facilitates rapid decision-making regarding the alternative actions in response to the emergent issues.
- Goal-oriented monitoring: each project manager at each institution has followed a goal-oriented approach to monitor the progress of its implementation team. Goal-oriented approach focuses on the achievement of outputs/outcomes, rather than the actual work done by individuals, in order to ensure project resilience. Feedback loop have been established in order to adapt changes when needed.

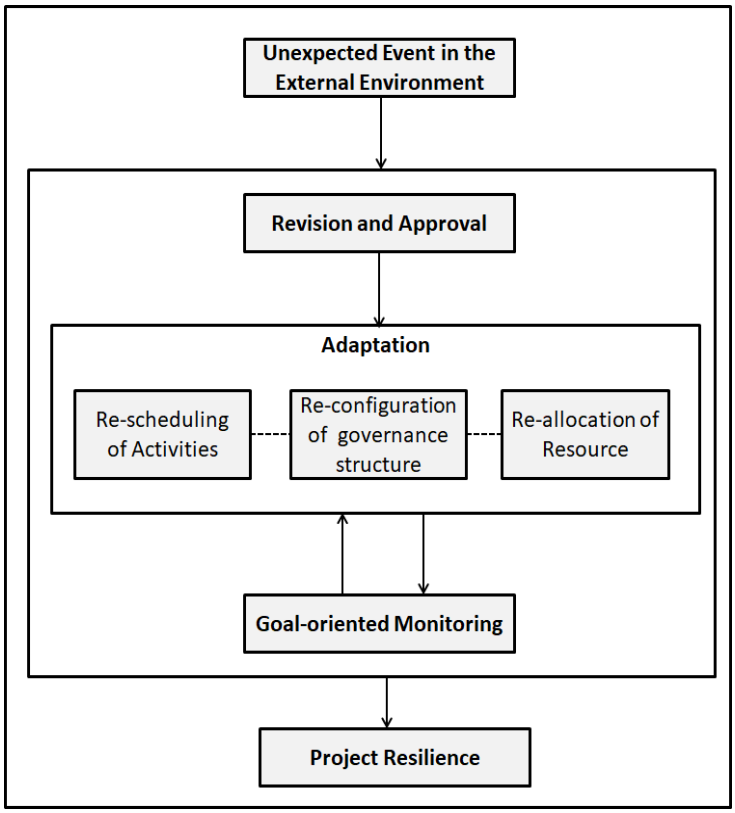

Figure 2: The Management Proces Followed by the Consurtium to Ensure Project Reslience During COVID-19 Outbreak.

All the practices above strive to mitigate risk and strengthen project resilience to be able to survive in the complex and uncertain environment. Greater flexibility, information sharing, and empowerment of implementation teams at each institution as well as effective communication are reported as being crucial during uncertainty. They facilitate rapid decision-making and alternative explanations to the unprecedented issues. These strategies allow the consortium members to think outside the established norms and procedures to execute the project and achieve high performance. Communication may include formal meeting schedule or informal approaches. It is important to gather more information and to include people with different knowledge to solve unexpected events. Frequent interactions between the project partners can facilitate knowledge transfer and promote a shared understanding of the issue.

Adaptation as part of the resilience strategy leads to constant state of readiness in order to quickly respond to dynamic changes in the external environment. These continuous adaptations will promote the project to return to the state of predictability. The utilization of an adaptive approach to project resilience allows the implementation teams to achieve the project objectives in more predictable manner as the uncertainty evolve overtime.

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