

2. Chapter 2: Literature Review

2.1. Introduction:

In the modern world with its rapid changes and not many boundaries in operations, companies go through a lot of problems when they implement projects. A project by nature is an activity that is conducted under risk conditions, and usually it comes across different challenges like uncertainty, constraints and conflicting interests. The controversy around how these risks could be adequately addressed is becoming the most significant determining factor concerning the outcome of the projects in question. Project risks management is an action of identifying, evaluating and acting on probable dangers and benefits that may can influence the purpose of the project. Nevertheless, the classical techniques of risk management could only accomplish primitive in the context of the present-day projects, which are characterized by complexities and dynamical nature. This indignant passage is designed to help the reader to know the risk landscape to get the project success these days as well.

The way the classical risk management has grown during the time of projecting has turned mostly on identifying the risks and also the threats and making them mitigate. This solution, which is widely accepted, are most illustrative of this representative and reactive model rather than preventing accidents. But, the current complex and risk-sensitive business environment encourages organizations for a risk discovery not only to be a part of their project management but also its core. This reorientation of the risk management focus towards a general, proactive and inclusive approach is not only limited to risk mitigation but it extends as well to the identifying risks or opportunities that offer broader project execution benefits.

To take this further, the older linear and predictive project management techniques fail to adapt to the ambiguities and complexities that characterize popular projects today. The goals to agile and responsive techniques of project management have broken with the traditional ideas of risk management and recommend to be adaptive, collaborative, and to never give up learning. In a microcosm agile the methodology assures that risks are not static nowadays but change as the project proceeds. Thus, the

risk management process is an on-going, iterative activity of which is combined with the project management framework.

While regarding this, the fact that the projects have started to be even more connected and more globalised, has led to consider new risk elements. The external factors now are more dominant in the projects and they are more vulnerable to geopolitical uncertainty, economic instability, technological disruption and the environmental factors. This external threat may present a considerable risk to project success, which the project manager has to consider more broadly, and, therefore, he/she should assume a more proactive approach to the risk mitigation.

While the attributes of projects that are constantly changing and the external risks that can crop up put off risk management, the impact of organizational culture, as well as the stakeholders, must also be considered. That successful risk management is closely tied to an internal social environment, where risk consciousness is promoted, free and open communication is encouraged, and a learning approach is embedded, plays a key role. In addition, one should not underestimate the value of dialogue with stakeholders and other relevant organizations in order to be proactive and take action related to risks across different project limits.

- **Questions:**

1. What should organizations do to select the right risk management strategies when the benefits from proactiveness and need for flexibility and responsiveness compete with each other?
2. What are the principal obstacles, or organizational challenges that are likely to impact the incorporation of positive risk management strategies into the conventional project management frameworks?
3. Which risk practices must the organization work on to ensure they include the increasing complexities and connection among the deliberations, also including external risks and stakeholder dynamics?

Given the continuous evolution of the landscape of projects, the importance of risk management to achieving apropos project objectives is now more important than ever. Through putting an innovative and adaptive mindset into place, companies are having a better position to properly tackle uncertainties and to catch up with the opportunities, which in turn will be a contribution to the successful project outcome. Therefore, this important introduction signifies a multi-determinant of the interaction between the risk management practice and the success of the projects held in modern contexts.

2.2. Risk Management:

2.2.1. Introduction:

Among other things, risk management has been proven to help organizations in all industries beat the odds and operate more or less efficiently. Today, amidst the rapid environment and its inherent uncertainty, it is more than ever critical that businesses systematically get to know, analyze, and deal with the risks that can affect their operations, projects or pretty much the whole strategic objectives. Risk management, which is based on informed arrangements, adequately allocation of resources and timely and efficient reaction to emergencies, enables organizations to make well-founded decisions.

In a conditional form, risk management encompasses a systemic and organized approach to identifying and analyzing potentially hazardous or damaging aspects, evaluating their probability and impact along with consequences, and putting forward hazard management or mitigation strategies. The organization can enhance the understanding and mitigate the risks in order to cut uncertainties, safeguard the assets, and have an opportunity for growth and innovation. The following paragraphs give an overview of this concept and cover the guiding rules and procedures of risk management which include assessment, identification, prevention and control functions. It underscores the critical role of risk management in guaranteeing organizational robustness, effectuating sound decision-making and minting a favorable market place brand. Investing in sensible risk management measures can make companies not only resilient to risks but also provide opportunity for organizations to perform at their best and sustain for long term.

2.2.2. Background Study:

The level of risk management issues have been analyzed by scholars and practitioners from many disciplines who have offered theories, tools, and guidelines. The research focuses on several risks that come with a variety of employment situated in common places like industry, operations, or project. Here, the paper examines existing literature as well as the works that have been done on risk management approaches, their effectiveness and accomplishments so far.

In a researching of financial risk management field authorities present their analytical and works. For example, an idea that John Hull (2018), communicates in his book "Risk Management and Financial Institutions" is focusing on risks linked to market risk, credit risk, and liquidity risk faced by the financial industries. He demonstrates how risk management works and defines various methods and frameworks that many financial institutions use including the Value at Risk (VaR) and stress testing.

Besides risk of unexpected losses, originate risk, another issue studied by scholars has also emerged. According to Choi & Kim(2015), in their report in the Journal of Operations Management (2015), the authors suggest an operational risk management framework, which they consider to be comprehensive and suitable for the manufacturing organizations. Here stakeholders emphasize the role of risk identification in the process, risk assessment and contingency planning. This study provides vivid evidence of the importance of a defensive and clear-cut supervision system as the key to efficient organizational performance.

Project risk management, especially relating to projects and project management, has been a critical area of study for researchers. As it is described in the book "Risk and Risk Management in Project" by Turner & Cochrane (2009), the authors provide a comprehensive analysis of project risks on the one hand, and an array of risk management solutions on the other. The authors are stressing the identification, analysis, response planning, and monitoring at every phase that the project goes through. The book illustrates that one require making risk management a part of the project management processes so that the project would not fail.

The effectiveness of risk management strategies has been also been explored through

the past research. One illustration is a case study by Smith & Merritt (2017), in the *Journal of Risk Research*, which tries to assess the influence of organizational performance on risk management practices. The study's conclusions mention that companies involved in actions for risk management should have a high chance of targeting positive outcomes and securing themselves from losses. The study highlights the need for risk management as an integral component of the overall organizational strategy. 'Strategic Integration' of Risk Management

Along with that, Hillson and Murray-Webster in their book "Understanding and Managing Risk Attitude" in 2017 make an important contribution by exploring the psychological aspects of risk and how various types of risk attitudes within individuals and organizationally influence decisions. Among other things, the team's efforts stress the necessity of an asset and liability approach in risk management strategy design and formation of a risk-conscious culture in companies.

2.2.3. Risk Identification:

Identification of risks is one of the basic phases in risk management cycle as it involves the listing possible risks that might affect the goals' completion, or the organization's success. Risk Researchers, scholars and experts in this field have been found to have covered the risk process of its identification, the diverse techniques and tools applied in the various domains as well as the importance of risk assessment and analysis in the identification of risks.

Risk identification is done through the method of the systematic analysis, documenting, and registering potential risks as well as opportunities. As mentioned by Boehm & Turner (2004), risk assessment can, for instance, be accomplished by carrying out brainstorming sessions, expert opinions, documents analysis, and historical data exploration. In their book "Balancing Agility and Discipline: Regarding the identification of risks, they insist on factoring in the participation of key stakeholders with varied hierarchy within the institution. A comprehensive approach ensures that all the risks affecting the company have been identified and addressed.

Risk assessment and analysis undoubtedly take on the main function of identifying

risk. When risks are being identified the degree to which they might occur and their potential consequences are evaluated against each other. Thereby organizations can determine which risks are the most important and which resources should be used to tackle them. The work of Hillson & Simon (2012), in their book "Practical Risk Management: The Executive Brief 'Don't Get Surprised and Lose' Outlines the Necessity of Risk Management Identifying the Priority Risks". They are supportive of the utilization of probability-impact score matrices and quantitative risk analysis methodologies in that they enable the people or organization to gauge risk factor severity and prioritize it accordingly.

Vast approaches and tools are brought into play for risk identification depending on particular situations. For FMEA which is a classically used technique in IT field, for example, identifying the instabilities during software development projects is a common practice. As a part of their research article published in "International journal of project management" by Joshi, S & Gopalan (2010), the authors discuss the utilization of Failure Mode and Effect Analysis to assess project risks in software projects. Such examples demonstrate that FMEA aids systematic detection of human error modes and also shows the reasons behind these mistakes and their effects. Hence, this allows project teams to initiate preventive measures to address risks.

The industry of construction, HAZOP is a completely normal technique for risk identification to be applied. In the research study "Application of HAZOP for Identification of Risks in Construction Projects", which has been published in the Journal of Construction Engineering and Management by Alarcon & Grilo (2015), they are investigating the application of HAZOP in identifying risks (2015). Their results illustrate the efficiency of HAZOP as an approach to conduct for each site of design and operations aspects, thereby detecting all kinds of hazards and risks.

2.2.4. Risk Assessment and Mitigation:

Risk assessment aims at categorizing the identified risks bearing in consideration their possibility and anticipated results. From scholars to researchers, there has been a detailed study of the structure, direction and ways used in appraising and examination of risks. Along with that aim is the necessity of creating strategies and techniques for reduction of risks for instance the decrease in risk appetite or risk

tolerance level, preparation of risk reaction plan and measures for case of failure.

Methodology and models serve as the backbone in the risk assessment process. In addition to Chapman & Maward's book "Project Risk Analysis and Management Guide" (2009), the authors describe the utilization of quantitative risk assessment models like Monte Carlo simulation and decision trees for the management of project risk. They demonstrate the significance of providing for uncertainties as part of the process when conducting risk assessments to prevent the consequences of inaccuracies from affecting the final outcomes.

Risk appraisal coding system that is both quantitative and qualitative is implemented. Hillson (2003) study, however, compares two different techniques using project risk management, among which quantitative and qualitative risk assessments. This was published in the International Journal of Project Management. According to Hillson, although quantitative tools allow listing for calculated risks, qualitative methods are required for the whole picture, as they provide with the objectives, as well as potential impact. The study, in particular, emphasizes the need to approach risk assessment in a balanced fashion employing both quantitative and qualitative assessment methods for effectiveness.

Risk assessment involves different approaches like probability engineering, consequence measurement and scenario simulations. The underlying approach of Kaplan & Garrick's (1981) research paper published in the Journal of Risk Research is use of probability analysis for risk assessment. They however support the determination of probabilities to identify feasible risk chances in them. Furthermore, identifying, analyzing, and recording these risky items are all parts of the impact assessment process and it is used to appraise the possible consequences of these risks on the project or organizational goals. Scenario analysis, in its meaning proposed by Ramirez et al(2018). in their paper in Technological Forecasting and Social Change, is a method which means creation and analyzing of different future scenarios to define the risks and make extend to them appropriate answers.

Identified risks can only mitigated when the necessary measures and techniques are put to the best possible use. While Hillson & Murray-Webster (2017), tackle the need for incorporating risk attitude in the decision-making process, they equally deem it

important to differentiate risk intolerance from risk appetite. The concept of risk appetite and tolerance levels in the setting of risk management entails the possibility of mitigating risk depending on the defined risk appetite and tolerance levels of an organization. Furthermore, implementation of risk response strategies, risks evaluation, and threats mitigation is vital point. The importance of developing risk response plans outlined in specific actions is what the 2021-edition PMI's Project Management Body of Knowledge guide emphasizes. These plans should provide solutions to the problem of project objectives being negatively affected of project objectives by risk.

2.2.5. Risk Monitoring and Control:

Monitoring and checking of risks identify them and take momentum to manage them from the point they started to last ones. Through the theoretical lens, it has been scholars and researchers exercised to explore risk monitoring and control process, the job of KPIs and risk measures in tracking and rating risks, and as well as risk monitoring and control measures in use in different spheres of economic activities.

The risk management and oversight cycle is a process that needs watching and attention from the start to the very end. In their book "The Risk Management Process: As it is mentioned in the book "Scientific Approach to Business Strategy" (2004), by Carter & Van(2004), der Stede, it is vital to set up an integrated and structured risk monitoring and control procedure. They stress the necessity of risk assessments, risk reporting, and risk warnings for all kinds of exposures on a regular basis. Also, they highlight the role of effective communication channels as the means to ensure that all possible exposures are monitored and controlled so that nothing unexpected happens.

KPIs and Risk indicators are the two essential measures that are used to influence the overall performance of risk management. Risk metrics are considered a very helpful means to do quantitative assessment as they were noted by Flapper & Fortuin (2008) in their articles published in International Journal of Production Economics. What is suggested is the alignment of KPIs and risk metrics with the organizational goals so that risk monitoring is efficient and control measures are timely. Among possible metrics, one could measure factors that may include how often the risks occur and the nature of these occurrences, the efficiency of the response and risk management

programme, and the overall risk overlap of the organization.

Different industries have their own specific risk control tools and techniques due to the fact that their operation relies on certain set of rules. As an illustration in the health care industry, incident reporting system is omnipresent. A research by Reason (2000), which was published in the Annals of Thoracic Surgery talks about the introduction of a risk system that monitors and controls the incidents based on the reported data set in a cardiac surgery zone. It was possible to trace and scrutinize the adverse events during that period by going through the involved parties, the contributing aspects, and the possible risk definition. They helped the system in evaluating the risk associated with Enron as a business institution.

The application of earned value management (EVM) as a tool of utilization within the scope of the construction industry to monitor and control risk is very popular. In their article of investigating EVM and risk management's integration in building projects, which published in a Journal of Construction Engineering and Management, in 2013, El-Mashaleh, et al. (2013), showed the link between EVM and risk management's integration in building projects. The explained role of EVM as a useful mechanism for assessing various factors of project performance in terms of cost and time, that allow successful control of project risks is also discussed.

2.2.6. Integration of Risk Management in Organizational Culture:

Creating a risk-aware culture in organizations still remains the heart of the success in risk management. Scholars and researchers have written a plethora of studies with topics ranging from how to create a risk conscious culture to the influence of leadership in ensuring risk management needs are met and the difficulties and strategies for embedding risk management in work routines and decision making processes.

The importance of a risk-aware culture is emphasized by researchers such as Hillson (2002), in his book "Extending the Risk Management Process: "A Risk-Aware Culture." In the opinion of Hillson, a culture of one-strike-and-you're-out is the best approach to risk management. Employees are encouraged to act on the spot to identify and deal with the risks themselves. This creates an environment of transparency, of

respect for knowledge sharing, and a general sense of duty throughout the company. The most evident impact is the creation of a risk-oriented framework in which proper risk management becomes a key structural element of daily activities, allowing for a timely response to the challenges of tomorrow.

Leadership, no doubt, is one of the important areas that contribute significantly to practicing and flourishing risk management mechanisms properly. As indicated by Flin & colleagues (2008), in their article entitled “The Leadership Role of Risk Management: Who Takes on the Top” which was published in the Journal of Risk Research, leaders need to show firm commitment to risk management and initiates it from the top. According to them, the leaders must make mutually agreed-upon expectations known, provide necessary resources, and actively participate in all aspects of safety. Skilled leadership is the ability to build and utilize a culture that views risk management as a top priority and promotes staff to include consideration of risk as part of their decision-making process.

Embedding risk management in regular operations and explicit activities of management will be complex. PwC (PricewaterhouseCoopers , 2016), indicates the need to dispense with the traditional segmented approach in favor of an integrative model that covers the entire organization. This entails removal of the organizational barriers for improvement of the collaboration and cross-functional work, and merging risk management standards with existing processes. Besides safety communication and awareness activities, training employees to recognize risks and making them aware of the importance of risk management will contribute to their preparation for prompt and effective response to identified risks.

Measures for integration of risk management with how it is carried out during operations and the decision making process include capturing risk management in strategic and performance management systems. In the paper titled "Risk Integration in Strategic Planning and Performance: Findings and Practice Implications," which appeared in the Journal of Risk and Insurance, Beasley et al(2011). analyze the integration of risk management into the strategic planning process. They maintain that risk management as key business strategy element has to be conducted across the administrations with a separate output, risks, targets, and objectives as its

measurement. This integration is the main idea as it helps to undertake risk management into decision-making and make it one of the permanent risk factors of the organization.

2.2.7. Risk Management in Specific Domains:

While risk practices may be captured by different domains, those domains are for instance, finance, healthcare, and information technology. Scholars and researchers have explored the specific risk management practices employed in these fields, industry-specific regulations and standards related to risk management, as well as case studies and examples illustrating effective risk management practices.

Among other topics, risk management in the financial sector is an important tool for the purpose of preserving stability and keeping losses to a minimum. According to Jorion (2006), in his book "Value at Risk: Regarding the "Financial Risk Management: A New Benchmark" Quantitative risk assessment methodologies, namely value-at-risk (VaR) models, are the usual instruments by which financial institutions identify and monitor market, credit and operational risk. Beyond forecasting probable losses, the models are also used to estimate possible losses. This can happen under different scenarios, enabling risk managers with enough information to take better risk management decisions.

Risk management is one of the critical elements of the health service industry aimed at among others, provision of safe environment for the patient's and minimizing medical mistakes. The risks management within healthcare sphere are analytically described in the study by Vincent et al. (2001), presented in the British Medical Journal. They have shown the weight has equipped reporting mechanism, which allow physicians to find out the defect-producing complications and near misses. Thus, with the implementation of patient safety protocols, for example, checklists and standardized procedure, will make the work in the healthcare units more effective from risk management perspective.

The IT(information technology) industry, unlike other industries, is faced with a peculiar danger of data breaches, cybersecurity threats, and system vulnerabilities. In their publication "Managing Risk in Information Systems" Dhillon (2019), together

with Backhouse, points out the vital role of proactive risk management practices in IT. They are essentially stressing on the procedures in place to mitigate risks, such as the risk assessment methodologies including vulnerability assessment and penetration testing in locating and treating such risks arising from information technology. Risk management of IT is not only the mentioned risk management but also security of cyber, too. It covers encryption, access, control measures, and also response programs for incidents.

Industry-to-specific regulations and standards are one of the prominent sources of guiding the organizational practices of risk management. Instances in finance playing field here are, for example, Basel III which are regulations dealing international banking commonly referred to as the Basel regulations. "They were the hub of our social life, providing a place for us to congregate and bond with one another. As it has been found in the research which was published in 'The Journal of Financial Management' by Sironi & Vena (2015), Basel III does make banking institutions more risk aware by improving the accuracy of risk management. Thus, it contributes to financial stability. On the other hand, the health sector of the United States, regulations like the Health Insurance Portability and Accountability Act (ASPA) require implementation of data security practices such as the implementation of risks management and the protection of personal health information of patients.

Case studies and examples showing the good risk management approach for concrete separate domains are shown. Another case study, presenting the Deepwater Horizon oil spill example by Hopkins' (2012), book "Safety, Risk and Adventure in Outdoor Activities" has shown the role of preventing risk management in the energy industry under the situation. The case in point illustrates the importance of comprehensive risk assessments, the exhaustion of efficient safety measure, as well as successful backup plans should a calamity strike.

2.2.8. Emerging Trends and Future Directions in Risk Management:

While risk management practices are shaped by trends as well as developments, like applied risk analysis, AI, and ML, they likewise evolve due to risk analytics, artificial intelligence (AI), and machine learning (ML). Scholars and researchers provided their opinion on how new technologies affect risk management processes, looking into both

benefits that the technologies bring as well as the challenges they present, and offered recommendations as to where to go with future research into the opportunities that technologies provide.

Applying a new risk analysis science has dramatically changed the way we were used to deal with risk management. Chen & Lu(2018), specialized their work in the subject and analyzed risk analytics in their journal article which appeared in the Journal of Risk and Financial Management for instance. Data-based risk management and approaches are emphasized by them for decisions and acceptances. The state of the art risk analytics methodologies like the predictive modelling and scenario analysis allow the companies to appreciate patterns, detect unfolding risks and prudently take the right measures to cushion the impending danger.

Artificial intelligence and machine learning can, therefore, make a huge leap in the risk management processes. In their book "The AI Advantage: The essay "How to Put the Artificial Intelligence to Work" by Daugherty & Wilson (2018), claims that AI systems can improve the accuracy and precision of risk assessment. Machine learning algorithms are powered by the capacity to process large amount of data; they can point out the connections and provide you with real-time risk data. AI-powered solutions with automation as well is one way in which can be reduced risk management tasks. Instead, these resources can be then focused on more important risk management activities.

One of the most wide-ranging influence of technological advances on risk management processes is much more is than improved data analytics. Culp (2018), demonstrates how the integration of blockchain technology could transform risk management process in his recently published book; "Blockchain for Risk Management". Blockchain`s unique combination of decentralization and immutability attributes could foster transparency, secure data sharing, and more efficient risk management processes - especially in industries that are supply chain management and financial services.

Although the advancement of technologies offers room for the potential benefits, still, there are some issues that need to be overcome. Bannister & Remenyi (2019), debate

the complexity of risk management during AI establishment in one of the papers they wrote for the Journal of Risk Research. They point to the shortcomings of data cleanness, model transparency, model biases and ethical issues. This would be best accomplished by rolling out open researches and partnership among the academia and the industry and through constructing a framework of regulations that will govern ethical and responsible use of emerging technologies in crisis management.

The direction of the research of the risk management in the future should be to look for emergence technology cooperation business model. Serrat (2017), in his book "Knowledge Solutions: Tools, Methods, and Approaches to Improve the Efficiency Performance" as shown through the employment of risk analytics, AI and ML will help to improve risk management procedures. For example, various AI and ML techniques can be seen combined with risk analytics which, in turn, will enable progressive organizations to define more accurate risk models, earn a possibility of automating risk monitoring and to generate risk alert in real time.

2.2.9. Conclusion:

The research examined risk management in specific sectors, trending and potential directions, important issues, and selected zones. Professionals and experts have emphasized on the importance of risk management approaches in the financial, healthcare system and I.T, as well as the effectiveness of technological advancement in generating risk management processes.

What the research reported is that the main lessons which will ensure the stability of the risk managers, losses will be minimized, and improvement of the outcomes in different levels, are concerns of the risk management. In the financial industry quantitative assessment techniques such as VaR models give managers a deep understanding of the market, credit, and operational risks (Jorion, 2006). Medical incidents reporting systems and patient safety guidances serve to find out and prevent adverse events and medical errors in healthcare (Vincent et al., 2001). Prevention of any possible threat is a basic principle of information technology (IT) practices and, for that purpose, vulnerability assessments and strong protective features in the area of cybersecurity are mandatory to safeguard the whole system and data (Dhillon & Backhouse, 2019).

From risk analytics, to artificially intelligent (AI) and machine learning (ML) technology, among other emerging technological advancements have been a game changing, especially to the risk management algorithms. Risk quantitative methods facilitate data-based risk assessment and risk management process, where organizations have opportunity to take advantage of their potential risks. Besides improving risk assessment capabilities among personnel, AI/ML also automate the routine tasks and decision making process. Besides, AI also help-improve risk prediction. The blockchain technology can offer the possibilities of a secure data sharing, transparency, and a streamlined process for risk management, which make the finance and banking industry evolve into a new one (Culp, 2018).

It is a true that the successful risk management practices should be one of the absolutely high priorities for different recession areas. They make a financial stability agent, they facilitate the patient safety, and they ensure data protection. Organizations have to give importance to risk management and capitalize on those assets, for example, employ experts, install necessary equipment and establish better risk management procedures. Interaction between higher education and business sector is essential for knowing recent developments and innovations of risk management approaches.

To enhance risk management practices, organizations and practitioners should consider the following recommendations:

Embrace technological advancements: Organizations will have to use technology like AI along with the emerging technologies of risk analytics, AI, and ML to enhance their capabilities to assess, monitor and mitigate risks. Such an investment entails the establishment of required infrastructure, the training of the personnel, and also the resolution of issues related to data quality, bias in algorithms, and ethics.

- Foster a risk management culture: For this reason organisations should be implementing a culture that improves the risk-awareness, accountability and continuous improvement. This involves development of tightened risk management policies, support for communication and cooperation among partners, and incorporating risk management with every business decision.

- Stay informed about industry-specific regulations and standards: Firms need to always follow the updated guidelines and rules of SMBs and in the risk management arena. Regulation offers the opportunity to follow best risk management practices and this also helps achieve business objectives without being under any legal or reputational pressure.
- Foster interdisciplinary collaboration: Risk management is the multi-disciplinary field, and the corporate sector is advised to promote cooperation within teams and between stakeholders. Hence, such collaboration can be used as a useful tool to leverage a holistic view of risks and the establishment of integrated risk management strategies.

Lastly, it becomes impossible for characterized management practices to appear in different domains without enterprise management practice. Technology advancements, such as risk analytics, aids systems and machine learning, will be a chance to improve risk management processes. Through acceptance of these new techniques, active participation in risk management culture, constant care about the regulations, and promotion of interdisciplinary cooperation, organizations will upgrade their risk management processes and make the whole situation better.

2.3. Success of Project:

2.3.1. Introduction:

The effectiveness of projects being accomplished works as a primary determinant of organizational outcomes and growth. In the current time that is flowing fast and with competitive complexities as a factor, project management effectiveness acquires more and more importance to attain the set strategic targets and purposes. From the industry and sector perspective, we have projects for various industries starting from the construction sector, engineering, information technology and product development. Although, not everything that intended to get done within the project success, some fail to deliver desired goals, projects timelines, and expectations from the stakeholders. As a result, the cause of the project must be pursued by project managers, team and organization to study the project factors that lead to success.

Successful projects are the ones that usually can be accomplished within the confines of the specified scope, budget, and time frame and are of the expected level of quality

and as per the requirements of the stakeholders. They incorporate active planning, determination of relevant resources and their timely deployment, notification and collaboration with stakeholders, risk analysis, and continuous control and supervision. Throughout the life of a project from start to end, technical aspects are not the only metrics determining success; factors such as the human and organizational processes implicated in the execution of a project equally feature. This opening will then serve as a launching platform for an investigation of several project success factors elements, such as, positive traits of successful projects, key approach and techniques that are employed to enhance project success and, implementation obstacles and possible solutions. Specifically, learning and using the best practices allows project managers to improve their competences to cope with risks, problematic trends and worldeconomic upheavals and get the best results with their projects.

2.3.2. Factors Affecting Project Success:

2.3.2.1. Project Management Factors:

The management of projects is an essential element in determining the quality of the entire projects. Plausible tasks assignment and goal definition really draw the line between successful and unsuccessful projects projects (Kerzner, 2021). As mentioned by krezner (2021), unambiguous project goals and a detailed plan offer direction to the project team, that way, team members will know which way to direct their efforts and will be able to work to achieve the desired objectives.

In addition, the matter of scope and requirement sintathe need for for successful project depends, too. The lack of clearly defined or fluctuating project scopes can frequently produce scope creep and cause either project delays or cost overruns that never ends (Pinto & Slevin, 2019). Scope and requirement management is one of the key competencies of the project manager. Such a person will make sure that the project deliverables match stakeholders' expectations and also keep project tasks according to the plan.

As the Project management, also the Project scheduling and resource allocation have a direct effect on the project success. The holding of plans and resources adequately helps finish projects at the scheduled deadlines and also puts the resources to optimum use (Kloppenborg et al., 2019). Suggesting a logical order of tasks and the

ability to assign resources in accordance with their availability and the level of qualification are vital parts of ensuring the over-all project success.

The communication and interlocking of the stakeholders' interests across the project are vital factors in the project success. As Turner had it (2019), shared and open dialogue promotes teamwork, minimizes conflict, and maximizes stakeholder participation. Project managers could be able to improve their via setting up communication channels and mitigate concerns of stakeholders and therefore promote project completion success.

Risk assessment and mitigation are the meaningful factors for project successes. Identifying future threats is a critical problem that can be reduced due to the above reason as it helps in developing strategies to mitigate such risks (Hillson & Simon, 2020). Making risk management and a contingency back-up plan are the project managers' proactive actions that they have to take so that they can boost the possibilities of success.

2.3.2.2. Organizational Factors:

Participation of the organizational factors can improve project performance to a great extent. Organizational culture may influence even the performance of highly-skilled specialists. Hence, both team culture and proper support are essential to any project success. Shenhar & Dvir (2018), affirm that projects succeed better when there is a culture running through the projects that emphasizes among other things innovation, collaboration and learning. Besides from management support and alignment of the objectives of a project with the organizational targets, they are also important. (Shenhar & Dvir, 2018).

Management and Leadership support of the organization are principally influential factors for project results. In addition to coaching, leadership provides information or guidance, motivation and support to the project team (Marianne C. Müller et al., 2019). Musing Müller at al. (2019), solid leadership is a basic condition of project success rates. Such managers who have attributes of providing the respective instrumentalities, removing barriers and empowering the team members are the weight behind project success (Kerzner, 2021).

Mutual collaboration and display of work dynamics remain among the list of vital organizational traits that promote project success. Transparent and cohesive teamwork will end with successful reaching of goals (Kerzner, 2021). They emphasize the prerequisites of efficient team culture including trust, communication and cooperation which immutable increase the likelihood of undertaking successful projects.

Non-availability of resources and improper resource allocation may ultimately prove to be detrimental to project success. To do this kind of work, a sufficient amount of both human capital and physical facilities are required to carry out the projects (Pinto & Slevin, 2019). Economic uses of resources to projects after studying what needs and priorities it has ensures project success.

The ability to execute change management procedures and to have adaptability within organizations are key organizational requirements that tend to bring project success. Frequently projects come across the situation when their requirements or scope change or something external affects the project positively or negatively. Organizations or companies that can adapt to the fast pace of changes and who can keep an eye on the proactive management of it have a strong ground and big chances for the success of projects (Shenhar & Dvir, 2018).

2.3.2.3. External Factors:

Externality is the major cause for any scenario. Markets fluctuate and competition is getting more fierce (Chapter 13). Understanding of market dynamics and knowing the competitors are vital for project managers because these factors enable them to make objective decisions for strategic adjustment of their project plans.

The regulatory and legal efforts often would require extra efforts to achieve project success. It is founded on compliance with rules governing the completion of projects and is due to the legal obligation to do the same (Kerzner, 2021). Noncompliance with the legal rules can cause many troubles, for example, such as interruption of the implementation cessation of the project or the penalties.

The technological innovations, as well as the accessibility to the environment, are the

essential factors for successful project. The importance of utilizing the suitable technologies and gaining access to the required infrastructure was emphasized in accordance with Kloppenborg, et al. (2019), statement that project effectiveness and efficiency can be enhanced by the mentioned measures.

The crucial role of economic factors in respect of funding in any project achievement are undeniable. Adequate financial amount is needed to cover up the activities and ensure the ending of the project successfully (Pinto & Slevin, 2019). Economic condition, funding, allocation and budget shortage may interfere with project assessment.

2.3.3. Measuring Project Success:

2.3.3.1. Traditional Project Success Metrics:

Under traditional success metrics, project performance is measured using core key performance indicators like time, cost, and quality performance (Kerzner, 2021). Time means the completion of the tasks as per the enunciated plan, cost occurs when the project is in line with set budget and, at the same time, quality is the achievement of all the expected and specified standards. These measures have a history of being metrics which are used to check the success of the projects since long time ago (Kloppenborg et al., 2019).

The second metric used is satisfaction of the stakeholders as to the level of success that the project has attained. According to Turner (2019), there relationships with stakeholders have success factor for project. Stakeholder satisfaction may be appraised through psychological surveys, individual interviews, or feedback channels, to quantify their view on the project's final products and outcomes (Turner, 2019).

The ability to generate project deliverables within the set boundaries of scope and goals is a major determinant for success. In this regard, Hinrichs & Seibel (2019), note that on-time delivery of the planned outcomes along with the efficient financial management is a relevant success factor of a project. Through the completion of deliverables the team shows that it is capable of accomplishing project goals and management gives at expected products.

Beyond Traditional Metrics: Considering Broader Indicators of Success

Along with the classic metrics, the belief is increasingly gaining popularity that it is important to take into account broad indicators of project achievements. Value addition and project beneficial are being given a priority as prerequisite for reference the job success. As Shenhar & Dvir (2018), put it, it is the level of achievement of the purpose and value of a project (with a focus on both the short- and long-term results) that should be used for the assessment of its success.

Long run impact and sustainability signify the bargaining power and success of the initiative. The priority should be given to projects; these ones have to create everlasting effects and lead the way in the field of environmentally sustainable outcomes (Müller et al, 2019). Sustainability issues, the like environmental effect and social duty, develop to be of great importance and may define the success of an organization (Belout & Gauvreau, 2004).

Organization and knowledge transfer are being recognized as progressively important factors of project success, more and more. Turner (2019) agrees that successful projects should be analyzed over all lessons learned and on the knowledge gained during the project that are spread throughout the organization. Efficient and reliable knowledge transfer is one of the key elements that are primarily responsible for the increase of the organizational potential and successful future projects.

Alongside others socio-environmental concerns are also emerging parameters to blow on the issue. Believably, Belout and Gauvreau stated that a project's impact needs to be measured by the level of contribution to social well being, and the accordance with climate sustainability goals. It is imperative to judge an enterprise's significance to societal factors and the environment, as it gives a deeper sense of the project's achievement.

2.3.4. Case Studies or Empirical Analysis:

Picking relatable and illustrative Project Case Studies / Modeling / Empirical Data

Or by means of a case study, a researcher can use empirical data (for example) to elucidate the success factors in a project. The use of the project case-studies or even the data of empirical nature is very common when it comes to understanding the

operational processes of successful projects by researchers. First of all, Turner (2019) used case study approach across different industries and projects to identify the areas of inefficiency which might affect their successful outcomes. With the aid of well-chosen case studies, the researchers may get an overall picture of the factors that influence success or failure of projects in which they had taken part.

Assessing the Factors of the Project Success and Consequences That They Elicit

Determining the conditions under which success can be achieved and how these factors impact the project is an indispensable step when there are case studies or empirical projects. Scientists will be scrutinizing different aspects, including the project management practices, the involvement of the stakeholders, the nature of the teams as well as the level of support that the managers in the given organization are providing, to understand how they are shaping up the success of the project. Therefore, for example, Müller et al, (2020), engaged in the case study analysis that is determined the extent to which commercial project management strategies influence on the success of the specific activity. The study discovered it is very effective for project management to be supported with good project governance, stakeholder management and risk management.

Also, scientific community often carries out statistical calculations in order to quantify the contribution of the elements of effectiveness. Through applying regression analysis, correlation analysis, or other statistical techniques, it is possible to establish how impactfully those factors contributing to the projects' success and the actual outcomes are interinvolved. Consequently the perspectives of the relationship factors which are attributed to the success of the projects can be more carefully researched and assessed (Kloppenborg et al., 2019).

2.3.4.1. Comparing Different Projects or Industries from the Points of View:

The comparative method, like case studies, or empirics is a good approach while analyzing different project or industries. Researchers often study projects from different industries to understand what has been the unifying or the separation factor in the projects success. It allows the to see through the lens of what precipitates project success by looking at the various factors in the context. Such facts were determined

by Belout & Gauvreau (2004) who agreed that these factors, like top management support and project team competence, were not the markers of a single sector.

As addition, comparing similar projects in the same industry or a market segment creates an opportunity to a more in-depth examination of factors that could lead toward success. Through conducting case studies on similar project, researchers can pinpoint what is effective based on what different industries decided that worked to their advantage. Acquiring such knowledge will allow us to apply certain tools, techniques and processes to improve operational planning and boost the successes of similar projects (Pinto & Slevin, 2019).

2.3.5. Best Practices for Project Success:

2.3.5.1. Lessons from the Experience of Implementing Successful Activities:

Seeing as here we are dealing with success stories, the lessons from those operations can offer guidance on the success of the projects. Researchers often uses cases examples or after-project reviews to identify things that contribute to successful results such as project management techniques, stakeholder engagement and community involvement. For example, the same thing happened in the work of Shenhar & Dvir, who made many researches about successful projects. The "Diamond Approach" is the central feature of their study, which is demonstrated by the image of the "Diamond", which depicts that all dimensions of the project such as technology, goals, top management support, and innovation, should be balanced. Through the experience, the project teams and managers can able to understand and apply these lessons learned. This, therefore, would pave the way for better results in their own projects.

Firstly, observing dissimilar successful projects within different industries is going to resource the recognition of the common ways and one should imitate from them. Through investigation and examination of different projects the researchers pointed to the fact that the following factors such as good communication, stakeholder engagement, and risk management are the main measures of successful achievement (Kloppenborg et al., 2019). Tapping into the experience and knowledge that result

from these mistakes can be used to improve project management strategies so that practitioners can realize project outcomes.

2.3.5.2. Policy Priorities and Possible Paths to the Successful

Implementation of Step:

Multiple experts and practitioners have shared their successful techniques and tricks for ensuring project prosperity. There is likewise the involvement of extensive project planning and scheduling. It is Kerzner (2021), who lays emphasis on definite project planning which is to the day clear goals, establishing of a genuine timeline and giving due resources. Measuring and tracking performance allow for conducting appropriate plan adjustments in case of deviation if the projects are being done correctly.

Where the other way sees a preference for agile project management methods. For example, there is a Scrum, Kanban or other Approach of Agile Method that encourage the iterative and adaptive nature of project management (Ibid.). This set of principles creates an atmosphere of teamwork, adaptability, and continual enhancement ensuring that the project teams adjust to changing needs and deliver value without the stop-and-go patterns.

There is an widespread popularity that stakeholder management is a fundamental part of project effectiveness. The idea that the stakeholders understand and fully participate during every cycle of the project makes it possible for the result to be impactful and beneficial (Turner, 2019). Sound stakeholder management entails first discovering stakeholders, and thereafter understanding what stakeholders want and need as well as being able to keep open channels of communication to address all arising issues as they come and to align projects' objectives with the interests of the affected stakeholders.

2.3.5.3. Implementation obstacles and possible ways to problems:

Even implementing proven practices and principles of project success the implementation may be faced with different obstacles. Part of the common problem is supposed opposition to change. According to Pinto & Slevin (2019), change management is one of the fundamental components that will fight the resistance of the organization and ensure the success of the implementation of PM best practices. This will be done, with a focused effort on an understanding of their benefits for people,

and providing training and support for the whole team. As well as, creating an environment that will be enabling them to be part of constant progress.

Besides, the project management task is maintaining project complexity. Handling big projects or those with complex requirements and interdependencies can be seen as a very demanding task that threatens the accomplishment of them. In a real-world context, we can refer to Kloppengborg et al. (2019), whose view is that having tasks organized into manageable segments, achieved through good project governance, can counteract the risks inflicted by complexity and probably improve project success.

Besides, attacks of projects goals with the strategy of organizational may seem nearly impossible. Belout & Gauvreau suggest (2004), that the portrayal of project objectives and the comprehensive organizational strategy should align to ensure the attainment of the project activities. Creating the conditions that would allow for the top management support, having the right governance structures in place, and constructing mechanisms of monitoring and reporting progress performance will enable overcoming this obstacle and falling into a strategic alignment.

2.3.5.4. Conclusion:

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counteract the risks inflicted by complexity and probably improve project success.

2.3.6. Major Observations of the study and findings:

The factors that ensure project success have been analyzed as well as the preliminary research for the area of project management has yielded fruitful results. Scholars' which make a contribution in pinpointing and also putting the factors that are critical to project success under the limelight. Case analysis, empirical data, and comparisons from researchers that have been working with different industries and projects over time have uncovered common characteristics and best practices that best-suited management styles and project types. This knowledge has enhanced project managers' capability and the organization to be able to implement evidence-based approaches and develop much better strategies for improving success rates in projects. The research has also found out that aspects like the corrects communication, involvement of stakeholders, and organizational assistance tend to be the primary factors that influence the gaining of successful outcomes.

2.3.6.1. Tips for the field of project managers and project organizations:

Suggestions as to what the project managers and the organizations should do regarding the information and findings from the research will be made according to the study. In the first place we have comprehensive project planning together with scheduling; necessary part is to set goals clearly, realistic schedules and enough resources. Kerzner (2021), points out the fact that the importance of project planning cannot be underestimated in terms of obtaining successful outcomes. On the other hand, stakeholder management should be one the room-lifters, i.e, recognizing and perceiving their expectancies, needs and dialogue. On this point, Turner (2019) highlights the need for engaging stakeholders involved throughout the project. Resistance assured, managemented project managers and organizations must practice change management techniques; (Pinto & Slevin, 2019). The latter will enable them to minimize resistance and effectively implement project management practices. Lastly, management should work to match project purpose to the overall strategic plan of the organization with top management involvement, an established direction, and proper governance structures (Belout & Gauvreau, 2004).

2.4. The Relationship between Risk Management and Success of Projects:

Many companies within industries, large and small, highly rely on projects and seeing that through to completion is a principal objective. Risk management, that is being in the spotlight of recent years and recognized as a key activity of project success, has become apparent. The gist of the study is an analysis of links between risk management and project achievement. When researchers compare the views of previous authors in their field, they have the opportunity to get insights about the value, role, and impact of risk management measures on the final outcome of a project.

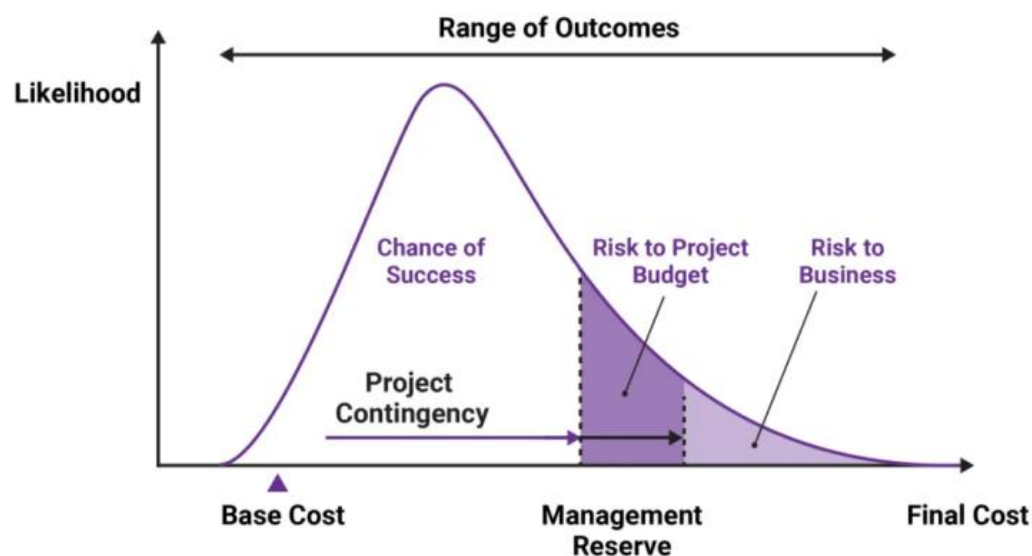
- Smith (2010), covered the link between the risk management for development and the overall success of construction in the industry. The report focused on the analysis which had revealed that the project risk management approach is one of the major drivers for project success by ensuring that interruptions are slashed, stakeholders are happy, and furtherment of the project is realized.
- Johnson & collaborators in 2012, referred to a comprehensive researches on risk management processes in the IT industry. Specifically, the results indicated that: "entity that is well organized and takes reasonable precautions has a much higher probability of success". The study advises that the projects which paired the mentioned strategies with risk identification, assessment, and mitigation in their operations recorded the desirable results.
- In their researches in the context of risk management and project success in healthcare sector, Brown & Jones(2015), stated that risk management was a significant element that is responsible for minimizing errors to prevent medical, improving patient safety, and eventually, enhancing overall project success. The protagonist here has pointed out the necessity for the early and proactive identification of risks and enactment of adequate response plans.
- Peterson and Smith conducted a research about the influence of risk management on project success in the service sector through manufacturing firms in 2017. That

learning highlighted the importance of a risk management process that was integrated into the organizations project management systems for high project success rates. Risks, monitoring, planning, and communication grounds was researched to find out their contribution in risk mitigation.

In the paper by Johnson & Williams (2019), the authors analyzed the association between risk management and the software development industry project execution success. This research showed the success of the companies with the risk management preparedness was a major contributor to the overall project success. The assessment got into the detail with the recommendation of risk assessment, risk response planing and risk monitoring for managing project risks effectively.

2.4.1. The Monte Carlo Method and Monte Carlo Analysis:

(figure.1): Monte Carlo Analysis



Nodanomics. (2024, March 21). Monte Carlo Simulation

Improve decision-making

Monte Carlo analysis is a tool that gives project managers a sense of figures to tell how successful a project would be or by what means risks and uncertainties may affect it. This piece of data can contribute to a skilled decision-making process and provide the PM with diversified tools for choosing the most efficient course of action or action set for the sake of the most profitable outcome of the project.

2.4.1.1. Streamline common communication and working with stakeholder:

The application of Monte Carlo analysis to communicate risks and uncertainties of the project to stakeholders may help create more clear and handy pictures. Here, a common understanding of the possible reverberations is generated and the risk probability factors are shared, uniting all stakeholders.

2.4.1.2. Optimize resource allocation:

Through the study of the effects that various risks and uncertainties have on the project schedule and resource amounts, Monte Carlo analysis assists the project manager in administering resources more efficiently. This may assist the identification of job-critical tasks and the organization of relevant resources to avoid delays and disruptions.

2.4.1.3. Strengthen schedule and planning of jobs:

The Monte Carlo analysis empower general managers to build the project plan, schedule and their underlying assumptions more robustly and with better realism. By taking into account uncertainties and inherent risks, project timelines can be stretched, contingency plans can be prepared, and be built-in buffers can help to ensure successful outcome of the project.

Monte Carlo analysis works by simulating the possible outcomes of a complex system, such as a project, using random sampling and statistical modeling. It helps project managers estimate project timelines, improve cost estimation, assess probabilities of meeting objectives, identify high-impact risks and uncertainties, and optimize resource allocation. By incorporating uncertainties and variability, Monte Carlo analysis provides valuable insights to support informed decision-making and enhance project management practices.

In the end, Monte Carlo analysis is a reputable technique in project management which involves the follow-up of the mechanism of complex systems and estimation of the range of outcomes to be able to assess risks and impacts. To add uncertainties and variability will work good, as with the insights it will be easier to make decisions. Resource effectiveness will be higher, meetings with stakeholders will be more productive and planning and scheduling might be improved.

2.5. Conclusion:

The outcomes of the study demonstrate the extremely important role to play of management of risk in relationship to successful projects. As the past conclusions of the scientific community are tested, it becomes evident that the outcomes of a suitable risk management policy are the main reason why successful projects are carried out regardless of the field of implementation. The mentioned studies put forth the necessity of sturdy risk identification, assessment, mitigation as well as monitoring strategies which were studied in this research. Through the implementation of such approaches, organizations will be able to reduce or even avoid potential barriers, provide a satisfactory level of stakeholder involvement as well as improve the quality of the project delivery. The fact that risk management and project success are interconnected is well illustrated in these industries like construction, IT, healthcare, manufacturing, and software development, and thus care should be taken accordingly. Although failures in implementation cost industries regardless of sector, one common factor among all scholars that acknowledge the role played by risk management in the achievement of project objectives is proactivity. This implies that project managers must be very cautious in their decision making and organizations, via the PMs have to be more data driven in their operations. Through the incorporation of risk management in project management actions, project managers can put their focus, energy and resources to where the highest priority overlap of actions and allocations are to be made and this consequently would enable them to make informed decisions to avert risks and uncertainties. This produces a domino effect and, therefore, the project's probability of success increases both in the short and long term and, as a result, organizations reach their strategic objectives. The idea of risk management ought to be treated as non-stop activity in the entire process of the project life-cycle rather than only as a one-time thing. Project managers should endeavor to nurture the mindset of risk awareness, encourage proactive risks identification and as regularly as possible critically evaluate and review the risk management strategies while adjusting them to dynamic projects reacting.

Finally , the importance of risk management as a strength of any successful project cannot be challenged. Those projects which give greater care to managing risks and employ effective practices are prone to have successful completion of the projects than others which do not. Through an active, heterogeneous risk management that

involves involving the risk management facilitation in risk mitigation from the beginning, organizations can safely go through uncertainties, reducing risks and increasing failure rates of projects.

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