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# L’impact de la GRH sur le succès des projets : revue de littérature et synthèse

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# Résumé

La gestion des ressources humaines (GRH) comprend les pratiques et les politiques destinées à gérer le capital humain dans le but de la réalisation des objectifs des organisations. La GRH a été reconnue comme un déterminant important de la réussite des organisations et de leur compétitivité durable dans un monde en mutation. Au cours des dernières décennies, la structure des organisations dans de nombreuses industries différentes a changé de façon spectaculaire. En particulier dans les secteurs à forte intensité de connaissances, les organisations sont passées de structures permanentes à des entités qui ont de plus en plus recours à des projets pour atteindre leurs objectifs. Les projets sont des tâches complexes qui peuvent faire appel à un large éventail de compétences pour atteindre un ensemble prédéfini d'objectifs approuvés par les parties prenantes dans un temps et un budget limité. Les caractéristiques inhérentes aux projets, telles que le caractère temporaire, la complexité, l'incertitude et l'interfonctionnalité, à tous les stades, de la définition du projet à son exécution, imposent des défis et des opportunités uniques aux membres de l'équipe, aux gestionnaires de projet et aux autres entités chargées de la mise en œuvre des politiques de GRH. Tout en permettant à l'organisation de bénéficier de la plus grande expertise pour effectuer des tâches hautement spécialisées et en permettant au personnel d'apprendre continuellement en participant à différents projets, les défis des projets peuvent conduire à la perte de capital humain et à l'échec s'ils ne sont pas gérés de manière appropriée. Néanmoins, compte tenu des différences considérables entre les projets et les environnements de travail traditionnels, les pratiques de GRH peuvent-elles encore être pertinentes et déterminantes pour la réussite des projets ? De plus, quels sont les défis spécifiques aux environnements de travail des projets qui doivent être pris en compte dans la conception et la mise en œuvre des pratiques de GRH pour les équipes de projet ? Dans cette recherche, la littérature disponible est analysée afin de mettre en évidence les aspects distinctifs de l'environnement de travail basé sur des projets et d'évaluer si et comment les pratiques de GRH peuvent déterminer le succès des projets et des organisations.

**Mots-clés** : GRH, Gestion des ressources humaines, Projet, Gestion de projet, facteurs de succès

# Abstract

Human resource management (HRM) comprises practices and policies designed to direct the human capital toward realizing the organizations' goals. HRM has been acknowledged as a significant determinant of organizational success and sustainable competitiveness in the changing world. Over the past few decades, the structure of organizations in many different industries has dramatically changed. Especially in knowledge-intensive sectors, organizations have shifted from permanent structures toward entities that increasingly employ projects to reach their goals. Projects are complex tasks that can involve a wide range of expertise to reach a predefined set of objectives approved by the stakeholders over a finite time and budget. The inherent characteristics of projects, such as temporariness, complexity, uncertainty, and cross-functionality, in all stages from project definition to implementation, impose unique challenges and opportunities for the team members, project managers, and other entities in charge of implementing the HRM policies. While allowing flexibility for the organization to benefit from the highest expertise to perform highly specialized tasks and allowing personnel to learn continuously through participating in different projects, project challenges can lead to loss of human capital and failure if not appropriately managed. Nevertheless, considering the dramatic differences between project and traditional work settings, can HRM practices still be relevant and determinant in project success? Moreover, what challenges specific to the project work settings must be accounted for in designing and implementing HRM practices for project teams? In this research, the available literature is analyzed to highlight the distinguishing aspects of the project-based work environment and evaluating whether and how HRM practices can determine the success of the projects and the organizations.

**Keywords**: HRM, Human resource management, Project management, Project-oriented organization, success factor

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# List of abbreviations

HRM: Human resource management

PM: Project management

*To my family*

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# Introduction

The strategic importance and efficiency of human resource management (HRM) in contributing to the organization's financial success has been a subject of intensive research among executives, stakeholders, and scholars alike (Belout, 1998; Belout and Gauvreau, 2004; Boxall and Purcell, 2011; Huemann et al., 2018; Keegan et al., 2018; Markoulli et al., 2017). HRM improves organizational competitiveness, the employees' work experience, engagement, well-being, and the employment relationship contributing to organizational success in reaching its goal (Albrecht et al., 2015; Guest, 2017; Lamba and Choudhary, 2013). The temporary organization has become increasingly prevalent and a trend towards the 'projectification' of the society has been identified (Jensen et al., 2016; Schoper et al., 2018), which suggests that more tasks are performed through projects. Midler (1995) defined projectification as a rising interest of the organizations to use projects as their functional structure. In the past two decades, projectification has been growing in different industries and has become a norm (Schoper et al., 2018). Accordingly, project-oriented organizations utilize temporary projects to achieve their goals.

There are several reasons for adopting project-based work structures. A project work setting can speed up product development, such as through knowledge integration, which is vital in today's economy. The shorter life cycle of the products significantly reduces the lead time for getting new products into the market (Wheelwright and Clark, 1992). Another trend that highlights the importance of a project-based work structure is the fast evolution of knowledge and expertise. The formidable volume of information generated in technical fields has made finer specialization with emerging new fields and subfields inevitable. With proliferating technical knowledge and specialized jargon, staying current and keeping up with other fields of application has become difficult for professionals. Therefore, highly specialized professionals tend to collaborate in integrative development projects (Edmondson and Nembhard, 2009).

Consequently, product development has turned into a fast-paced, interdisciplinary endeavor. As a result, different organizations use projects to achieve their goals, including developing innovative solutions, responding flexibly to the changing needs of clients and integrating different types of knowledge and skill (Hobday, 2000; Jamieson and Morris, 2007; Wald et al., 2015). Whether in

project-based or traditional organizations, projects impose specific challenges and requirements on the HRM practices that are different from those related to traditional work settings, such as differences in turnover of the employees (Samimi and Sydow, 2021). HRM practices impact the project performance, and therefore the performance of these organizations. However, most attention has been focused on permanent structures, and our understanding of how the HRM practices contribute in the context of temporary structures remains underdeveloped (Björkman et al., 2014; Khan and Rasheed, 2015; Markoulli et al., 2017). This is significant because HRM contextualization, that is, adapting HRM practices to the unique characteristics of the organization, has long been recognized (Hendry and Pettigrew, 1990).

# Chapter 1: Research question and objectives

## 1.1. Background

Project-based work settings have become common, functioning as an agent of change to meet the dynamic needs of today's society and to create economic value for the organizations (Lundin et al., 2015; Turner and Müller, 2003). Organizations use projects to provide products and services to their external customers and to achieve their internal goals, such as continuous development (Bakker, 2010; Welch et al., 2008). A significant part of the global GDP is expected to be produced in projects. For instance, Wald et al. (2015) suggested that the share of project hours in total work time in Germany to have increased from 29.3% to 34.7% from 2009 to 2013, which is speculated to only increase exceeding 40% by 2019. Similar assessments were made for other countries (Schoper et al., 2018). Therefore, proper management of projects has considerable economic implications. The appeal of the project-based approach is that it can deliver change in a fast and flexible manner that surpasses traditional organizational processes (Turner, 2009). Given the prominence of adopting practices that ensure organizational success, HRM, as a core component of the organizational structures, becomes scrutinized in its functions and contribution to achieving the organizational goals. The determining role of HRM in the success of permanent organizations is relatively well established (Dulebohn and Martocchio, 1998; Newell et al., 2004). However, the project context alters the working conditions of the project members, such as the interpersonal relationships with their colleagues compared to those in traditional organizations. HRM contextualization is crucial. With projects taking center stage among possible work settings, in-depth analysis of the effective HRM practices in project environments has become increasingly relevant (Engwall, 2003; Engwall et al., 2003; Keegan and Den Hartog, 2019; Samimi and Sydow, 2021). Such studies will be relevant to project-based organizations that function solely through projects such as R&D sectors and organizations with hybrid structures that combine project and non-project working modes. In the present theoretical reflection, we first review the definition of the project and its characteristics. We then explore the specific HRM practices that are required for achieving project success.

## 1.2. Research questions

How the structural changes resulting from the projectification trend have affected the HRM contributions in project-based or project-oriented environments remains less well understood. This question is very relevant when constant changes and fast-paced competition require organizations to employ all the tools at their disposal to ensure the adaptability and responsiveness required to survive. Intriguingly, despite the high significance of the HRM for organizations, there is still no consensus on whether and how its practices contribute to project success. Some researchers consider HRM as an essential factor in project success, while others attribute only little significance, if any at all, to the HRM in this regard (Barczak and Wilemon, 1992; Belout and Gauvreau, 2004; Ebtehaj and Afshari, 2006; Kerzner, 2017; Meredith and Mantel, 2009; Pinto and Prescott, 1988; PMI, 2008; Tampoe and Thurloway, 1993; Thamhain, 2004b). These diverging views warrant studies aimed at evaluating the particularities of the project work settings and the functioning of HRM within these environments.

The present research briefly explores three main questions: 1) What factors influence the project success? 2) What are the challenges that the HRM practices must overcome in project work settings? And 3) Does HRM contribute to the project's success? To address these questions, I first explore the definition of the project, its characteristics, and the related opportunities, risks and challenges. Then the concept of the project success is outlined, and its contributors are explored. Further, the role of HRM in the success of traditional permanent organizations is briefly reviewed. Lastly, whether and how HRM can contribute to project success will be discussed.

# Chapter 2 : What is project management?

## 2.1. Project management and its significance

The introduction of new projects in the organization requires different management techniques than those typical of traditional management. The project management techniques are helpful to handle the project as a complex, unique and unfamiliar task enabling fast decision making and adaptability to the ever-changing environment leading to innovation, knowledge integration, and problem-solving that arise in the project work setting. The project management encompasses practices related to defining the work requirements, planning and controlling the allocation of the required resources, monitoring the execution and progress of the work, correcting nonconformities, and ensuring that the project goals are achieved cost-efficiently.

Studies have suggested benefits for project management, including increased cost savings, investment returns, efficiency, customer satisfaction, and improved resource allocation (Lappe and Spang, 2014). There are also intangible benefits associated with project management, such as improved organizational culture and increased HRM efficiency and transparency (Kerzner, 2017; Mark Mullaly and Thomas, 2008). For these reasons, modern organizations are more invested in developing project management techniques to ensure the success of projects. It should be noted that, however, that project success and project management success are not identical. To better understanding these concepts, first, the concept of the project must be outlined.

## 2.2. Definition of project

The notion of the project was conventionally associated with a physical structure, product, or service that was designed based on scope, cost, and time to meet a set of goals. However, with the emergence of new fields, such as IT, the project concept has lean toward a value-centered mindset, including processes that produce beneficial outcomes for the stakeholders (Winter et al., 2006). Here, two major perspectives on project definition are presented that were deemed helpful for subsequent discussions.

Projects are unique, new, and unknown tasks that, by imposing different work settings, lead to changes in the people's daily lives and living conditions (Belout and Gauvreau, 2004; Pinto and

Prescott, 1988). Projects are subject to strict deadlines and require resources and proper organizational structures and management (Andersen, 2010). Cleland and King (1983) developed the first theory of project management termed the 'iron triangle', which suggests a project to be as a temporary matrix yielding results under constraints of time, cost, and scope set by the permanent organization. The permanent organization provides the resources and sets the project management methods applied through the project's life cycle. The triple constraints are often regarded as critical parameters of the project success and are known as the traditional project management framework (Fortune and White, 2006; Müller and Turner, 2007b; White and Fortune, 2002). These constraints are typically interrelated. The framework allows fine-tuning of project details based on the feedback from the participants as the project proceeds and issues arise. It also provides a means to measure the project's success as triangle vertices represent criteria against which the project can be evaluated (Jugdev and Müller, 2005). The resulting simplicity and flexibility have perhaps contributed to the lingering success of the iron triangle. Despite these, Cleland's iron triangle has also received its share of criticism. These include whether other criteria could be placed on the vertices or whether it oversimplifies the concept of the project, such as by considering the project as a protected and isolated event ignoring the role of context and the environment (Engwall, 2003; Pollack et al., 2018; Van Wyngaard et al., 2012). For instance, it is suggested that the concept of the iron triangle might be based on an artifact arising from the project managers' desire to control the project outcome, leading to a simplistic model with respect to the 'lived experience' of the projects (van der Hoorn and Whitty, 2015).

According to a more contemporary perspective, projects are considered as temporary organizations, besides the permanent components of the organization (Andersen, 2010; Gareis, 2005). A temporary organization is formed of a group of often interdependent organizational actors with the goal of accomplishing a complex task (Burke and Morley, 2016). While detailed definitions can vary between sources, temporariness, which is based on meeting a predetermined date, a set of goals, or conditions, is the main feature of these organizations (Bakker, 2010; Bakker et al., 2016; Lundin et al., 2015; Lundin and Söderholm, 2013). Lundin and Söderholm (1995) proposed the projects as temporary organizations with the four key characteristics of task, team, transition, and time that set them apart from other organizational types such as permanent organizations. Based on the "four Ts" model, a project is characterized by being limited in time, e.g., a deadline, aimed at a specified task, achieved through a team, and entailing a transition

between before and end states (Gustavsson and Hallin, 2015). Similarly, Gareis (2005) defines a project as a temporary organization to carry out relatively unique processes within short to mid-term timelines and medium to large scopes. Others, such as Turner (2009), define the project as a temporary organization that utilizes resources to produce a beneficial change with a vision of an end state upon which the organization is disbanded. What all different definitions have in common is that the project is evaluated based on its organization, value creation, and its context rather than the mere accomplishment of a predefined task (Huemann et al., 2018). From this perspective, the literature identifies several types of organizational structure in which the projects can be initiated. Functional or traditional organizations have a well-established permanent structure providing support and resources to the temporary organization, the project, to achieve its goals. Another type of organizational structure is the project team which is temporarily created to achieve the project goals and disappears upon project completion. This temporary organization is independent of the permanent organization and the project manager has a high degree of autonomy. A third organizational type is the matrix structure that combines permanent and temporary organizations that function more or less independently. The permanent divisions, such as the project portfolio or the project management office, support the temporary organization and provide the required resources for the project's success. In this type of organization, the project manager has more autonomy than the functional manager, although the project still utilizes the resources of the functional organization.

## 2.3. The characteristics of projects

The literature seems to agree on some specific characteristics for the projects. These characteristics are important because their identification allows assessing the challenges associated with them for project workers. The first characteristic of the project is *temporariness*. When a project is initiated, the team members, including contract workers and consultants, will be assigned part-time or full-time to the project. The assignment can happen at the beginning or during different phases of the project cycle based on the required skills and the ability of the employee to contribute to the project. Similarly, the employees' participation in the project ends when they reach the limit of their contribution to the project, and they may move onto the next project for which their skills are required. The temporal nature of projects creates a dynamic work context that can vary depending on the organizational needs, for instance, leading to the allocation of individuals to work with

different people on multiple projects. Therefore, the flexibility of the project workers and their ability to move quickly across team boundaries is an essential factor for the organizations because it allows projects to be staffed by appropriate specialists and promptly. *Complexity* is another characteristic of the project. An exclusive definition for the project complexity might not be possible. But considering the project as a multicomponent system, the complexity arises from manifold participants with varying functions, their interactions and interdependencies, and the involved decision-making processes (San Cristóbal et al., 2018). Complexity increases by the number of the project components rendering forecasting the future requirement of the project challenging (Vidal and Marle, 2008). These call for management by integration, coordination, communication, and control over the project elements. Adversely impacting the predictability of the system behavior as a whole, complexity leads to a high level of *ambiguity* and *uncertainty* that are two other characteristics of project work settings perceived by the team members. Organizations use projects to respond to unpredictable market needs. This is significant within new product development teams. Hence, the members working in these teams must deal with the uncertainty and ambiguity due to the project complexity as well as the characteristics of the environment particular to their project type (Edmondson, 2003). The project complexity and the uncertainty and ambiguity of the project's environment lead to a characteristic termed *dynamism*, which is inherently related to change and its consequences throughout the project life cycle. Yet, dynamism and complexity are not identical. For instance, a particular project could require advanced technical expertise, yet these requirements may remain stable over time, leading to a complex yet stable project and vice versa (Butler et al., 2020). *Fluid boundaries* are another characteristic of the project team. One of the reasons the projects have gained their significant role within organizations is their capacity for problem-solving and innovation enabled by knowledge integration when project participants from different fields of expertise work together to achieve the project goals. In such a work setting, the flux of information and knowledge within teams and divisions becomes a necessity. Fluid team boundaries allow project members to join the team when their skills are required and exit when their contribution is not further required. *Virtuality* is another characteristic of the project and is more prevalent within the project settings that necessitates different experts from different departments or even different organizations to collaborate on the same project. The use of projects has gained much attention to speed up product development to increase organizational competitiveness. *Cross-functional* knowledge integration is an important

characteristic of projects that gives organizations a competitive edge. Cross-functionality entails information sharing, communication, and participation of different departments such as research and development, marketing, and manufacturing in innovation and product development processes (Troy et al., 2008).

## 2.4. The benefits of project work setting

There seems to be a consensus that the benefits of a project-based work approach outweigh its challenges. Projects are suggested to provide a stimulating environment for the personnel that positively influences their commitment, adaptability, and support (Sayles and Chandler, 1971). These characteristics are suggested to be crucial for knowledge-based organizations to retain their human capital. Projects can increase personnel motivation leading to improved teamwork, creativity, and carrier development by providing opportunities for learning and developing new skills (El-Sabaa, 2001; Turner et al., 2008). Moreover, projects are result-oriented and offer a specific timeline for their accomplishment. These lead to spatio-temporal visibility and clearly defined and achievable goals and timelines that allow members to perceive the effect of their contributions on the project outcome improving their sense of reward, motivation and commitment (Mayrhofer and Meyer, 2002).

If the organization is well prepared to manage the projects professionally, the project-based setting can result in increased tangible and intangible benefits for the organization as well. Some of these benefits include improved decision making, communication and collaboration, work culture, transparency, accountability, alignment of values, staff retention, and competitiveness (Mark Mullaly and Thomas, 2008). At the product level, the project approach can significantly benefit new product development by enabling the integration of efforts of specialists from various areas of expertise. The project setting also speeds up the new product development by allowing the different task components to be developed by specialists separately and simultaneously. These contribute to diversity, learning, and innovation, benefiting the project team members and the organization. The shorter product life cycle is a new challenge for the organization because it dramatically reduces the lead time for getting new products to market. Projects also increase the organization's flexibility to create customized products to match the rapidly changing client needs. Further, a project-based work setting is often associated with an explicit project management culture that follows contemporary project management paradigms such as the learning organization (Senge, 1994). The

contemporary methods typically promote cultural values that result in the empowerment of employees by increasing their autonomy, responsibility, and problem-solving abilities through the project team. Additionally, these paradigms promote customer-orientedness, process orientation, and close collaboration between multiple stakeholders, facilitating adaptation to change (Gareis, 2007).

To summarize, the increased employment of projects in today's economy and society leads to an ever-increasing relevance of proper project management practices to ensure project success. There are various definitions of projects within the literature. The traditional definition of the project refers to a unique, unknown, and complex task that is defined to achieve predetermined goals and to produce a change. Cleland and King (1983) first presented the concept of the iron triangle and defined the project as a temporary matrix producing results under constraints of time, cost, and scope set by the permanent organization. However, this model is sometimes considered oversimplified such as by ignoring the role of context and the environment. This has led to a more contemporary definition of the project as a temporary organization that coexists with the permanent components. In this view, the project is formed of a group of interdependent organizational actors to complete a complex task. According to this perspective, the project is defined by four key elements of the task, team, transition, and time. These elements distinguish the temporary organization from other organization types, such as functional organizations. Three types of organizational structures are identified in which projects can function as temporary organizations. These are the traditional/functional, project team, and matrix organizations. These structures differ in the degree of independence between the temporary and permanent organizations, including in terms of project management. Some of the project characteristics are temporariness, complexity, uncertainty, ambiguity, dynamism, diversity, cross-functionality, virtuality, and fluid team boundaries. These characteristics alter the context in which project members work and interact as compared to the traditional work environment of permanent organizations. With these characteristics, the project can benefit the organizations by enabling knowledge integration, high problem-solving capacity, rapid decision making, flexibility, and adaptability to the market needs. On the other hand, the same characteristics raise challenges that can negatively impact the project members, the project and the organizational success if not managed properly. These challenges are identified and described in the following sections.

# Chapter 3: Risks, challenges, and the project environment

Despite the benefits identified in the literature for the project work setting, the characteristics outlined in the previous section can develop some risks and challenges for project success, management, and project members. The project risk can be considered in terms of individual risk events and the overall project risk. Risk events are uncertain conditions, the occurrence of which impact the project outcomes positively or negatively. The overall project risk is the sum of the risks from individual risk events and other sources of uncertainty such as ambiguity (Bartlett, 2004; Hillson, 2007). Risk events can help or hurt projects. The project risks are rooted in project characteristics. Many studies have confirmed the need to adapt the risk management tools to project characteristics such as project complexity. If project success is to be evaluated regarding time, cost, quality, and stakeholder's opinions, project risks can also be categorized similarly. The risks can be those that cause delay or interrupt the project's schedule, result in a higher cost than what was initially estimated, cause deviation from the initial plan regarding the quality of products and services or result in a deviation from what was initially perceived as a success by different stakeholders (Doloi, 2012; Zayed et al., 2008).

The project risk can differ from one project to another because the project risk is directly linked to environmental parameters such as instability and uncertainty (Teller et al., 2014). Accordingly, projects associated with a higher degree of uncertainty and complexity, such as R & D projects (Lenfle and Loch, 2010), require more advanced risk management approaches. Project planning and control seem sufficient when the uncertainty level is low. In contrast, in a changing environment with increased uncertainty, the traditional risk management approaches will not be sufficient anymore and must be accompanied by methods that increase flexibility and learning. In addition, highly uncertain project environments call for more experienced project staff and rapid decision-making capabilities. Critical steps of risk management are risk identification, assessment, and mitigation. In risk identification are processes and steps taken to locate the events that are likely to occur and impede the achievement of project goals. The risk assessment involves determining the importance of the project's goals impacted by the risk events and entails the probability of occurrence of the event and the severity of the resulting impact on the project's objectives. Risk mitigation entails plans to reduce or remove the impact of risk events on projects.

It is important to note that project characteristics also impact the project team members and creates challenges that can put the project success at risk. The HRM practices must be designed to address these challenges to improve the project members' satisfaction which leads to higher performance. If the organization is not well equipped to deal with these challenges, the organization and the team members can suffer from the negative consequences of the project work approach. The temporariness of the project teams can pose a challenge for the team members. Each project functions as a temporary organization with a different design and allocation of its human resources. This creates pressure on project workers and impacts the permanent organization. According to (Zika-Viktorsson et al., 2006), there is a higher degree of role ambiguity, conflict, and work overload associated with temporary work settings than permanent organizations. Further, upon completing the project, the temporary organization is dissolved, and the team members must be assigned to a new project and work with new project members. This can create pressure on employees who must work in different teams in a short period of time or even work within multiple teams on multiple projects simultaneously. Unfamiliarity between team members working together can negatively impact team performance.

Team familiarity can be roughly defined as the extent to which the team members know each other. This knowledge is typically gained through time spent in team activities. The performance of teams with familiar members is suggested to increase as a function of shared knowledge and the effective team processes that are tailored to and by the members based on familiarity (Harrison et al., 2003; Huckman and Staats, 2011). Communication can play a significant role in familiar teams because the team members are more likely to communicate more effectively (Marlow et al., 2018). As familiarity grows, the need for frequent communication is reduced, and efficiency is increased as team members find it easier to locate the required expertise in the team. Therefore, lack of familiarity in teams in a project work setting can negatively impact communication and project performance.

Furthermore, the temporariness of projects translates to short-term employment instead of permanent or long-term employment, which leads to a fragmented career for project members. In contrast with traditional employment, where the employee could step up the career ladder, project worker's careers are built upon the succession of the projects to which the project member contributed. Therefore, project workers live their professional lives in a state of uncertainty about

the future of their careers. Switching between projects demands the workers to perform under different contexts, with different institutions. These put pressure on the project personnel to find the right next project that helps them to acquire the needed skills for their career development. Hence, project personnel can get easily misplaced and lost between two projects. Further, the temporariness of projects leads to a degree of uncertainty for project workers in terms of the type, location, and time of their future projects, as well as the team that they will have to work with. This situation causes stress and anxiety that can exhaust the individual mental resources, who find themselves needing to plan their next steps each time that an assignment ends.

Complexity seems to be a main underlying reason for unpredictability and uncertainty in the project due to the high number of elements and their interactions that cannot be identified entirely or understood (Vidal and Marle, 2008). The complexity can stem from the project itself but also from the environment in which the project is performed. To understand how project complexity leads to uncertainty, it is important to note that there is a difference between the real and the perceived state complexity by the project manager and personnel. Individuals can have their own perceptions independent from the external reality and based on their own mental models (Jaafari, 2003). In any case, these compounding factors affect the decision-making along the project life cycle and render predicting the result and ensuring that the outcome will match the desired goals challenging. In addition, the uncertainty in one system component can easily propagate through the whole project due to the connections and interdependencies between the project components. Adding to this, the complexity of the environment creates some level of uncertainty that the project must deal with. This could be a change in customer needs, technology, and relationships with competitors. Hence, we can consider complexity as a source of uncertainty in project management.

Uncertainty and ambiguity are characteristics of the project work settings. While the former can be roughly defined as the absence of precisely determined information on the variables, the latter arises from the conditions where the information could be interpreted in different ways. Therefore, the higher number of components and their interactions typical to complex projects and inadequate understanding of all the variable states and determining parameters lead to increased uncertainty and ambiguity for project personnel. These two effectors are positively related to stress in project personnel and negatively impact team performance (Driskell and Salas, 1991; Foushee and Helmreich, 1988; Hermann, 1963; Staw et al., 1981).

Due to project complexity, uncertainty and temporariness, the project work setting becomes dynamic, and the project scope and goals will change during the project life cycle. Hence the HRM configuration needs to also dynamically change to support the ever-changing project requirements. Constant changes in scope can lead to schedule interruptions which increase the costs and negatively affect the project performance (Collyer and Warren, 2009; Larson and Gray, 2013). At an individual level, constant changes in project scope impact the team members as well (Thamhain, 2004a). Dealing with enduring changes requires personnel to possess a higher degree of flexibility, adaptability, and tolerance, the lack of which reduces the project performance and might as well compromise the well-being of the employees. Finally, frequent changes in requirements render miscommunications more likely, which can increase the workload and reduce performance and efficiency (Mookerjee and Chiang, 2002; Wallace et al., 2004).

Projects often ensure knowledge integration by allowing permeability at the borders of the team. The fluid boundaries allow new team members to join and leave the project depending on whether and when their resources are required through the life cycle of the project. These movements across the team boundaries can have undesirable consequences, adversely affecting the team's ability to efficiently coordinate their work together, negatively impacting the team performance (Dibble and Gibson, 2018). Another consequence of fluid team boundary is related to team familiarity as team members function more effectively when given the time to become sufficiently familiar with their colleagues. The familiarity among the team members is positively correlated with team productivity, especially in complex project environments (Espinosa et al., 2007; Goodman and Leyden, 1991). From the leadership perspective, lack of familiarity with team members is found to challenge the leader's ability to evaluate the weight of members' input in a decision-making process (Hollenbeck et al., 1995).

A large body of research suggests that team stability positively contributes to team performance by increasing team familiarity and facilitating the learning and coordination between team members (Moreland et al., 1998). This state is sometimes referred to as 'transactive memory,' which entails a heightened awareness among project team members that improves team efficiency (Argote et al., 2018; Katz, 1982; Moreland and Myaskovsky, 2000). This effect is particularly important for cross-functional teams with a high diversity among members that can lead to task conflicts in teams if not managed properly (Kotlarsky et al., 2015). Group longevity can alleviate the task conflict

between members and increase team performance (Schippers et al., 2003). Projects allow recruiting the highest level of expertise to accomplish tasks, but the temporariness of this setting adversely affects the members' familiarity and understanding typical to long-term team arrangements. Further, the fluid team boundaries in the project setting can also weaken the sense of identity within the group, a parameter that increases the cohesiveness of the work organization and promotes cooperation and performance (Brockman et al., 2010; Ellemers et al., 1997).

Cross-functionality is an important characteristic of projects that help organizations in knowledge integration, innovation, and problem-solving. Different studies have suggested that projects with a higher degree of cross-functionality are more successful compared to less cross-functional ones (Pinto, 1989; Wind, 1981). However, to benefit from this characteristic, the organization must be well equipped to overcome the consequences that can negatively impact project outcomes if not properly managed. An important challenge is cross-functional communication. The poor communication among the members from different functions in new product development teams is often linked with the poor performance or even failure of the product development project (Barczak et al., 2007; Bui et al., 2019; Pinto and Pinto, 1990). In contrast, effective communication and information sharing among team members positively impact project outcomes. This is in agreement with the studies on the impact of communication on project success in different industries (Martin et al., 2014; Senaratne and Ruwanpura, 2016).

The project teams can be diverse from different aspects such as expertise, demography, functions, culture, or geography. Diversity can impact teams in different ways and has the potential to negatively impact team performance if not managed properly (Bettenhausen, 1991; Williams and Charles, 1998). For instance, willingness to share information with other team members depends on the interpersonal trust, but the degree to which the necessary trust is established seems to vary significantly based on the cultural context (Diallo and Thuillier, 2005; Henderson et al., 2016). Willingness to communicate contributes to improved information exchange between teams and increases team performance (Hewage and Ruwanpura, 2009). Similarly, demographic diversity in the team can increase the propensity for prejudice, bias, or doubts that can negatively impact team members' mental hygiene and lead to an atmosphere where they find it difficult to express their opinions. This condition will negatively impact the positive aspects of the project setting, such as communication, learning opportunities, and collaboration. This can particularly impact the more

vulnerable team members leading to their estrangement and disengagement (Edmondson et al., 2001; Nembhard and Edmondson, 2006).

Virtuality is an aspect of teams in which all members do not share a common workspace at all times and rely on. The increasing use of virtual teams aims to benefit from expertise critical for the organizational needs beyond the conventional boundaries of the organization across continents (McDonough III et al., 2001). The growth of *virtuality* in project teams is expected to continue into the future in response to globalization and the need for integration of expertise and collaborations (Dulebohn and Hoch, 2017; Katane and Dube, 2017; Mathieu et al., 2008). The main challenge associated with the virtuality of project teams is related to communication and includes cultural aspects and communication tools (Katane and Dube, 2017). Further, other parameters associated with virtuality such as differences in culture, time zone, language, knowledge, and norms can prevent the formation of tightly bounded teams. This can lead to challenges in coordination and communication, affecting team performance such as by introducing delays and preventing timely feedbacks (Nurmi, 2011; Schweitzer and Duxbury, 2010; Sole and Edmondson, 2002).

Mental health well-being is another consideration in the context of projects. While the project work setting is often thought to promote freedom and flexibility, it may indeed lead to opposite effects by increasing bureaucratic principles limiting the freedom and creativity of the employees. It can also result in or exacerbate feelings of stress and loneliness stemming from superficial work relationships and disrupted family lives because of the imposing deadlines and crushing workloads preventing a work-life balance (Zika-Viktorsson et al., 2006). Further, challenges related to resource allocation and priority setting in projects can lead to stress in team members affecting their performance (Gällstedt, 2003).

Another consideration in the project work setting is the multirole challenge for the employees who are required to work simultaneously in various cross-functional projects and in different capacities. For instance, a member can be a project manager in a project and a regular member or a sponsor in a different team. This can be exacerbated in organizations with a matrix structure where there is a project portfolio or PM office, where a person can hold different roles between projects and the permanent organization. Such conditions lead to challenges, including multi-resource allocation and role conflict at an individual level which can lead to stress and decreased performance (Zika-Viktorsson et al., 2006). Further, the excessive workload due to employees' multirole assignments

causes the condition that allows little opportunity for learning, reflection and proper decision making. Studies have indicated that under such conditions, organizations might not be able to detect the emotional stress on the individuals at early stages leading to burnout and job dissatisfaction in the individuals. Therefore, the challenges arising from members holding multiple, and often conflicting, roles can lead to employee withdrawal and turnovers such as due to a perception of a lack of work-life balance (Rau and Hyland, 2002; Söderlund and Bredin, 2006; Zika-Viktorsson et al., 2006).

To summarize, project characteristics are associated with risks and challenges at the organizational and individual levels, which must be addressed using suitable management approaches. Because many of these challenges directly impact human capital, it is warranted to investigate how HRM influences human resources in the context of project success and what specific HRM practices are needed to address project-specific challenges to ensure the project's success? To better understand the impact of these challenges and the specific considerations they demand in HRM practices, project success must be first defined, and the factors contributing to the project success identified, which are subjects of the following section.

# Chapter 4: Project success, its definition and factors

## 4.1. Definition of project success

Project success has been a significant topic in the project management literature. When referring to success, it is important to differentiate between the project success and the success of the project management (De Wit, 1988). The former is evaluated by the objectives achieved by the project, while the latter is evaluated against the iron triangle constraints. Another important distinction is related to the difference between two major components of project success, success criteria, and success factors. Success criteria are used to measure the project's success. Success factors are those that contribute to project success (Müller and Turner, 2007b; Turner, 1999). It is important to note that project success is measured using different criteria than those used to measure project management performance (Cooke-Davies, 2002). Despite much research in project management fields on project success, there is no agreement on a set of suitable criteria. However, there is an agreement that the success of each project must be measured according to criteria relevant to the context and type of project and that these criteria must be clear and agreed upon by stakeholders from the beginning of the project (Davis, 2014; Jugdev and Müller, 2005; Mir and Pinnington, 2014). Traditionally, the project's success was evaluated against the triangle of time, budget, and quality (PMBoK, 2013). Because of the mechanistic and result-oriented approach rooted in classic project management, the primary purpose of the project was to respect the three dimensions, ignoring the behavioral approach. However, there are more criteria that can be identified. Built on the iron triangle concept Pinto and Slevin (1987, 1988b) later added customer satisfaction as the fourth criterion for project success. This was later more elaborated by the other researchers emphasizing that the project success can be perceived differently by different stakeholders (Cooke-Davies, 2002; Serrador and Turner, 2015). In addition, project success criteria can be different based on the size, uniqueness, and complexity of each project (Müller and Turner, 2007b). Although the four-criteria model of Pinto and Slevin (1988b) is still in used by project management scholars (PMBoK, 2013) (Serrador and Turner, 2015; Wang and Huang, 2006), studies have pointed out the limitation of these traditional criteria and have tried to propose new success criteria (Al-Tmeemy et al., 2011). Researchers have introduced criteria such as organizational objectives, efficiency in resource allocation, and the future potential to the organization (Alzahrani and Emsley, 2013; Ika, 2015; Ogunlana, 2010; Wang and Huang, 2006).

From the perspective of contemporary project management, the success of the project is defined as the value generation of projects. Here, in contrast to the traditional way of value measurement focused only on financial terms, the definition of value also includes non-financial outcomes (Laursen and Svejvig, 2016; Martinsuo and Killen, 2014). The value can encompass products and services that are produced by the projects which are deemed desirable by the beneficiaries (Riis et al., 2019). From this perspective, desirable parameters can be perceived differently by the different stakeholders. It can be defined in financial metrics or can include other beneficial achievements for the organization, such as technological, social, and personal effects (Vargo et al., 2017). Therefore, the project's success can be defined by the completion of the project satisfying the quality standards and the customer and stakeholder expectations within the scope, time, cost constraint of the projects, and organizational goals.

## 4.2. Parameters affecting the success of a project

Project success has been of great interest in project management research for decades and has become a core subject of project management because the identification of key factors for project success enables the appropriate allocation of limited resources. Several studies have proposed models in an attempt to outline the critical factors determining the project's success. The research about project success factors has benefited considerably from the empirical studies carried out by (Pinto and Covin, 1989; Pinto and Prescott, 1988; Pinto and Slevin, 1987, 1988a, b, 1989; Slevin and Pinto, 1986).

Pinto and Slevin first presented a conceptual model with ten project success factors which they later divided into two strategical and tactical categories and studied the impact of each factor in relation to the project life cycle (Pinto and Prescott, 1988; Pinto and Slevin, 1987; Slevin and Pinto, 1986). They developed a model with ten critical success factors, which they tested with a sample of 418 project managers working in construction projects. Their model includes: 1) Project mission, 2) top management support, 3) project schedule, 4) client consultation, 5) personnel management, 6) technical tasks, 7) client acceptance, 8) communication, 9) monitoring and feedback, and 10) troubleshooting. Their model is called project implementation profile, and its purpose was to provide a guideline to the project managers to optimize the resource allocation within these success factors.

1) The project mission was defined as a clear sense of direction with clear initial goals. It is essential that the project mission is clear for all project stakeholders and assumes a vertical alignment with the organizational strategy.

2) Top management support refers to the willingness and ability of the top managers to allocate to the project manager the required resources, authority, and influence to accomplish the project.

3) Project schedule planning refers to a detailed specification and planning for the project implementation. Project planning must include all the required activities in terms of human resource planning, budgeting, and timeline.

4) Client consultation refers to the proper and constant communication and consultation with different clients of the project. The project manager ensures that the clients' needs are clearly understood and are taken into consideration.

5) Personnel management refers to HRM activities, including selection, recruitment, and training.

6) Technical task refers to securing the required technologies and expertise for the project realization.

7) Client acceptance is defined as the client's satisfaction with the final product, and the project outcome is sold to the customer.

8) Communication refers to information circulation between all stakeholders. The project manager must ensure that adequate communication is in place that allows the flow of information among all parties.

9) Monitoring and feedback are referred to as anticipation of each project phase requirements before the implementation and apply the required adjustment if necessary during the phase.

10) Troubleshooting refers to the project manager’s ability to handle unexpected disruptions and adjust the nonconformities.

Other researchers attempted to classify Pinto’s success factors and to create a global conceptual model. Major work was carried out by Belassi and Tukel (1996), who classified Pinto’s success factors into four groups of environmental (external), project management, and project team-related,

organizational, and project-related factors. The purpose of the categorization of the success factors was to facilitate the troubleshooting, to identify the root of success or failure and elucidate the cross-influence of success factors in and between groups. Later, inspired by Pinto's conceptual model and built on the work of Gobeli and Larson (1987), a more comprehensive conceptual model was proposed by Belout (1998).

He highlighted the limitations of the PIP model. He argues that there are some flaws in Pinto's model, such as a high level of multicollinearity between variables and questionable choice of statistical method. Additionally, he mentioned that Pinto's model is not measuring the substantial factors impacting project success, such as motivation and commitment of the project manager. He added that success factors could differ from a project to another depending on various factors such as industry and organizational structure. In light of these considerations, Belout presented his conceptual model. In this model, in addition to Pinto's ten success factors, the organizational structure and the sector in which the organization is working were accounted for as the moderator variable that can affect the impact of each success factor on the project success (Belout, 1998; Belout and Gauvreau, 2004).

Both conceptual models were used to study the contribution of each success factor to project success, and their impact was measured according to each phase during the project life cycle. While both researchers confirmed the positive impact of HRM on project success, their results show that HRM has a relatively weak impact on the project outcome. This influence was even less pronounced or nonexistent in some phases of the project, such as planning, or when the organizational structure types were matrix or project team (Belout and Gauvreau, 2004). However, HRM was confirmed to be a key success factor in a functional structure. While these conceptual models indicate that HRM does not significantly impact the project success under all circumstances, some recent studies seem to disagree (Doloi et al., 2011; Jha and Iyer, 2007; Kandelousi, 2011; Kendra and Taplin, 2004; Leung et al., 2004; Papke-Shields et al., 2010; Rofner, 2009; Waeffler and Pfister, 2008). In the conceptual model presented by Lechler (1998), eight critical success factors were listed selected from those most cited in the literature, and he then used the Pinto and Slevin (1987) model to test the contribution of these factors to project success. His results positioned the HRM as a key success factor impacting the project outcome. Later, Chan et al. (2004) identified five categories of success factors in their model, including the human-related

factors. His conceptual model was later used by Ling et al. (2009) to identify the PM practices impacting project success in Singaporean firms and confirmed the conclusion of Chan et al. (2004), stating that HRM practices contribute to project performance.

Besides the studies above that developed conceptual models to examine the impact of HRM practices as a whole, there is a large body of research that verifies the contribution of each HRM practice to the project success individually. For instance, studies in construction projects have shown that, in addition to the technical and expertise planning, the characteristics of the project team members, such as commitment to project mission and their coordination with different stakeholders, have a significant impact on project outcome (Doloi et al., 2011; Jha and Iyer, 2007). The social exchange theory suggests that the HRM activities that indicate the organizational support and care for employees can be reciprocated by employees in behaviors such as commitment, satisfaction, and trust. Based on this theory, the HRM practices such as talent management that improve those behaviors and impact their competence development contribute to project success (Mahjoub et al., 2018). Additionally, the project manager's behavioral skills impact the project outcome by increasing the project team satisfaction and cohesiveness (Huemann et al., 2018; Kandelousi, 2011; Leung et al., 2004). This is in alignment with the 'behavioral perspective' model that was developed to explain the positive impact of HRM practices on employees' behavior, stating that HRM practices are adopted to control the employee's behavior and encourage the behavior that impacts the organizational performance positively (Wright and McMahan, 1992). Similarly, Mughal et al. (2019) suggest that the transformational leadership style contributes to the project success by motivating the team members to reach project goals and fostering creativity and innovation through information sharing and communication among team members.

## 4.3. Who influences project success?

At the base level, human resources can encompass not only the individual but their valuable offerings such as experience, relationships, and training (Barney and Wright, 1998). HRM, in this context, becomes managing the interaction between the employees, their assets, and the organization. In a project work setting, HRM can be implemented at the HR, project management, or the individual levels, and, therefore, rendering all employees accountable, to some degree, for managing the human capital. This includes planning their continuous training to ensure their competence and employability. It should be noted that the employees and the HRM in a project

work setting are not limited to the organization's permanent core but include the temporary workers and the consultants and their human capitals (Estevao and Lach, 1999). In this view, individuals are enabled as active constituents of HR structures, and the activities and the organizations must provide a motivating environment to retain them.

There are three key roles in the project work settings that are in charge of defining and implementing the HRM policies and practices: the project manager, the line manager, and the HR department. Huemann et al. (2018) argue that project managers play a key role in motivating the project team members and ensuring team cohesiveness, factors that directly impact the project success. Therefore, project managers must be formally involved with all HRM practices, including the formation and dispersion of teams and all other practices that impact the employee's motivation and job satisfaction, such as training and development, appraisal, and rewarding. The role of the line manager is particularly important in project-oriented organizations where the permanent structure will remain functional after the project ends and the temporary organization is dissolved. This is because the perspective HRM practices are beyond the project environment and will remain in effect after the project ends. In such an environment, the line manager must be involved with HRM practices to ensure the alignment and linkage between the HRM practices in the permanent and temporary organizations. HRM is essential for all organizations, including project-based organizations. Project-based organizations use the project as temporary organizations to achieve their organizational goals. Since projects are seen as temporary organizations, each time that a project is initiated, a new HRM configuration must be installed in order to support the requirements particular to that project. This HRM configuration, an ensemble of activities, strategic policies, and practices that are related to the management of people, must support the project goals at the project level and organizational goals at the organizational level (Huemann et al., 2004; Yang et al., 2015). Additionally, HRM must maintain the link between the HRM practices at the permanent organization level and the ones at the project level. Besides defining those policies and practices, the HRM must set the guidelines, rules, and standards and coach the project and line managers for implementation of their HRM policies and practices at the project level and assume the arbiter role in case of conflict. Another vital role of HRM is to support the well-being of the employees in the organization. This role can be even more critical in a project context and project-based organizations. As discussed before project members are more likely to endure work overload, e.g.,

due to multiple conflicting roles between projects, and stress, e.g., due to project characteristics such as uncertainty and ambiguity.

To summarize, there are different definitions for project success. The traditional definition measures success of the project goals against triple constraints of time, cost, and scope. The more contemporary definitions add other parameters such as stakeholder satisfaction as the fourth criteria of the project success. Further, the traditional definition of project success is more task-centered and has a mechanical approach, while the contemporary definition is more concerned about value creation. This means that the project's success can be measured not only based on accomplishing a complex task with tangible achievements but also based on the intangible values created through the project life cycle that benefit the organization in the long term. The organizational benefit is defined as 'an outcome of change which is perceived positive for the organization' (Bradley, 2016), such as changes in work processes or culture.

The success of the project and that of the project manager must be differentiated. Project management refers mostly to using the best PM techniques and tools to meet the triple constraint. Project success in its contemporary view can include all the benefits that the project brings to the organization in the long term, even if the time, cost, and scope criteria are not met at the time of project completion. Further, project success criteria and project success factors must be differentiated. Success criteria are the elements that are being used to measure the project success, while the project success factors are the organizational and managerial inputs that can contribute to project success and differ based on the industry, size, and type of the project as well as the organizational structure in which the project is taking place.

A body of research has focused on identifying the critical project success factor. The conceptual models concerning project success are typically based on theoretical rather than empirical data (Yang et al., 2015), and only a few are informed by empirical data. While some of these studies suggest that HRM does not have a significant or any impact as a project success factor, some others propose the adoption of poor HRM practices as a reason for project failure (Belout, 1998). These practices are not only carried out only by the HR department, but other players in the project, such as the project manager and line manager, actively participate in the implementation of the HRM practices during the project life cycle.

Previous research has demonstrated the impact of HRM practices on organizational performance. However, the impact of HRM practices in the project context remains less well understood because of the particular characteristics of the project that impact the work environment for project workers. Therefore, from the contingency approach, the link between HRM practices and project success can be impacted by the work environment (Akhtar et al., 2008). Motivated by this, the HRM in a project context, how HRM practices can overcome the challenges arising from project characteristics, and how this will contribute to project success are reviewed in the following sections.

# Chapter 5: Human resource management

## 5.1. Organizational performance

Globalization and deregulation of markets drive a changing economic environment, including customer needs, investor expectations, and product-market competition that requires modern organizations to improve their performance to survive. Organizational performance is at the core of management research. The definition of performance varies depending on the perspective. Performance can be defined as a process that transforms some resources into outputs to attain specific goals (Jarad et al., 2010). From an economic standpoint, performance is defined as the efficiency in terms of output to input ratio, including the costs. From the organizational perspective, performance is the organization's ability to realize its objectives by efficient use of its capitals. Accordingly, performance measurement can be defined as a process that evaluates the end product of the company and the efficiency of the capital gained organization. This assessment allows organizations to improve their performance by revealing the areas that require organizational attention and improvement.

Traditional performance measurement systems rely on tangible achievements to evaluate organizational performance. This is mainly because of the tendency of the top management to attribute a higher weight to the profitability metrics in their strategic planning. The main criticism toward this evaluation system is its exclusive focus on financial data disregarding value creation in performance assessment. This method of assessment, therefore, is able to account only for the short-term tangible performance and does not take into account the intangible assets that will positively impact the growth of the organization in the long term. In today's economic environment, investors consider non-financial criteria, in addition to financial criteria, in their assessment of the performance of companies and creditors. Studies have shown that the combination of intangible and financial measures of performance will lead to a more reliable measurement of performance in a competitive environment (Dinçer et al., 2017; Nazari-Shirkouhi et al., 2020; Zhao and Li, 2015). Hence, the contemporary perspective of organizational performance emphasizes intangible assets such as customer relationships, fostering an innovative culture, societal and employee well-being, and responsive operative processes that are created through the value creation activities in the organization (Beer et al., 2015). Therefore, the

traditional performance measurement system has changed into a modern strategic performance management system to include the created intangible value in overall organizational performance assessment.

Multiple dimensions of organizational performance have been studied and judged based on their contribution to the performance. Research has consistently shown the positive impact of HRM on organizational performance. (St-Onge and Haines, 2007) propose four dimensions to evaluate the performance: sustainability, economic efficiency, stakeholders' benefits, and human resources (employee mobility, work climate, employee performance, employee development).

## 5.2. Significance of HRM

### 5.2.1 A brief history of human resource management

Humans have followed work distribution models since antiquity. Responsibilities were assigned based on criteria, such as the skills in finding sources such as food or cooking (Price, 2004). Nevertheless, the origins of HRM in its modern form dates back to the industrial revolution of the 19th century. There is an enormous body of research about HRM since 1980. (Boselie, 2010) defines the HRM as all the management decisions related to some policies and practices that as a whole will shape the relationship between employees and organization towards achieving organizational performance. According to Michael (2019), HRM involves 'strategic and coherent' management of the employees who contribute to achieving organizational goals. There are many similar definitions for HRM in literature. Overall, they define the HRM as a bundle of practices shaping the employment relationship cross-organization and seeks to help the workers and organizations in achieving their objectives through procedures and practices that optimize the operation of the human capitals and their services (Armstrong, 2009; Armstrong and Taylor, 2014; Batti, 2014; Toh and DeNisi, 2005; Vincent and Joseph, 2013; Watson, 2010).

Today, there is a global agreement between scholars and practitioners that organizations can not solely rely on traditional resources such as technology and work methods for success, and the significance of human resources has become increasingly evident. Human capital is integral to economic development. This is, for instance, because human resources are vital in enabling adequate organizational response to the increasing demands of an ever-changing environment (St-Onge et al., 2013). This underscores the role of development and implementation of effective HRM

practices to maximize human capital performance (Blanchard and Rolland, 2005; Loosemore et al., 2003). Accordingly, similarities are identified between HRM practices of productive companies and differences with the less successful ones (Belout, 1998; Chrétien et al., 2005; Kianto et al., 2017; Saba et al., 2008; Salman et al., 2020; Young et al., 2018).

### 5.2.2. How HRM impacts the organizational performance

A significant role of HRM in organizational performance is defining and implementing, through HRM practices, the policies aligned with the organizational strategies (Alexis, 2018; Boselie et al., 2021; Michael, 2019). Policies are principles and values that guide efforts directed at managing human resources, such as performance management or resource planning according to the organizational requirements (Barbeito, 2004; Memon et al., 2010). These policies lay out the fine-grained mechanics of the organizations in the management of its human resources, enabling their implementation by the managers at different levels of the organization (Armstrong, 2009). The policies are also reflective of the culture the company is pursuing to achieve its missions (Memon et al., 2010).

HRM practices are to implement the organizational policies, but there is no clear-cut agreement on which practices belong to the HRM as many practices can overlap with other departments (Boselie et al., 2005; Boxall et al., 2007). Despite this, practices such as recruitment and selection, training and development, performance management, and rewarding are commonly accepted as core HRM practices (Boxall and Purcell, 2011; Luu, 2019). Through these practices, HRM ensures timely assignment of the qualified personnel to the correct positions and that the employees are trained and kept motivated. The strategic role of HRM is accomplished by ensuring that the practices are consistent, integrated, and strategically focused to enable the organization to reach its objectives.

Today, HRM research tends to focus primarily on how the HRM system impacts human resource performance rather than studying individual HRM practices. This seems rational since the HRM practices to which the employees are exposed are interrelated. In addition, the employees' behavior is affected by a set of HRM practices being applied simultaneously in the organization rather than a single one. Hence, the effectiveness of an HRM practice depends on other practices, and it will generate performance only if all the HRM practices are consistent and complete each other. High-performance HRM systems are comprised of a set of synergic and practices that reinforce each other and create a coherent system (Boon et al., 2019; Boselie et al., 2005). This horizontal (

consistency of HRM practices with each other ), in addition to the vertical alignment ( consistency or HRM system with organizational strategy), is proven to impact the organizational performance positively (Boselie et al., 2021).

While HRM studies agree upon the significance of HRM in organizational success, they mainly involve HRM practices used in traditional permanent organizations. However, the contextualization and adaptation of HRM practices to the organization's unique strategy and structure are important considerations (Hendry and Pettigrew, 1990). Therefore, it is essential to evaluate the context of the project and its particular characteristics prior to analyzing the role of HRM in the project's success.

## 5.3. HRM in the project context

HRM can be defined as the structures and procedures to manage the relationship between employees and their organizational context (Michael, 2019). The organizational context is a crucial consideration in the relationship between the individuals and the organization. The increased use of projects is expected to alter the relationship between employees and the organizations (Huemann et al., 2018). Thus, HRM practices tailored to the organizational characteristics are required to ensure proper management of the relationship, which is key to organizational success. The project characteristics were outlined in chapter 2. Here, the impact of each of the project characteristics on HRM practices will be discussed.

The dynamic nature of projects necessitates constant changes in the configuration of the HRM systems in the project work setting (Yang, Chen, Wu, Huang, & Cheng, 2015). This requires reformulating the HRM system to a project work setting and for each project to better satisfy the need of the project and project members (Bredin, 2008; Huemann et al., 2007; Turner et al., 2008). HRM practices in the project work setting are not inherently separate from those in traditional organizations. Instead, they must be customized to support both the specific project and the parent organization. Indeed the project-specific HRM procedures and those of the permanent organization must be compatible and interconnected (Huemann et al., 2018).

## 5.4. HRM practices specific to projects

HRM practices and the success or failure of projects are often considered to be tightly connected, although exceptions exist (Belout and Gauvreau, 2004; Pinto and Slevin, 1987). Whether by

contributing to the internal performance of the project or to the external success of the new product (Belout, 1998; Chen et al., 2005; García et al., 2008; Ling et al., 2009), a link between is, however, often acknowledged. HRM practices in the project context can vary significantly from those of traditional organizational structures because HRM practices must conform to the triangle constraint of time, budget, and scope of the project. From the literature, the HRM practices that can strongly impact the project's outcome were identified as assigning, employee development, appraising, rewarding, and dispersing that are outlined below.

### 5.4.1. Team building and assigning

Project teams are composed of individuals brought together to perform complex or specialized tasks (Turner and Muller 2003). Team formation is a crucial component of the project affecting its success by ensuring that the qualified composition of the team members (Kerzner, 2009; Szwarc et al., 2020; Weinkauf and Hoegl, 2002; Yawei et al., 2005). Because team members of a project are temporary workers and consultants, the recruitment practices used in traditional organizations are not adequate in the project context. However, developing teams of appropriately skilled human resources is a significant challenge among the HR-related duties of the project management (El-Sabaa, 2001), which entails resource planning, recruiting, selection and integration.

Resource planning is a crucial step impacting the success or failure of the project directly. The goal is to determine the required competencies, at which stage they are needed, and what is their related cost for the project (Szwarc et al., 2020). Despite the importance of this stage, resource planning could be very challenging in the project context.

The size and requirements of the projects within the organization can vary dramatically, which renders assessments for planning and allocation of the human capital a challenge (Engwall, 2003). The sharing of personnel in concurrent projects is found to be challenging due to work overload and multiple role challenges (Zika-Viktorsson et al., 2006). Challenges of human resource planning primarily refer to the necessity to consider different levels of aggregation in the project, the project portfolio, and the company.

Further, human resource planning is directly impacted by the uncertainty of the project work setting. Meaning that the HRM cannot identify the organizational needs before the project is approved. This challenge continues during the project implementations due to delays, scope and

requirement changes, and the incapability of the managers to predict these disarrangements. Therefore, planning the resources that are needed in the early future is more complicated. This becomes even more problematic if the project manager must also be hired and is not taking part in the planning step. Selecting team members is a significant objective at the resource allocation stage (Fapohunda, 2013; Szwarc et al., 2020). The role of the project manager in selecting and allocating the human resources with the necessary skills for their duties is critical for project success.

The integration of new employee to the project team is one another critical step in team building. First, it is essential to ensure group cohesiveness by sharing the information with all team members to create a unique vision of the project mission. Second, it is essential to acknowledge the challenges of working in a diverse team where people with different expertise from different backgrounds (different mental models) and different locations have to work closely together. This becomes even more challenging when the project team members work virtually.

Therefore, the first action of HRM is to supply the right human capital, and if this action is not done correctly, it will have damaging consequences to the project's success. The HRM must allocate the individuals whose personality and characteristics are fit with the project type.

Studies have emphasized that the understanding and ability of the project manager in recruiting qualified individuals and orchestrating effective hiring policies can considerably contribute to the organizational performance and project's success. Inversely, poor selection decreases performance at the individual, project, and organizational scales.

### 5.4.2. Project team development

In a traditional work setting, HRM trains individuals and groups to improve their job performance and to help them develop new skills and qualifications that lead to their career development. In such an approach, career development is a series of steps up the ladder supported by the organization that guarantees development for the employees through the traditional HRM practices. In the project work setting, however, career development occurs through the transition between the projects. This new work setting can raise challenges for the project workers in terms of planning their career path because career development is no longer preplanned and implemented solely through the organization: the responsibility leans more towards the project workers. The

individuals must take the more prominent part of planning their careers by working in projects that help them remain employable and develop the required skills for their professional development.

On the other hand, competence development can turn into a challenge for project members in project-oriented organizations. This is because of the tendency to assign projects to the individuals who already have the required skills and qualifications instead of leveraging the learning opportunities of the project by engaging individuals who can grow with the task (Bredin and Söderlund, 2011; Hedhili and Boudabbous, 2020). Despite this, the impact of organizational planning on the project members' career development, job satisfaction, and commitment to the organization is not to be ignored. Providing the ground to work on projects that allow team members with experience a positively challenging career improves their commitment and performance (Huemann et al., 2007). Hence, HRM practices in project work settings must be formulated to accommodate the dynamic career development path characteristics of the project work setting, rendering each project as a learning opportunity.

### 5.4.3. Appraisal

Due to the impermanent nature of assignments and the related scops, it is not easy to establish a classical salary structure. One of the most common compensation practices in a project context is merit-based compensation grounded on performance evaluation. Performance management pursues two functions: maximizing the performance of the individual, team, and organization while also encouraging employees' career development by highlighting the lacking skills and areas for improvement, predicting qualifications needed for the next steps, and requiring the related training (Raiden et al., 2009). One aspect of performance management is performance appraisal. It is a sensitive process as it involves measuring an employee's contribution towards company objectives to decide rewards and penalties (Loosemore et al., 2003). Performance appraisal should be employee-centered, aiming to improve their performance by providing feedback and supporting their career development and training trajectory (Mullins, 1999). The performance appraisal can be challenging in a project-based organization where the employees change positions from project to project and in different teams composed of different peers, managers, and customers. As a consequence, the performance appraisal in project-oriented organizations involves different parties and requires a flow of information and coordination (Keegan and Den Hartog, 2019). This, however, remains a challenge for the HR department and project and line managers in the project-

oriented firm. In smaller projects with fewer involved parties, the appraisal process is either delegated to the line manager (Huemann et al., 2018) or is assumed by HRM triads comprised of HR specialist, line manager, and the employee (Jackson and Schuler, 2009). For larger projects, the HRM triads are often not efficient, and involvement from the project manager and other parties such as providers and customers may also become a part of the appraisal process. This is, for instance, because of the need for incorporating data on the status of the projects in the appraisal system, and the project manager is the one with detailed information and insight on the project, the competency gaps, and the future needs. The project manager can collect the data from the other involved parties such as customers, providers, and co-workers as well. In such circumstance, organizations use a 360-degree appraisal system that is more comprehensive and involve more parties. This system is extensively recommended by academics for the project context (O'Boyle, 2013; Walker and Joines, 2004). However, this method is not without its own challenges. Firstly, data collection can be a complex task. The project workers have greater autonomy in the execution of their work compared to their counterparts in permanent structures. They usually belong to different fields of expertise and work on or off-site and can often work with their clients and other team members from other organizations. In larger projects, it is common for the employee reports to several managers that are geographically dispersed. From another perspective, each line manager might supervise numerous project workers, and the time constraint seems to pose a significant challenge for line managers in the appraisal process (Keegan et al., 2012). In the project work setting, multi-resource allocation might require the project workers to work with and report to different co-workers and project and line managers in a given period of time (Söderlund and Bredin, 2006). In such circumstances, the line manager must collect the data from all parties for the appraisal process. Consequently, the more parties are involved, the more complicated and time-consuming the process will be. Additionally, projects have different timelines that do not necessarily match the annual appraisal process in the way they are performed in functional organizations. This can render the performance evaluation of a project worker who is working on multiple projects simultaneously a complicated endeavor for the project or line managers and might result in disruption of the appraisal process. In such circumstances, some organizations rely on the input of employees and delegate the data collection to the project workers. This approach to performance appraisal engages the project members to a great degree and relies on their self-evaluation data forms (Bayo-Moriones et al., 2017). The self-evaluation benefits the project

members by allowing them to analyze and express from their own perspective the areas that require improvement. The exchange occurring between the managers and the team members during this process can also help the perceived fairness in the evaluation from the team members' perspective, which can positively impact their behavior, commitment, and performance. With this employee-centered method, organizations can overcome some of the challenges mentioned above, such as the time constraints and line manager's workload. However, this method is not without drawbacks. For instance, the employees have a choice to select the evaluator, and they can contact the parties they find most favorable. This can result in a more biased and less realistic evaluation (Keegan and Den Hartog, 2019). Aside from these, many characteristics that impact the employees' contribution to the project success are attributes and soft skills such as communication and interpersonal relationship. While these attributes are essential considerations, there is no quantitative measure to be used for this purpose. Hence, the evaluation remains subjective and biased based on the evaluator's perception of the employee's behavior (Hedhili and Boudabbous, 2020). Therefore, the results are not always reliable and can lead to interpersonal conflicts and tension. In addition, the emphasis on flexibility and teamwork leads as the most needed traits in project work, leads to a shallow philosophy where mobility and social skills supersede loyalty and work ethics (Sennett, 1998).

### 5.4.4. Rewarding

The incentive is an encouragement or reward given to motivate an organization or an individual to place greater emphasis on achieving an objective or acting in a certain way (Broome and Perry, 2002). The general principles of incentive systems work to ensure that risks and rewards are fairly distributed among participating parties and tailored toward achieving specific project objectives (Ogwueleka and Maritz, 2013).

Compensation and reward are tools that are used to direct the employee's personal energy and presentation of work in an organization. Past research shows a significant association between reward, compensation, and performance in an organization. These two variables, i.e., reward and compensation, keep a practical impact on the performance of employees. It has been assessed that the level of motivation and incentive programs keep a significant effect on employee's performance against any task assigned to them.

The rewarding system in the project context must be aligned with the particularities of the context. Challenges raise from the project success impact the reward system. For instance, the project work setting demands promotion of collaboration and cooperation between cross-functional teams. This collaboration can be promoted by a group incentive structure. However, this links the reward of an individual to the performance of others, which can lead to dissatisfaction, inequity, and frustration (De Clercq et al., 2015). Hence the greater attention should be paid to the reward policies in the project context to keep the project workers motivated and prevent turnover.

On the other hand, the stress and the work overload due to the characteristics of project work setting impact the employee's motivation adversely. Therefore, the reward must be perceived by project workers as equivalent or more significant than their contribution. Accordingly, to avoid loss of knowledge and expertise, a compensation system must be designed considering project context and provides the maximum benefit for the project workers and stimulates the team member's motivation to stay in the project.

### 5.4.5. Discharge from projects

When the project ends, the project members must either be assigned to the new project or be back to their functional position within the parent organization. Some project members, however, are only part of the temporary organization. Therefore, after a project ends, they will be either released, assigned to another project, or sitting on the bench while waiting for another project in the future. There are issues emerging when a project worker will be released from the organization at the end of the project. Capturing the knowledge is one of those issues. Many organizations lose the knowledge when the project worker is released. This means all knowledge about the project will be lost, which can cause difficulties regarding organizational development.

To summarize, humans have used resource management practices forever. During the industrial revolution, the modern HRM field emerged. Today, it is evident that HRM plays a significant role in organizational success by defining the policies and HRM practices strategically aligned with the organizational objectives. Importantly, HRM configurations differ according to the organizational structure and the global strategies of the organization. Projects are considered temporary organizations. Hence the configuration of the HRM changes each time that a project ends. The project work setting differentiates itself from the permanent structure where it is initiated by its particular characteristics. The project characteristics create challenges for the organization and

project workers. If not adequately addressed, these challenges can have a damaging impact on the project outcome and organizational performance. Therefore, the HRM configuration must be designed to supports the organization and project workers and provides a motivating work environment.

Although the HRM practices in the project work setting are similar to those used in traditionally managed organizations, they are customized that tailored to the project context to overcome the challenges arising from project characteristics. These HRM practices identified by literature are: assigning (resource planning, selection and recruiting, integration), employee development (training, career development), appraising, rewarding, and dispersing.

Through the assigning practice, the HRM must ensure that the project is appropriately staffed, and the project team has the required competencies to accomplish the project. Additionally, through the integration practice, the HRM ensures that all team members share the unique vision and values about the project mission.

The project team development, appraisal, and rewarding are the other HRM practices that are impacted by characteristics of project context such as uncertainty, temporariness, dynamism, and workload. Thus, the project-oriented organization must ensure that the HRM practices are designed to support the project workers in such a work environment.

# Chapter 6: Analysis

Despite the extensive research on HRM's contribution to the project's success, the connection remains unclear. Many researchers have highlighted HRM as a project success factor, while some other empirical studies could not confirm the same. Further, some studies have examined the impact of HRM as a group of practices while others have examined the impact of a single practice on the project's success, and these various approaches have yielded contradictory results. One of the critical studies in project management was carried out by Pinto and Slevin (1987) through an empirical investigation that could provide a conceptual model and identified ten project success factors. The results of Pinto and Prescott (1988) suggested that HRM does not significantly impact the project's success. These results were later confirmed by later studies (Belout, 1998; Belout and Gauvreau, 2004). Inspired by these investigations, Cooke-Davies (2002) examined 12 potential success factors, and, similarly, his results did not find HRM to contribute to the project success significantly. These data are intriguing as they seem to contradict a considerable volume of research suggesting that the organizations cannot achieve their goals without having a motivated and competent workforce and have suggested HRM as a critical success factor in projects. For instance, Loosemore et al. (2003) state that behavioral, rather than technical, issues can be a significant factor leading to project failure and that these can be resolved by HRM practices. He also proposes that the rejection of the role of HRM as a project success factor in some studies could originate from the perspective of the managers and whether they regard HRM as a critical and separate division in an organization. Further, Loosemore et al. (2003) suggest that at the time when these studies were performed, HRM has still not gained its strategic role in the organizations. Most of the managers in these studies were implementing the HRM practices only partially and in a project management context rather than a group of policies practiced in the context of what we refer to as the HRM system today. These arguments seem to be reconcilable with the results reported by Belout and Gauvreau (2004). Through an empirical investigation, Belout and Gauvreau (2004) suggest that the organizational structure could have a moderating effect on the contribution of HRM in project success. Further, the study suggests that HRM has a significant role as a success factor only in functional organizational structure. Based on these data, it can be hypothesized that in matrix and project team structures where the project management role has a higher level of authority, the HRM practices are carried out by this role and are classified as project management

techniques and responsibilities. This is in contrast to the functional structure, where there is a well-established HRM department with defined responsibilities and authority.

Belassi and Tukel (1996) explain the contrasting result of Pinto's model, arguing that in this model, all the success factors are based on the organizational and project management dimensions. For instance, the interpersonal relationship between team members and stakeholders is not taken into consideration. Additionally, the impact of each success factor is examined in isolation, ignoring the connections between these factors. For instance, the model does not allow analyzing the impact of top management support on the efficiency of the human resource in contributing to project success. Finch (2003) applied Pinto's model to an information systems project and highlighted a substantial limitation in the model. Finch (2003) speculates brought the subjectiveness of results by detecting that scores used in Pinto's study seemingly differed according to the profile of the respondent. For instance, project managers scored the HRM a success factor differently than the project team members. Because the project's success can be perceived differently by different stakeholders, I conjecture that Pinto's model can be evaluated on a population of team members with various profiles and backgrounds to obtain a broader view. In addition to these considerations, it is essential to note that in Pinto's model, the role of HRM is limited to recruitment and selection of project team members and their training, which is not a complete representation of the roles of HRM. Several other HRM practices such as career planning, knowledge management, performance evaluation, and rewarding are proven to have an impact on project outcome through affecting the team member behaviors such as commitment, motivation, coordination, and turnover intention. These considerations were absent from Pinto's model. I believe that these HRM practices must be examined as a group of practices while also accounting for their connections as parts of a coherent HRM system. Another explanation for the contradictory result of Pinto's model could be the project managers' mental model. Pinto's model was created at a time when HRM was not given strategic importance in organizations. In the 1980s, project managers were mainly hired based on their technical rather than their HRM competencies. The project success was defined only by meeting the iron triangle constraints without assigning significant weight to value creation. Similarly, the project success was measured against the tangible criteria, and the intangible performance criteria were not taken into consideration. Therefore, it can be argued that the results reflect what was known as value for project managers and without taking into consideration the impact of human competencies. Belout and Gauvreau (2004) evaluated Pinto's models and confirmed the model

results. The authors outline a few arguments for the conflicting outcomes. First is the lack of consensus on the definition of HRM effectiveness among HRM scholars. This is in addition to lack of agreement on which practices belong to HRM is highlighted (Boxall and Purcell, 2011), and this is suggested to lead to fragmented functioning in the organization in which practices are implemented by different roles and departments, rendering the evaluation of the HRM effectiveness more complicated. Belout and Gauvreau (2004) also argue that measuring HRM-related results is challenging due to their intangible nature. In addition to these considerations, I believe the results provided by these models remain subjective due to the nature of the collected data. The authors used questionnaires to collect data, which do not allow objective and quantifiable analysis. Another explanation could be that the project managers were applying traditional HRM practices, which were not suitable for the project context. Project management research has identified the specific characteristics of projects that create challenges for HRM. Therefore, the HRM practices must conform to the project context addressing those challenges. Similarly, Cooke-Davies (2002), who arrived at similar conclusions to Pinto's model, acknowledges only focusing on the tasks and techniques and ignoring the quality of the interpersonal relationships such as conflict resolution, collaboration or communication between project workers or the motivational practices carried out by decision-makers that can impact the employees such as commitment and turnover intention. Cooke-Davies (2002) further discusses that other success factors that were shown to significantly impact the project success all incorporate HR aspects without explicitly acknowledging their HRM components. This is in agreement with the suggestions of Belout and Gauvreau (2004) concerning the fragmented nature of HRM function in the project context.

Another important factor that seems to be largely neglected in these studies is the working environment. Based on the contingency theory, some researchers consider the work environment as a critical constituent that impacts the project's success (Pheng and Chuan, 2006). The perceived work environment can vary between the team members, the project manager between different projects (Müller and Turner, 2007a). Pheng and Chuan (2006) highlighted the impact of the work environment on project success through affecting the project manager's performance, team dynamic, time, and materials availability. Specifically, they evaluated the influence of job condition-related variables (e.g., pay and job satisfaction, and job security, working hours, and availability of information) and project-related variables (e.g., project environment, size, complexity, time constraints, duration, team relationship, and available resources). The results

suggested all variables to impact the project performance except for working hours and the company size. Further, variables such as salary, job satisfaction, and security were suggested to affect the project manager's motivation. These variables are known to impact the project manager's commitment positively. The project manager's commitment was identified as a critical success factor by Pino. Based on these results, it can be speculated that the HRM practices that target job satisfaction, such as rewarding systems, career development planning, and appraisal, can impact project success positively. In a more recent study, Yang et al. (2015) studied the relationship between HRM practices and project performance in new product development projects. In their conceptual model, project success was defined through three success criteria of cost and quality, and innovation success. The findings indicated a significant relation between HRM practices that were categorized as 'member empowerment and development' with innovation success. These practices included those that impact employee's motivation, satisfaction, career development, and performance evaluation. HRM practices that were focused on 'member training and expertise' were correlated with cost success. These practices included providing education opportunities to team members, project competency planning, and promoting collaboration among all team members in work assignments. The study also analyzed the impact of the work environment as a moderator variable on how HRM affects project success. Work environment variables were categorized into job condition-related variables, including working hours, and those related to project characteristics, including time availability. The results suggested that working hours can positively impact the contribution of HRM practices to innovation success. This indicates that the project teams who do not routinely work extensive extra hours are more likely to succeed in terms of innovation when receiving proper HRM practices. The study also suggests that time availability moderates the effect of HRM practices on cost success, demonstrating that the projects that have more aggressively scheduled can benefit more from HRM practices to succeed financially. The results proposed by Yang et al. (2015) are in line with previous findings (Müller and Turner, 2007a). These results underscore the role of the work environment in moderating the effect of HRM practices in project success, in line with other studies that suggested the same (Akhtar et al., 2008; Müller and Turner, 2007a). A team environment contributes to project success through promoting collaborative teamwork, which is a crucial factor in project success (Zhang et al., 2019). Consequently, the project manager must take into consideration the factors that build a healthy

team environment, such as communication, providing the opportunity for growth, and recognizing the contribution of the team members in project success.

The researchers who have suggested that HRM practices must be tailored to the project context to contribute to project success significantly are abundant. For instance, team building is a critical HRM practice that directly impacts the outcome of the project (Szwarc et al., 2020). Due to the temporal characteristic of the projects, resource planning is subject to uncertainty, including occasional unavailability. This means that personnel planning at the beginning of the project is carried out based on assumptions that might be different from the reality and demand emerging at the execution phase. Therefore, the personnel planner should consider this aspect at the early stage during resource planning. In contrast to the result of Belout and Gauvreau (2004), which confirmed the HRM practices does not have any impact on project success during the resource planning phase, some other studies propose that HRM can contribute to project success if the resource planning process is tailored to the project context and its challenges (Dück et al., 2012; Mahjoub et al., 2018; Szwarc et al., 2020). Some proactive approaches are identified in the literature to encounter these challenges. For instance, it is recommended for project-oriented organizations to create a competence matrix. The competence matrix holds information on the existing competencies in the organization and their availability which facilitates resource planning and assigning process. Another strategic approach that can contribute to the project's success is to create a competence matrix that allows implementing changes to the existing project schedule by creating a project team with a capacity buffer based on a competency surplus that can be used to run the project task when necessary in case of unexpected events (Szwarc et al., 2020). This approach will help the project to move forward smoothly, minimizing disruptions and delays in the project schedule. The capacity buffer must be aimed at a percentage above the expected required staff but still within a margin that allows the backup team members to do their other duties (Dück et al., 2012). Another strategy is resource substitution, which entails having a multi-skilled workforce that enables flexibility and schedule adjustment when required (Ingels and Maenhout, 2017). This enables the project to handle the uncertainty of demand by switching duties between team members. This can be achieved through recruitment practices or by the HRM providing cross-functional training to the project workers. Both practices must be carried out in close collaboration with the project manager.

Job analysis and creating the job description is another crucial step to be performed during resource planning. This role must be performed by the project manager. It should be noted that defining tasks in project management can be considerably different from how it is performed in traditional management due to the unique and uncertain nature of project management (Keegan et al., 2008). Indeed, task definition is a continuing action, which encompasses uncertain, adjustable, and often difficult to pin down aspects because the trajectory of tasks is not always known in advance, and new needs can arise over time. Consequently, managers and project leaders often have to deal with role conflicts and task ambiguity. A clear definition of tasks helps to minimize this conflict and ambiguity (Keegan, 2002), but also to optimize the distribution and assignment of human resources in order to have more efficient employees. Cipresso (2008) suggests that proper job analysis and clear task definition can impact the efficiency of HRM in the recruitment and selection process. By providing the task definitions and competency profiles, the HRM will be able to provide the necessary capital resources to ensure the project's success.

As mentioned above, resource planning takes place at the very beginning of the project life cycle. At this stage, planning is performed based on long-term competence demands and budget based on a series of assumptions. However, the resource demands during the execution stages can prove to be vastly different from those assumptions due to the uncertainty. This underscores the importance of communication and the project manager's role in personnel planning. This is in alignment with the results of Pinto's model. Communication and project manager competency were significantly related to the project success. Cipresso (2008) later showed that communication significantly impacts HRM efficiency in a project context. It is essential that the HRM function is provided with clear and accurate information on the resource demands at the planning stage and during the execution phase to ensure through the recruitment process that project members with the required competencies are available when needed. The project manager is the one with detailed knowledge of the project requirements in advance. Therefore, it is expected that the project manager plays a crucial role in resource planning and the whole assigning process.

On the other hand, a determining factor affecting the project success is hiring a competent project manager. This is in alignment with the conclusion of Pinto and Slevin (1987) that positioned the project manager's commitment and competency among the essential project success factors. This role is being assumed by HRM. It is vital to hire a project manager who has competencies in human

resource management and soft skills such as communication and interpersonal relations. These characteristics are beside the technical and project management competencies that the project managers must have to lead the project into success. It is important to note that human management skills and requirements can be different from one industry to another or between different cultures. Therefore, it is crucial to assign a project manager who is familiar with the cultural characteristics of the team and the industry. For instance, project managers in the real estate industry must combine technical knowledge and expertise with behaviors that produce effective multi-organizational teamwork and communication for the project to succeed (Turner and Müller, 2003). Engle (2007) supports this position highlighting that projects require process leaders, as projects are primarily an exercise in interacting with other people using skills that are best portrayed through leadership, organization, and communication. This means that the HR department must employ the best practices, such as in recruitment, training, and retaining, to develop good leaders for project teams.

The project team's engagement and commitment to the project is an essential factor for the project outcome (Doan et al., 2020). The lack of commitment from the team members can lead to resistance and indifference propagating among all members. Creating a stimulating work environment ensuring the employee's engagement in the project is a challenge. The project members are faced with a dynamic, complex, and uncertain work environment that can adversely affect their motivation and engagement through stress. Consequently, HRM needs to address this situation and create a motivating work experience. This can be done through different HRM practices such as training and competence development at the team (Brown et al., 2007; Ofori, 2013; Omran et al., 2012) and at the project manager levels (Al-Keim, 2017; Moradi et al., 2021; Panas et al., 2014), appraisal (Keegan and Den Hartog, 2019) and rewarding (Alexis, 2018; Zhang et al., 2019). Further, the HRM role in advocating the employee well-being contributes directly to project success through reducing the absent times and delays that impose unnecessary costs and schedule interruptions (Bansal, 2011).

Projects are by definition defined within a finite period to accomplish a prespecified number of tasks by a group of people that collaborate within the project until disbanded and reassigned to other projects. The temporary nature of projects demands the project workers be proactive in planning and managing their career path (El-Sabaa, 2001). Organizations can assist this process by providing favorable infrastructures by implementing appropriate models. This includes the

implementation of career path models such as the spiral staircase model, which is a prominent project-based work model that allows both vertical and horizontal movements conducive to individual training and development of a broad skill set (Turner et al., 2000). In a project-based setting, progression is not just defined vertically, such as by an increased number of subordinates, but based on competency, skills, and role differentiation. Incorporating different career progressions schemes allowing vertical, horizontal, and centripetal movements ensures that project team members can progress upward while preventing the undesirable effects implied in the 'Peter Principle'. Plans can be based on an adaptation of existing policies to project-based settings such as those ensuring external, procedural, and interactional equity in project allocation, impacting employee's perceptions of fairness and, indirectly, commitment and performance (Simons and Roberson, 2003). Thus, HRM should develop a comprehensive strategy and provide other leaders, including the project managers, with guidelines for how to manage project teams in order to leverage the learning opportunity that comes with the project work setting that enables employees to access to knowledge and experience ensuring that the project is adequately staffed, and team members are motivated and committed through development. It is shown that empowerment and development can positively impact the employee's commitment to the project and contribute to project success (Yang et al., 2015). Such plans can be programmed at the HRM level, implemented by the project manager level allowing growth opportunities and continuous education, participation in decision making, setting goals with feedback from the project manager, and the freedom necessary for creativity in new product development. Finally, the project managers must engage in practices that avoid wasting resources by maximizing collaboration. These policies lead to empowerment and development of the team members and to the project success in terms of innovation, cost, and quality (Ling et al., 2009).

Performance appraisal can have a significant impact on shaping the employee's behavior, commitment, and motivation (Kuvaas, 2006) and contribute to project success. The performance appraisal role is mainly assumed by the project or line manager. HRM sets the guidelines and works with line and project managers through the 'calibration' process to remove or reduce the bias or subjectiveness in the evaluation results. The project and line managers need to have access to HR online tools and shared service centers to perform their HRM roles. In this context, the HRM specialist role shifts from the traditional HR role advocating for employees' well-being and an employee champion to a more proactive and strategic position with counseling responsibilities. In

fact, the HRM specialist operates as a business partner to the line and project managers and provides them with services in the capacity of an internal consultant.

As stated earlier, the compensation system can significantly shape the employee's behavior (Gomez-Mejia and Balkin, 1989). The HRM in the organization employ design of the compensation system to encourages some specific and desired set of behaviors that are aligned with the organizational strategies. In a quantitative study, Wi and Jung (2010) developed a conceptual framework of the project success factors. The study first lists the success criteria as cost, time, quality, and customer satisfaction and argues that if the three first criteria are met, the customer will be consequently satisfied. Then the factors that impact each of the three criteria of cost, time, quality were identified. The factors associated with quality were categorized as knowledge-associated and collaboration-associated factors. The collaboration factors included organizational philosophy, communications, social skills, interpersonal relations, leadership, user diversity, and team maturity. The results indicated that the collaboration factors could significantly contribute to the project's success. In project teams, one of the important required behaviors is cross-functional collaboration to allow knowledge integration. Many studies confirmed that a reward system could positively impact cross-functional collaboration (Nakata and Im, 2010) and improve member behavior and willingness to participate in teamwork and communicating the information (Zhang et al., 2019). As Pinto's model stated, communication has a high impact on project success. The project team with a higher degree of collaboration was suggested to rely on communication more heavily and therefore expected to demonstrate a higher success rate.

Related to the design of reward and pay systems by the HRM, Zhang et al. (2019) have shown that the pay interdependencies can increase the willingness to collaborate in cross-functional teams. This is in alignment with the result of Hertel et al. (2004) that suggest the team rewards can affect the employee's behavior by allowing the individuals to evaluate the impact of their contribution to the progress of the project, promoting accountability. Further, the reward system is known for its ability to generate organizational citizenship behavior characterized by a willingness to collaborate with colleagues and becomes prevalent when the employees believe their reward is fair compared to their colleagues and with respect to their contributions. Therefore, the HRM must ensure the equity of the reward system to foster organizational citizenship behavior. Further, the non-financial incentives such as feedback, appreciation, respect, and approval lead to a sense of confidence and

long-term motivation for collaboration and information exchange. Therefore, HRM must provide coaching and training to the project managers to improve their soft skills. However, Zhang et al. (2019) showed that the size of the project team and the team heterogeneity could have a moderating impact on the relationship between the reward interdependency system and collaboration. The study suggested that the relationship between these parameters becomes less significant with decreasing project size or increasing heterogenicity. Therefore, the HRM can contribute to project success by establishing a fitting reward system tailored to the characteristics and goals of the project.

Returning to the research questions of the present study, there is no universal agreement on an exclusive list of project success factors. Many conceptual success factor models frequently incorporate parameters such as communication, top management support, or project manager competency as key factors to project success. HRM is cited as a success factor by some of these studies while not given considerable weight in some others. HRM practices must be tailored to the characteristics of the project work setting, accounting for project challenges to contribute to the project's success efficiently. Some of the prominent project characteristics are complexity, temporariness, ambiguity, uncertainty, and fluid team boundaries. These characteristics must be managed appropriately to ensure the success of the project. Otherwise, these can lead to adverse effects on the team members and consequently the project. For instance, uncertainty and ambiguity can lead to elevated stresses and affect the team members' well-being and increase turnover intentions and absenteeism. Therefore, the present study concludes that HRM contributes to project success. The implementation of the HRM practices in a project work setting is, however, distributed between different roles, including the project managers and the team members, and is not solely a responsibility of the HR department.

# Chapter 7: Conclusion

Project management research has been interested in identifying the critical factors determining project success since the 1960s. In this attempt, a large number of studies have been performed by project management scholars that have proposed conceptual models incorporating various factors as contributors to the project's success. While some studies have not found a significant correlation between HRM and project success (Belassi and Tukel, 1996; Belout, 1992; Belout, 1998; Belout and Gauvreau, 2004; Cooke-Davies, 2002; Pinto and Prescott, 1988; Pinto and Slevin, 1987) some others have considered HRM as a key project success factor (Doloi et al., 2011; Jha and Iyer, 2007; Kandelousi, 2011; Kendra and Taplin, 2004; Leung et al., 2004; Loosemore et al., 2003; Papke-Shields et al., 2010; Rofner, 2009; Waeffler and Pfister, 2008). These seemingly contradictory results have intrigued scholars in both project management and HRM fields. The quest to unravel the value of HRM in organizational success is ongoing. Currently, there is an agreement among scholars on the significance of HRM in achieving organizational goals in permanent organizations. However, there is no consensus on whether and to what extent HRM practices contribute to the project's success in the temporary organization.

While project management scholars are primarily interested in research concerning technical and task-related success factors, HRM research focuses more on the behavioral aspects that can affect the project's success. The pursuit begins with identifying the characteristics of the temporary organizations that set them apart from permanent organizational structures and alter the employment relationship and the employees' experience from what is experienced by employees in traditional organizations. The characteristics of the temporary organizations create specific needs and challenges for the employees that, if addressed properly, can increase employees' performance and contribute to the project outcome.

From the literature, various underlying reasons can be identified for the discrepancy of the research on the extent of the contribution of the HRM to project success. A prominent underlying factor for this discrepancy could be identified at the core of these studies as to how researchers define HRM. For instance, in the project management context, the HRM practices are mostly delegated to the line or project managers. In such situations, the HRM practices that are performed by project managers are not always acknowledged as HRM. The core HRM practices are recruitment,

training, development, performance evaluation, and compensation. The present research concludes that these roles are adapted to the project context and performed in stages of assigning (resource planning, selection, recruitment), team development, appraisal, and rewarding. However, they are not always acknowledged as HRM practices due to participation from various departments and the fragmentation of the HR function. This, in addition to the lack of a clear definition of HRM effectiveness and the intangible nature of HRM results, compounds the challenges of unraveling the contribution of HRM to project success. Further, in agreement with the social exchange theory, many researchers have argued that HRM practices contribute to organizational success by provoking beneficial behaviors from employees reciprocatively (Tsui et al., 1997). In such a manner, the HRM practices that positively stimulate the employees' motivation, satisfaction, and well-being, such as by enabling career development, fair appraisal, and proportionate rewarding, are expected to impact project success. Another factor highlighted here was the contribution of HRM in strategic resource planning that leads to a better work environment for project workers by preventing extensive working hours due to lack of resources or competency.

The HRM practices must support the project management orientation in a project context and project-oriented organizations to contribute to project success. Hence, HRM must involve other key players of the project, such as project and line managers. HRM department accomplishes this task by setting the policies and guidelines and delegating the practices to the project and line managers. In such circumstances, the traditional role of HRM shifts to a more strategic and proactive role. In such a role, the HR specialist performs as the business partner that provides coaching and consultations to the managers, detects the errors, understands the development opportunities, provides grounds for collaboration and experience sharing with project and line managers, and develops the best practices. These all point to abundant opportunities for future research on tailoring and adapting HRM practices to project-based working environments.

# Bibliography


Akhtar, S., Ding, D.Z., and Ge, G.L. (2008). Strategic HRM practices and their impact on company performance in Chinese enterprises. Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management *47*, 15-32.

Al-Keim, A. (2017). Strategies to reduce cost overruns and schedule delays in construction projects.

Al-Tmeemy, S.M.H.M., Abdul-Rahman, H., and Harun, Z. (2011). Future criteria for success of building projects in Malaysia. International Journal of Project Management *29*, 337-348.

Albrecht, S.L., Bakker, A.B., Gruman, J.A., Macey, W.H., and Saks, A.M. (2015). Employee engagement, human resource management practices and competitive advantage. Journal of Organizational Effectiveness: People and Performance.

Alexis, A.M. (2018). Human Resource Management Strategies for Small-and Medium-Sized Enterprise Project Success.

Alzahrani, J.I., and Emsley, M.W. (2013). The impact of contractors' attributes on construction project success: A post construction evaluation. International journal of project management *31*, 313-322.

Andersen, E.S. (2010). Rethinking project management–An organisational perspective. Strategic Direction.

Argote, L., Aven, B.L., and Kush, J. (2018). The effects of communication networks and turnover on transactive memory and group performance. Organization Science *29*, 191-206.

Armstrong, M. (2009). Armstrong's handbook of human resource management practice 11th edition.

Armstrong, M., and Taylor, S. (2014). Armstrong's Handbook of Human Resource Management Practice: Edition 13 (Kogan Page).

Bakker, R.M. (2010). Taking stock of temporary organizational forms: A systematic review and research agenda. International journal of management reviews *12*, 466-486.

Bakker, R.M., DeFillippi, R.J., Schwab, A., and Sydow, J. (2016). Temporary organizing: Promises, processes, problems. Organization Studies *37*, 1703-1719.

Bansal, V.K. (2011). Application of geographic information systems in construction safety planning. International Journal of Project Management *29*, 66-77.

Barbeito, C.L. (2004). Human resource policies and procedures for nonprofit organizations (John Wiley & Sons).

Barczak, G., Sultan, F., and Hultink, E.J. (2007). Determinants of IT usage and new product performance. Journal of product innovation management *24*, 600-613.

Barczak, G., and Wilemon, D. (1992). Successful new product team leaders. Industrial Marketing Management *21*, 61-68.

Barney, J.B., and Wright, P.M. (1998). On becoming a strategic partner: The role of human resources in gaining competitive advantage. Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management *37*, 31-46.

Bartlett, J. (2004). Project risk analysis and management guide (APM publishing limited).

Batti, R.C. (2014). Challenges facing local NGOs in resource mobilization. Humanities and Social Sciences *2*, 57-64.

Bayo-Moriones, A., Galdon-Sanchez, J.E., and Martinez-de-Morentin, S. (2017). Performance measurement and incentive intensity. Journal of Labor Research *38*, 496-546.

Beer, M., Boselie, P., and Brewster, C. (2015). Back to the future: Implications for the field of HRM of the multistakeholder perspective proposed 30 years ago. Human Resource Management *54*, 427-438.

Belassi, W., and Tukel, O.I. (1996). A new framework for determining critical success/failure factors in projects. International journal of project management *14*, 141-151.

Belout, A. (1992). Planification et contrôle de projets. Notes de cours et textes, Université du Québec à Montréal, Guérin éditeur.

Belout, A. (1998). Effects of human resource management on project effectiveness and success: toward a new conceptual framework. International Journal of Project Management *16*, 21-26.

Belout, A., and Gauvreau, C. (2004). Factors influencing project success: the impact of human resource management. International journal of project management *22*, 1-11.

Bettenhausen, K.L. (1991). Five years of groups research: What we have learned and what needs to be addressed. Journal of management *17*, 345-381.

Björkman, I., Ehrnrooth, M., Mäkelä, K., Smale, A., and Sumelius, J. (2014). From HRM practices to the practice of HRM: Setting a research agenda. Journal of Organizational Effectiveness: People and Performance.

Blanchard, S., and Rolland, G. (2005). Quand les RH construisent la croissance (Organisation).

Boon, C., Den Hartog, D.N., and Lepak, D.P. (2019). A systematic review of human resource management systems and their measurement. Journal of management *45*, 2498-2537.

Boselie, P. (2010). Strategic human resource management: A balanced approach (Tata McGraw-Hill Education).

Boselie, P., Dietz, G., and Boon, C. (2005). Commonalities and contradictions in HRM and performance research. Human resource management journal *15*, 67-94.

Boselie, P., Van Harten, J., and Veld, M. (2021). A human resource management review on public management and public administration research: stop right there…before we go any further…. Public Management Review *23*, 483-500.

Boxall, P., and Purcell, J. (2011). Strategy and human resource management (Macmillan International Higher Education).

Boxall, P.F., Purcell, J., and Wright, P.M. (2007). The Oxford handbook of human resource management (Oxford University Press on Demand).

Bradley, G. (2016). Benefit Realisation Management: A practical guide to achieving benefits through change (CRC Press).

Bredin, K. (2008). People capability of project-based organisations: A conceptual framework. International Journal of Project Management *26*, 566-576.

Bredin, K., and Söderlund, J. (2011). Human resource management in project-based organizations: The HR quadriad framework (Springer).

Brockman, B.K., Rawlston, M.E., Jones, M.A., and Halstead, D. (2010). An exploratory model of interpersonal cohesiveness in new product development teams. Journal of Product Innovation Management *27*, 201-219.

Broome, J., and Perry, J. (2002). How practitioners set share fractions in target cost contracts. International Journal of Project Management *20*, 59-66.

Brown, A., Adams, J., and Amjad, A. (2007). The relationship between human capital and time performance in project management: A path analysis. International Journal of Project Management *25*, 77-89.

Bui, H., Chau, V.S., Degl'Innocenti, M., Leone, L., and Vicentini, F. (2019). The resilient organisation: A meta-analysis of the effect of communication on team diversity and team performance. Applied Psychology *68*, 621-657.

Burke, C.M., and Morley, M.J. (2016). On temporary organizations: A review, synthesis and research agenda. Human relations *69*, 1235-1258.

Butler, C.W., Vijayasarathy, L.R., and Roberts, N. (2020). Managing software development projects for success: Aligning plan-and agility-based approaches to project complexity and project dynamism. Project Management Journal *51*, 262-277.

Chan, A.P., Scott, D., and Chan, A.P. (2004). Factors affecting the success of a construction project. Journal of construction engineering and management *130*, 153-155.

Chen, J., Reilly, R.R., and Lynn, G.S. (2005). The impacts of speed-to-market on new product success: the moderating effects of uncertainty. IEEE Transactions on engineering management *52*, 199-212.

Chrétien, L., Arcand, G., Tellier, G., and Arcand, M. (2005). Impacts des pratiques de gestion des ressources humaines sur la performance organisationnelle des entreprises de gestion de projets. Revue internationale sur le travail et la société *3*, 107-128.

Cipresso, B. (2008). L'efficacité de la gestion des ressources humaines en contexte de gestion de projet de systèmes d'information.

Cleland, D.I., and King, W.R. (1983). Systems Analysis and Project Management (McGraw-Hill).

Collyer, S., and Warren, C.M. (2009). Project management approaches for dynamic environments. International Journal of Project Management *27*, 355-364.

Cooke-Davies, T. (2002). The "real" success factors on projects. International journal of project management *20*, 185-190.

Davis, K. (2014). Different stakeholder groups and their perceptions of project success. International journal of project management *32*, 189-201.

De Clercq, D., Thongpapanl, N., and Dimov, D. (2015). Structural and relational influences on the role of reward interdependence in product innovation. R&D Management *45*, 527-548.

De Wit, A. (1988). Measurement of project success. International journal of project management *6*, 164-170.

Diallo, A., and Thuillier, D. (2005). The success of international development projects, trust and communication: an African perspective. International journal of project management *23*, 237-252.

Dibble, R., and Gibson, C.B. (2018). Crossing team boundaries: A theoretical model of team boundary permeability and a discussion of why it matters. Human Relations *71*, 925-950.

Dinçer, H., Hacıoğlu, Ü., and Yüksel, S. (2017). Balanced scorecard based performance measurement of European airlines using a hybrid multicriteria decision making approach under the fuzzy environment. Journal of Air Transport Management *63*, 17-33.

Doan, T.T.T., Nguyen, L.C.T., and Nguyen, T.D.N. (2020). Emotional intelligence and project success: The roles of transformational leadership and organizational commitment. The Journal of Asian Finance, Economics, and Business *7*, 223-233.

Doloi, H. (2012). Understanding impacts of time and cost related construction risks on operational performance of PPP projects. International Journal of Strategic Property Management *16*, 316-337.

Doloi, H., Iyer, K., and Sawhney, A. (2011). Structural equation model for assessing impacts of contractor's performance on project success. International journal of project management *29*, 687-695.

Driskell, J.E., and Salas, E. (1991). Group decision making under stress. Journal of Applied Psychology *76*, 473.

Dück, V., Ionescu, L., Kliewer, N., and Suhl, L. (2012). Increasing stability of crew and aircraft schedules. Transportation research part C: emerging technologies *20*, 47-61.

Dulebohn, J.H., and Hoch, J.E. (2017). Virtual teams in organizations (Elsevier).

Dulebohn, J.H., and Martocchio, J.J. (1998). Employee perceptions of the fairness of work group incentive pay plans. Journal of Management *24*, 469-488.

Ebtehaj, M., and Afshari, H. (2006). The impact of HRM1 on project success: an empirical study in oil and gas construction industries of Iran. Paper presented at: 3rd International Conference on Project Management (ProMAC2006), Sydney, New South Wales, Australia.

Edmondson, A.C. (2003). Framing for learning: Lessons in successful technology implementation. California Management Review *45*, 34-54.

Edmondson, A.C., Bohmer, R.M., and Pisano, G.P. (2001). Disrupted routines: Team learning and new technology implementation in hospitals. Administrative science quarterly *46*, 685-716.

Edmondson, A.C., and Nembhard, I.M. (2009). Product development and learning in project teams: The challenges are the benefits. Journal of product innovation management *26*, 123-138.

El-Sabaa, S. (2001). The skills and career path of an effective project manager. International journal of project management *19*, 1-7.

Ellemers, N., Spears, R., and Doosje, B. (1997). Sticking together or falling apart: In-group identification as a psychological determinant of group commitment versus individual mobility. Journal of personality and social psychology *72*, 617.

Engle, P. (2007). Projects require process leaders. Industrial Engineer *39*, 20-21.

Engwall, M. (2003). No project is an island: linking projects to history and context. Research policy *32*, 789-808.

Engwall, M., Steinthorsson, R.S., and Söderholm, A. (2003). Temporary organizing: a Viking approach to project management research. In The Northern Light, B. Czarniawska, and G. Sevon, eds. (Malmö: Liber).

Espinosa, J.A., Slaughter, S.A., Kraut, R.E., and Herbsleb, J.D. (2007). Familiarity, complexity, and team performance in geographically distributed software development. Organization science *18*, 613-630.

Estevao, M.M., and Lach, S. (1999). The evolution of the demand for temporary help supply employment in the United States (National Bureau of Economic Research).

Fapohunda, T.M. (2013). Towards effective team building in the workplace. International Journal of Education and Research *1*, 1-12.

Finch, P. (2003). Applying the Slevin-Pinto project implementation profile to an information systems project. Project Management Journal *34*, 32-39.

Fortune, J., and White, D. (2006). Framing of project critical success factors by a systems model. International journal of project management *24*, 53-65.

Foushee, H.C., and Helmreich, R.L. (1988). Group interaction and flight crew performance. In Human factors in aviation (Elsevier), pp. 189-227.

Gällstedt, M. (2003). Working conditions in projects: perceptions of stress and motivation among project team members and project managers. International Journal of Project Management *21*, 449-455.

García, N., Sanzo, M.J., and Trespalacios, J.A. (2008). Effect of the interfunctional climate on internal and external new product performance. The moderator role of innovation type. Paper presented at: International Congress "Marketing Trends", Venice, Italy.

Gareis, R. (2005). Happy projects!: project and programme management; project portfolio management; management of the project-oriented organization; management in the project-oriented society;[new theories, models, best practices, case studies] (Manz).

Gareis, R. (2007). Management of the project-oriented company. The Wiley Guide to Project, Program & Portfolio Management, Hoboken (NJ), 250-270.

Gobeli, D.H., and Larson, E.W. (1987). Relative effectiveness of different project structures (Project Management Institute).

Gomez-Mejia, L.R., and Balkin, D.B. (1989). Effectiveness of individual and aggregate compensation strategies. Industrial Relations: A Journal of Economy and Society *28*, 431-445.

Goodman, P.S., and Leyden, D.P. (1991). Familiarity and group productivity. Journal of applied psychology *76*, 578.

Guest, D.E. (2017). Human resource management and employee well-being: Towards a new analytic framework. Human resource management journal *27*, 22-38.

Gustavsson, T.K., and Hallin, A. (2015). Goal seeking and goal oriented projects–trajectories of the temporary organisation. International Journal of Managing Projects in Business.

Harrison, D.A., Mohammed, S., McGrath, J.E., Florey, A.T., and Vanderstoep, S.W. (2003). Time matters in team performance: Effects of member familiarity, entrainment, and task discontinuity on speed and quality. Personnel Psychology *56*, 633-669.

Hedhili, M.A., and Boudabbous, S. (2020). Recruitment and evaluation practices at the service of project-based organization and competence management: Case of Tunisian companies. Asian Journal of Social Sciences and Management Studies *7*, 17-24.

Henderson, L.S., Stackman, R.W., and Lindekilde, R. (2016). The centrality of communication norm alignment, role clarity, and trust in global project teams. International Journal of Project Management *34*, 1717-1730.

Hendry, C., and Pettigrew, A. (1990). Human resource management: an agenda for the 1990s. International journal of human resource management *1*, 17-43.

Hermann, C.F. (1963). Some consequences of crisis which limit the viability of organizations. Administrative science quarterly, 61-82.

Hertel, G., Konradt, U., and Orlikowski, B. (2004). Managing distance by interdependence: Goal setting, task interdependence, and team-based rewards in virtual teams. European Journal of work and organizational psychology *13*, 1-28.

Hewage, K.N., and Ruwanpura, J.Y. (2009). A novel solution for construction on-site communication–the information booth. Canadian Journal of Civil Engineering *36*, 659-671.

Hillson, D. (2007). Understanding risk exposure using multiple hierarchies. Paper presented at: PMI Global Congress EMEA Proceedings.

Hobday, M. (2000). The project-based organisation: an ideal form for managing complex products and systems? Research policy *29*, 871-893.

Hollenbeck, J.R., Ilgen, D.R., Sego, D.J., Hedlund, J., Major, D.A., and Phillips, J. (1995). Multilevel theory of team decision making: Decision performance in teams incorporating distributed expertise. Journal of Applied Psychology *80*, 292.

Huckman, R.S., and Staats, B.R. (2011). Fluid tasks and fluid teams: The impact of diversity in experience and team familiarity on team performance. Manufacturing & Service Operations Management *13*, 310-328.

Huemann, M., Keegan, A., and Turner, J.R. (2007). Human resource management in the project-oriented company: A review. International journal of project management *25*, 315-323.

Huemann, M., Keegan, A., and Turner, R. (2018). Human resource management in the project-oriented organization (Project Management Institute).

Huemann, M., Turner, J., and Keegan, A. (2004). Human resource management in the project-oriented organization: questions for future research. Innovations: project management research, 369-384.

Ika, L.A. (2015). Opening the black box of project management: Does World Bank project supervision influence project impact? International Journal of Project Management *33*, 1111-1123.

Ingels, J., and Maenhout, B. (2017). Employee substitutability as a tool to improve the robustness in personnel scheduling. OR Spectrum *39*, 623-658.

Jaafari, A. (2003). Project management in the age of complexity and change. Project management journal *34*, 47-57.

Jackson, S.E., and Schuler, R.S. (2009). Managing human resources (Mason, OH: South-Western Cengage Learning).

Jamieson, A., and Morris, P.W. (2007). Moving from corporate strategy to project strategy. In The Wiley Guide to Project, Program, and Portfolio Management (John Wiley & Sons Hoboken, NJ), pp. 34-62.

Jarad, I.A., Yusof, N.A., and Shafiei, M.W.M. (2010). The organizational performance of housing developers in Peninsular Malaysia. International Journal of Housing Markets and Analysis.

Jensen, A., Thuesen, C., and Geraldi, J. (2016). The projectification of everything: Projects as a human condition. Project Management Journal *47*, 21-34.

Jha, K., and Iyer, K. (2007). Commitment, coordination, competence and the iron triangle. International Journal of Project Management *25*, 527-540.

Jugdev, K., and Müller, R. (2005). A retrospective look at our evolving understanding of project success. Project management journal *36*, 19-31.

Kandelousi, N.S. (2011). Key success factors for managing projects. International Journal of Economics and Management Engineering *5*, 1541-1545.

Katane, J., and Dube, S. (2017). The influence of organizational culture and project management maturity in virtual project teams. Cell *72*, 4764.

Katz, R. (1982). The effects of group longevity on project communication and performance. Administrative science quarterly, 81-104.

Keegan, A., and Den Hartog, D. (2019). Doing it for themselves? P erformance appraisal in project-based organisations, the role of employees, and challenges to theory. Human Resource Management Journal *29*, 217-237.

Keegan, A., Huemann, M., and Turner, J.R. (2012). Beyond the line: exploring the HRM responsibilities of line managers, project managers and the HRM department in four project-oriented companies in the Netherlands, Austria, the UK and the USA. The International Journal of Human Resource Management *23*, 3085-3104.

Keegan, A., Ringhofer, C., and Huemann, M. (2018). Human resource management and project based organizing: Fertile ground, missed opportunities and prospects for closer connections. International Journal of Project Management *36*, 121-133.

Keegan, A., Turner, J.R., and Huemann, M. (2008). Managing human resources in the project-based organization.

Kendra, K., and Taplin, L.J. (2004). Project success: A cultural framework. Project management journal *35*, 30-45.

Kerzner, H. (2009). Project management: A systems approach to planning, Vol 11 (Scheduling and Controlling).

Kerzner, H. (2017). Project management: a systems approach to planning, scheduling, and controlling (John Wiley & Sons).

Khan, A.S., and Rasheed, F. (2015). Human resource management practices and project success, a moderating role of Islamic Work Ethics in Pakistani project-based organizations. International Journal of Project Management *33*, 435-445.

Kianto, A., Sáenz, J., and Aramburu, N. (2017). Knowledge-based human resource management practices, intellectual capital and innovation. Journal of Business Research *81*, 11-20.

Kotlarsky, J., van den Hooff, B., and Houtman, L. (2015). Are we on the same page? Knowledge boundaries and transactive memory system development in cross-functional teams. Communication research *42*, 319-344.

Kuvaas, B. (2006). Performance appraisal satisfaction and employee outcomes: mediating and moderating roles of work motivation. The International Journal of Human Resource Management *17*, 504-522.

Lamba, S., and Choudhary, N. (2013). Impact of HRM practices on organizational commitment of employees. International Journal of Advancements in Research & Technology *2*, 407-423.

Lappe, M., and Spang, K. (2014). Investments in project management are profitable: A case study-based analysis of the relationship between the costs and benefits of project management. International Journal of Project Management *32*, 603-612.

Larson, E., and Gray, C. (2013). Project management: The managerial process with MS project (McGraw-Hill Education).

Laursen, M., and Svejvig, P. (2016). Taking stock of project value creation: A structured literature review with future directions for research and practice. International Journal of Project Management *34*, 736-747.

Lechler, T. (1998). When it comes to project management, it's the people that matter: an empirical analysis of project management in Germany. IRNOP III The nature and role of projects in the next *20*, 205-215.

Lenfle, S., and Loch, C. (2010). Lost roots: How project management came to emphasize control over flexibility and novelty. California Management Review *53*, 32-55.

Leung, M.Y., Ng, S.T., and Cheung, S.O. (2004). Measuring construction project participant satisfaction. Construction Management and Economics *22*, 319-331.

Ling, F.Y.Y., Low, S.P., Wang, S.Q., and Lim, H.H. (2009). Key project management practices affecting Singaporean firms' project performance in China. International Journal of Project Management *27*, 59-71.

Loosemore, M., Dainty, A., and Lingard, H. (2003). Human resource management in construction projects: strategic and operational approaches (Taylor & Francis).

Lundin, R.A., Arvidsson, N., Brady, T., Ekstedt, E., Midler, C., and Sydow, J. (2015). Managing and working in project society (Cambridge university press).

Lundin, R.A., and Söderholm, A. (1995). A theory of the temporary organization. Scandinavian Journal of management *11*, 437-455.

Lundin, R.A., and Söderholm, A. (2013). Temporary organizations and end states: A theory is a child of its time and in need of reconsideration and reconstruction. International Journal of Managing Projects in Business.

Luu, T.T. (2019). Service-oriented high-performance work systems and service-oriented behaviours in public organizations: the mediating role of work engagement. Public Management Review *21*, 789-816.

Mahjoub, M., Atashsokhan, S., Khalilzadeh, M., Aghajanloo, A., and Zohrehvandi, S. (2018). Linking "Project Success" and "Strategic Talent Management": satisfaction/motivation and organizational commitment as mediators. Procedia computer science *138*, 764-774.

Mark Mullaly, P., and Thomas, J. (2008). Researching the value of project management (Project Management Institute).

Markoulli, M.P., Lee, C.I., Byington, E., and Felps, W.A. (2017). Mapping Human Resource Management: Reviewing the field and charting future directions. Human Resource Management Review *27*, 367-396.

Marlow, S.L., Lacerenza, C.N., Paoletti, J., Burke, C.S., and Salas, E. (2018). Does team communication represent a one-size-fits-all approach?: A meta-analysis of team communication and performance. Organizational Behavior and Human Decision Processes *144*, 145-170.

Martin, H., Lewis, T.M., and Fifi, J. (2014). Centralized versus decentralized construction project structure–Easing communication difficulties. International Journal of Construction Management *14*, 156-170.

Martinsuo, M., and Killen, C.P. (2014). Value management in project portfolios: Identifying and assessing strategic value. Project Management Journal *45*, 56-70.

Mathieu, J., Maynard, M.T., Rapp, T., and Gilson, L. (2008). Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. Journal of management *34*, 410-476.

Mayrhofer, W., and Meyer, M. (2002). „No More Shall We Part?" Neue Selbstständige und neue Formen der Kopplung zwischen Organisationen und ihrem Personal. German Journal of Human Resource Management *16*, 599-614.

McDonough III, E.F., Kahnb, K.B., and Barczaka, G. (2001). An investigation of the use of global, virtual, and colocated new product development teams. Journal of Product Innovation Management: An international publication of the product development & management association *18*, 110-120.

Memon, S., Panhwar, A., and Rohra, L. (2010). Investigating the mediating role of human resource policies in employee retention. Australian Journal of Basic and Applied Sciences *4*, 4046-4057.

Meredith, J., and Mantel, S.J. (2009). Project Management: A Managerial Approach, (W/Cd) (John Wiley & Sons).

Michael, A. (2019). A handbook of human resource management practice (bookboon. com).

Midler, C. (1995). "Projectification" of the firm: the Renault case. Scandinavian Journal of management *11*, 363-375.

Mir, F.A., and Pinnington, A.H. (2014). Exploring the value of project management: linking project management performance and project success. International journal of project management *32*, 202-217.

Mookerjee, V.S., and Chiang, I.R. (2002). A dynamic coordination policy for software system construction. IEEE Transactions on software engineering *28*, 684-694.

Moradi, S., Kähkönen, K., Klakegg, O.J., and Aaltonen, K. (2021). A Competency Model for the Selection and Performance Improvement of Project Managers in Collaborative Construction Projects: Behavioral Studies in Norway and Finland. Buildings *11*, 4.

Moreland, R., Argote, L., and Krishnan, R. (1998). Training people to work in groups. RS Tindale, L. Heath, eds. Theory and Research on Small Groups: Social Psychological Applications to Social Issues. Plenum Press, New York *37*, 60.

Moreland, R.L., and Myaskovsky, L. (2000). Exploring the performance benefits of group training: Transactive memory or improved communication? Organizational behavior and human decision processes *82*, 117-133.

Mughal, M., Bahaudin, A., and Salleh, N. (2019). Behavioral factors for IT project success in Pakistan: Moderating effect of leadership styles. Management Science Letters *9*, 987-996.

Müller, R., and Turner, J.R. (2007a). Matching the project manager's leadership style to project type. International journal of project management *25*, 21-32.

Müller, R., and Turner, R. (2007b). The influence of project managers on project success criteria and project success by type of project. European management journal *25*, 298-309.

Mullins, L. (1999). Management and organizational behavior . Saddle River (NJ: Prentice Hall).

Nakata, C., and Im, S. (2010). Spurring cross-functional integration for higher new product performance: A group effectiveness perspective. Journal of Product Innovation Management *27*, 554-571.

Nazari-Shirkouhi, S., Mousakhani, S., Tavakoli, M., Dalvand, M.R., Šaparauskas, J., and Antuchevičienė, J. (2020). Importance-performance analysis based balanced scorecard for performance evaluation in higher education institutions: an integrated fuzzy approach. Journal of Business Economics and Management *21*, 647-678.

Nembhard, I.M., and Edmondson, A.C. (2006). Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior *27*, 941-966.

Newell, S., Tansley, C., and Huang, J. (2004). Social capital and knowledge integration in an ERP project team: the importance of bridging and bonding. British journal of management *15*, 43-57.

Nurmi, N. (2011). Coping with coping strategies: How distributed teams and their members deal with the stress of distance, time zones and culture. Stress and Health *27*, 123-143.

O'Boyle, I. (2013). Traditional performance appraisal versus 360-degree feedback (Emerald Group Publishing Limited).

Ofori, D.F. (2013). Project management practices and critical success factors-A developing country perspective. International Journal of Business and Management *8*, 14.

Ogunlana, S.O. (2010). Beyond the 'iron triangle': Stakeholder perception of key performance indicators (KPIs) for large-scale public sector development projects. International journal of project management *28*, 228-236.

Ogwueleka, A.C., and Maritz, M.J. (2013). A review of incentive issues in the South African construction industry: The prospects and challenges. ICCREM 2013: Construction and Operation in the Context of Sustainability, 83-98.

Omran, A., Abdulbagei, M.A., and Gebril, A.O. (2012). An evaluation of the critical success factors for construction projects in Libya. International Journal of Economic Behavior *2*, 17-25.

Panas, A., Pantouvakis, J.-P., and Lambropoulos, S. (2014). A simulation environment for construction project manager competence development in construction management. Procedia-Social and Behavioral Sciences *119*, 739-747.

Papke-Shields, K.E., Beise, C., and Quan, J. (2010). Do project managers practice what they preach, and does it matter to project success? International journal of project management *28*, 650-662.

Pheng, L.S., and Chuan, Q.T. (2006). Environmental factors and work performance of project managers in the construction industry. International journal of project management *24*, 24-37.

Pinto, J.K., and Covin, J.G. (1989). Critical factors in project implementation: a comparison of construction and R&D projects. Technovation *9*, 49-62.

Pinto, J.K., and Prescott, J.E. (1988). Variations in critical success factors over the stages in the project life cycle. Journal of management *14*, 5-18.

Pinto, J.K., and Slevin, D.P. (1987). Critical factors in successful project implementation. IEEE transactions on engineering management, 22-27.

Pinto, J.K., and Slevin, D.P. (1988a). 20. Critical success factors in effective project implementation*. Project management handbook *479*, 167-190.

Pinto, J.K., and Slevin, D.P. (1988b). Project success: definitions and measurement techniques (Project Management Institute Newton Square, PA).

Pinto, J.K., and Slevin, D.P. (1989). Critical success factors in R&D projects. Research-technology management *32*, 31-35.

Pinto, M.B. (1989). Predictors of cross-functional cooperation in the implementation of marketing decisions. Paper presented at: AMA Educator's Proceedings.

Pinto, M.B., and Pinto, J.K. (1990). Project team communication and cross-functional cooperation in new program development. Journal of Product Innovation Management: an international publication of the product development & management association *7*, 200-212.

PMBoK, A. (2013). A guide to the project management body of knowledge (PMBOK guide). In Project Management Institute, Inc (Newtown Square, PA).

PMI, A. (2008). Guide to the project management body of knowledge Project Management Institute. Newton Square, PA.

Pollack, J., Helm, J., and Adler, D. (2018). What is the Iron Triangle, and how has it changed? International journal of managing projects in business.

Price, A. (2004). Human resource management in a business context.

Raiden, A., Dainty, A., and Neale, R. (2009). Employee resourcing in the construction industry: strategic considerations and operational practice (Routledge).

Rau, B.L., and Hyland, M.A.M. (2002). Role conflict and flexible work arrangements: The effects on applicant attraction. Personnel psychology *55*, 111-136.

Riis, E., Hellström, M.M., and Wikström, K. (2019). Governance of Projects: Generating value by linking projects with their permanent organisation. International Journal of Project Management *37*, 652-667.

Rofner, A. (2009). Critical success factors of international sport events from the perspective of project management.

Saba, T., Dolan, S.L., Jackson, S.E., and Schuler, R.S. (2008). La gestion des ressources humaines: tendances, enjeux et pratiques actuelles, 4e éd. Saint-Laurent: Éditions du renouveau pédagogique, 654p.

Salman, M., Ganie, S.A., and Saleem, I. (2020). Employee Competencies as Predictors of Organizational Performance: A Study of Public and Private Sector Banks. Management and Labour Studies *45*, 416-432.

Samimi, E., and Sydow, J. (2021). Human resource management in project-based organizations: revisiting the permanency assumption. The International Journal of Human Resource Management *32*, 49-83.

San Cristóbal, J.R., Carral, L., Diaz, E., Fraguela, J.A., and Iglesias, G. (2018). Complexity and project management: A general overview. Complexity *2018*.

Sayles, L., and Chandler, M. (1971). Managing Large Systems: Organizations for the Future, Harper and Row (New York).

Schippers, M.C., Den Hartog, D.N., Koopman, P.L., and Wienk, J.A. (2003). Diversity and team outcomes: The moderating effects of outcome interdependence and group longevity and the mediating effect of reflexivity. Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior *24*, 779-802.

Schoper, Y.-G., Wald, A., Ingason, H.T., and Fridgeirsson, T.V. (2018). Projectification in Western economies: A comparative study of Germany, Norway and Iceland. International Journal of Project Management *36*, 71-82.

Schweitzer, L., and Duxbury, L. (2010). Conceptualizing and measuring the virtuality of teams. Information systems journal *20*, 267-295.

Senaratne, S., and Ruwanpura, M. (2016). Communication in construction: a management perspective through case studies in Sri Lanka. Architectural Engineering and Design Management *12*, 3-18.

Senge, P. (1994). Building learning organizations. The training and development sourcebook *379*.

Sennett, R. (1998). The corrosion of character: The personal consequences of work in the new capitalism (WW Norton & Company).

Serrador, P., and Turner, R. (2015). The relationship between project success and project efficiency. Project management journal *46*, 30-39.

Simons, T., and Roberson, Q. (2003). Why managers should care about fairness: the effects of aggregate justice perceptions on organizational outcomes. Journal of applied psychology *88*, 432.

Slevin, D.P., and Pinto, J.K. (1986). The project implementation profile: new tool for project managers (Project Management Institute).

Söderlund, J., and Bredin, K. (2006). HRM in project-intensive firms: Changes and challenges. Human Resource Management: Published in Cooperation with the School of Business Administration, The University of Michigan and in alliance with the Society of Human Resources Management *45*, 249-265.

Sole, D., and Edmondson, A. (2002). Situated knowledge and learning in dispersed teams. British journal of management *13*, S17-S34.

St-Onge, S., Brun, J.-P., Haines, V., and Guerrero, S. (2013). Relever les défis de la gestion des ressources humaines (G. Morin).

St-Onge, S., and Haines, V. (2007). Gestion des performances au travail : bilan des connaissances (Bruxelles: De Boeck).

Staw, B.M., Sandelands, L.E., and Dutton, J.E. (1981). Threat rigidity effects in organizational behavior: A multilevel analysis. Administrative science quarterly, 501-524.

Szwarc, E., Nielsen, I., Smutnicki, C., and Bocewicz, G. (2020). Competence-oriented recruitment of a project team robust to disruptions. Paper presented at: Asian Conference on Intelligent Information and Database Systems (Springer).

Tampoe, M., and Thurloway, L. (1993). Project management: the use and abuse of techniques and teams (reflections from a motivation and environment study). International Journal of Project Management *11*, 245-250.

Teller, J., Kock, A., and Gemünden, H.G. (2014). Risk management in project portfolios is more than managing project risks: A contingency perspective on risk management. Project Management Journal *45*, 67-80.

Thamhain, H.J. (2004a). Linkages of project environment to performance: lessons for team leadership. International Journal of project management *22*, 533-544.

Thamhain, H.J. (2004b). Team leadership effectiveness in technology-based project environments. Project Management Journal *35*, 35-46.

Toh, S.M., and DeNisi, A.S. (2005). A local perspective to expatriate success. Academy of Management Perspectives *19*, 132-146.

Troy, L.C., Hirunyawipada, T., and Paswan, A.K. (2008). Cross-functional integration and new product success: an empirical investigation of the findings. Journal of Marketing *72*, 132-146.

Tsui, A.S., Pearce, J.L., Porter, L.W., and Tripoli, A.M. (1997). Alternative approaches to the employee-organization relationship: does investment in employees pay off? Academy of Management journal *40*, 1089-1121.

Turner, J. (1999). Improving the Process for Achieving Strategic Objectives. The Handbook of Project-Based Management, McGraw-Hill International (UK) Ltd.

Turner, J.R. (2009). Handbook of project-based management: Leading strategic change in organizations (McGraw-Hill Education).

Turner, J.R., and Müller, R. (2003). On the nature of the project as a temporary organization. International journal of project management *21*, 1-8.

Turner, R., Huemann, M., and Keegan, A. (2008). Human resource management in the project-oriented organization: Employee well-being and ethical treatment. International Journal of Project Management *26*, 577-585.

Turner, R., Keegan, A., and Crawford, L. (2000). Learning by experience in the project-bases organization.

van der Hoorn, B., and Whitty, S.J. (2015). Signs to dogma: A Heideggerian view of how artefacts distort the project world. International Journal of Project Management *33*, 1206-1219.

Van Wyngaard, C.J., Pretorius, J.-H.C., and Pretorius, L. (2012). Theory of the triple constraint—A conceptual review. Paper presented at: 2012 IEEE International Conference on Industrial Engineering and Engineering Management (IEEE).

Vargo, S.L., Akaka, M.A., and Vaughan, C.M. (2017). Conceptualizing value: a service-ecosystem view. Journal of Creating Value *3*, 117-124.

Vidal, L.A., and Marle, F. (2008). Understanding project complexity: implications on project management. Kybernetes.

Vincent, G.S., and Joseph, A. (2013). Challenges for human resource experts in Global scenerio. International Journal of advancement in Research and Technology *2*, 209-214.

Waeffler, P., and Pfister, E. (2008). Successful project management in today's sport. Paper presented at: Proceedings of the 22nd IPMA World Congress "Project Management to Run.

Wald, A., Schneider, C., Spanuth, T., and Schoper, Y. (2015). Towards a measurement of "projectification": A study on the share of project-work in the German economy. Advanced project management: Flexibility and innovative capacity *4*, 18-36.

Walker, H., and Joines, M. (2004). A guide to peer appraisal. Nursing management *11*.

Wallace, L., Keil, M., and Rai, A. (2004). How software project risk affects project performance: An investigation of the dimensions of risk and an exploratory model. Decision sciences *35*, 289-321.

Wang, X., and Huang, J. (2006). The relationships between key stakeholders' project performance and project success: Perceptions of Chinese construction supervising engineers. International journal of project management *24*, 253-260.

Watson, T.J. (2010). Critical social science, pragmatism and the realities of HRM. The International journal of human resource management *21*, 915-931.

Weinkauf, K., and Hoegl, M. (2002). Team leadership activities in different project phases. Team Performance Management: An International Journal.

Welch, C.L., Welch, D.E., and Tahvanainen, M. (2008). Managing the HR dimension of international project operations. The International Journal of Human Resource Management *19*, 205-222.

Wheelwright, S.C., and Clark, K.B. (1992). Revolutionizing product development: quantum leaps in speed, efficiency, and quality (Simon and Schuster).

White, D., and Fortune, J. (2002). Current practice in project management—An empirical study. International journal of project management *20*, 1-11.

Wi, H., and Jung, M. (2010). Modeling and analysis of project performance factors in an extended project-oriented virtual organization (EProVO). Expert Systems with Applications *37*, 1143-1151.

Williams, K.Y., and Charles, A. (1998). 'Reilly. 1998. Demography and diversity in organizations: A review of 40 years of research. Research in organizational behavior *20*, 77-140.

Wind, Y. (1981). Marketing and Other Business Functions in Research in Marketing, JN Sheth, ed (JAI Press Inc., Greenwich, CT).

Winter, M., Smith, C., Morris, P., and Cicmil, S. (2006). Directions for future research in project management: The main findings of a UK government-funded research network. International journal of project management *24*, 638-649.

Wright, P.M., and McMahan, G.C. (1992). Theoretical perspectives for strategic human resource management. Journal of management *18*, 295-320.

Yang, L.-R., Chen, J.-H., Wu, K.-S., Huang, D.-M., and Cheng, C.-H. (2015). A framework for evaluating relationship among HRM practices, project success and organizational benefit. Quality & Quantity *49*, 1039-1061.

Yawei, L., Shouyu, C., and Xiangtian, N. (2005). Fuzzy pattern recognition approach to construction contractor selection. Fuzzy Optimization and Decision Making *4*, 103-118.

Young, H.R., Glerum, D.R., Wang, W., and Joseph, D.L. (2018). Who are the most engaged at work? A meta-analysis of personality and employee engagement. Journal of Organizational Behavior *39*, 1330-1346.

Zayed, T., Amer, M., and Pan, J. (2008). Assessing risk and uncertainty inherent in Chinese highway projects using AHP. International journal of project management *26*, 408-419.

Zhang, Z., Zhang, L., and Li, A. (2019). Investigating the Effects of Reward Interdependence and Nonfinancial Incentives on NPD Collaboration in Diverse Project Teams. Project Management Journal *50*, 641-656.

Zhao, H., and Li, N. (2015). Evaluating the performance of thermal power enterprises using sustainability balanced scorecard, fuzzy Delphic and hybrid multi-criteria decision making approaches for sustainability. Journal of Cleaner Production *108*, 569-582.

Zika-Viktorsson, A., Sundström, P., and Engwall, M. (2006). Project overload: An exploratory study of work and management in multi-project settings. International Journal of Project Management *24*, 385-394.