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Organisational justice, project performance and the mediating effects of key success factors

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Abstract

Projects are under constant pressure to improve performance and research is needed to understand the characteristics of high performing projects. Using the concept of organisational justice as a characteristic we propose that the performance of projects in meeting success criteria is enhanced when there are procedures in place for the fair treatment of project team members, when resources are allocated fairly and when the individuals interact in a way that is characterised by respect, propriety and dignity. Structural equation analysis supports our proposition that the presence of organisational justice enhances project performance and valuable nuances in these relationships are discovered.

Keywords: organisational justice; project performance; key success factors

Introduction

A project is a complex social construct, which is not only formed temporarily from a set of different organizations but also regarded as a temporary organization itself, which is composed of various single firms (Hobday, 1998). This temporary (multi) organization (TMO) often involves a high number of individuals with an abundant number of boundaries of diverse character, e.g. the apportionment of cultures, climate, knowledge, fields of expertise, practices, resources, roles, organizational types, group and individual functions etc. (Cherns & Bryant, 1984). TMOs often fail to overcome these boundaries and hence, fail to work as fully integrated, highly effective and efficient teams with a common goal and focus (Baiden & Price, 2011; Baiden, Price, & Dainty, 2006). This fragmentation, with multiple single organizations involved, leads to an increased need for coordination and collaboration work for individuals (Bruns, 2013). The temporary nature of projects also has a negative impact on psycho-social aspects; for example, on the ability of team members to work together and to fully immerse themselves in the project (Bakker, Boroş, Kenis, & Oerlemans, 2013). This continuous absence of cooperation and boundary spanning behaviour in TMOs also has an impact on their performance (Anvuur, Kumaraswamy, & Fellows, 2012; Phua, 2004).

There has long been a call for an increased focus in research on such social relationships and behaviours in projects, however so far projects have not been sufficiently viewed as complex social settings – which has hindered study (Bresnen, Goussevskaia, & Swan, 2005). Hence there has been a lack of research in the area of psychosocial relationships in projects and on the impact of such relationships on project performance.

It has been recognised over the last two decades that projects are struggling to address these challenges sufficiently and hence, constantly underperform (APM, 2015; PMI, 2016). Considering the monetary value of project work undertaken worldwide, this underperformance is a major economic issue and alternative management approaches to those traditionally used in project management (PM) to improve project performance are needed. One alternative approach, which adopts a social perspective on project work, is organizational justice. Organizational justice is concerned with the perception of fairness in the working environment (Greenberg, 1987) and multiple meta-analytic reviews have suggested that its employment has positive effects on organizations as well as employees (Cohen-Charash & Spector, 2001; Jason A. Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Viswesvaran & Ones, 2002).

Yet to date, the majority of the research undertaken in the area of organizational justice has focused on the impact of organizational justice on the behaviour of individuals or groups, but fairly little research has been undertaken which investigates the relationship between organizational justice and performance in project environments (Aryee, Budhwar, & Zhen Xiong, 2002; Mahajan & Benson, 2013; Swalhi, Zgoulli, & Hofaidhllaoui, 2017). Hence the aim of our study is to gain a better understanding of the relationship between organizational justice and project performance in the specific context of the TMOs set up to manage projects. We developed the following research question for our study: How does organisational justice influence project performance? We intend to answer this question by exploring both the direct relationship between organizational justice and project performance and also the indirect relationship through its mediation by various key success factors. By doing the latter we are able to capture the most relevant key success factors and identify which dimensions of organizational justice are related to which key success factors.

Theoretical Background and Hypotheses

Organizational Justice

Organizational justice with its three dimensions of distributive, procedural and interactional justice, has been a vibrant and fruitful research area over the past few decades with many novel contributions to theory and practice. It is a highly complex phenomenon with multiple facets in regards to why individuals care about fairness, how they judge the different aspects of fairness and in the way they use their fairness perception to direct their attitudes and behaviour. Distributive justice is about the fair distribution of resources and outcomes, whereas procedural justice focuses on the fair procedures used for decision making and interactional justice is concerned with the communication of outcomes and procedures (Jason A. Colquitt, Greenberg, & Zapata-Phelan, 2005). In this context it is important to note that it is not about how justice should be, but rather about how the individuals – particularly employees – perceive to be treated by an authority – either their manager, client or sponsor (ibid). These individuals use three different judgments to evaluate how they perceive fairness (Folger, Cropanzano, & Goldman, 2005): a) they ask what would have happened if the action had not taken place; b) they ask if the authority could have taken any alternative steps; and c) they ask if the authority should have behaved the way s/he did. It has been found that the adoption of justice in the working environment has many benefits, like outcome satisfaction (e.g. Folger & Konovsky, 1989; Sweeney & McFarlin, 1993); low staff turnover (Dailey & Kirk, 1992); high levels of customer satisfaction (Simons & Roberson, 2003); low levels of absenteeism (Lam, Schaubroek, & Aryee, 2002); high levels of organizational commitment (Folger & Konovsky, 1989); high levels of organizational citizenship behaviour (Fassina, Jones, & Uggerslev, 2008); and low levels of employee theft (Greenberg, 1990). Almost all of these studies were undertaken in a single organization context with the focus on how

organizational justice influences the behaviour of people. However, the organisational context of TMOs with all its temporality, uncertainty and unknown parties has not been considered in any depth – despite the fact that previous studies emphasised the importance of the context under which organisational justice takes place (Jason A Colquitt & Jackson, 2006). Furthermore, the impact of the adoption of fair principles and procedures on organizational outcomes, like performance, has mainly been neglected.

Those few studies which have looked at certain aspects of the relationship between organizational justice and performance in recent years have not specifically focused on project environments involving a TMO: i.e. Mahajan and Benson (2013) propose an indirect relationship between organizational justice climate and firm performance through social capital; and Swalhi et al. (2017) suggest that there is a significant relationship between organizational justice and job performance, mediated through affective commitment. Building on these few studies we need to gain a better understanding of how this relationship works in different organizational contexts, such as the TMO, and of which dimensions of organizational justice, i.e. distributive, procedural or interactional, are most influential on elements of performance.

Project Performance

Project performance is a multi-dimensional construct (Chipulu et al., 2014). Important dimensions are cost, time and quality objectives (Jha & Iyer, 2007; Winch, 2010). The performance of cost and time is usually measured by the percentage deviation from the initial plan whereas the performance of quality is usually measured regarding the compliance with contractual agreements and technical standards (Tabish & Jha, 2012). These dimensions provide valuable and vital information about project performance, particularly in regards to

task related aspects (Cserhati & Szabo, 2014; Nguyen & Watanabe, 2017). However, there are other dimensions that are important as different stakeholders might have different interests in the project and therefore different performance criteria (Winch, 2010). A narrow focus on time, cost and quality dimensions also has the potential to limit project performance as the restriction to the iron triangle impacts on actions and decisions (Bryde, 2005). Hence an additional important dimension is to quantify the client's satisfaction or expand it even to the participants' satisfaction (Lehtiranta, Kärnä, Junnonen, & Julin, 2012). These intangible criteria, which focus on perceptions and attitudes, are regarded as a valuable enhancement of project performance measurement, although they are still at an initial stage of development (Cserhati & Szabo, 2014).

Key Success Factors

Project performance is influenced by so called critical success factors which are in general defined as the "few key areas of activity in which favourable results are absolutely necessary for a particular manager to reach his or her goals" (Rockart, 1982, p. 4). An in-depth literature review developed a conceptual framework for 43 factors which affect the success of projects with five main categories: project management actions, project related factors, external environment, project procedures and human-related factors (Chan, Scott, & Chan, 2004). All five categories are interrelated and intra-related, which essentially means that all five factors are vital for project performance and none of them can guarantee it on its own. On closer examination of these categories defined by Chan et al. (2004) one aspect is striking: more than half of the key success factors are human-related factors. This is underpinned by a more recent study which identifies that human-related factors play a crucial role in the project performance followed by management actions (Tabish & Jha, 2012). The study by Gunduz and Yahya (2015) developed a hierarchy of success factors in the

construction industry which highlights again the importance of human- and management-related factors. However, it is also vital to note that the relationships between success factors are highly complex and that there is a tendency to oversimplify them (Williams, 2016).

Organisational Justice, Key Success Factors and Project Performance

Previous studies highlighted that organizational justice has multiple benefits on organizations and its employees. Specifically, Mahajan and Benson (2013) as well as Swalhi et al. (2017) suggest a significant relationship between organizational justice and performance, particularly firm performance and job performance. Hence, we propose that there is also a significant relationship between organizational justice and project performance. We furthermore propose that this relationship is positive, i.e. if the level of organisational justice increases the project performance increases as well.

H1 *There is a positive relationship between increasing organizational justice and the performance of projects.*

However, key success factors also play an important role in this relationship as they can also be viewed as antecedents of project performance (Bryde, 2005) and some of them are at the same time benefits of organizational justice. Akintoye, McIntosh, and Fitzgerald (2000), Akintoye and Main (2007) and Jha and Iyer (2007) emphasise in their research that commitment is a key factor for the successful project delivery and some studies related to organisational justice suggest that distributive, procedural and interactional justice predict organizational commitment (Allen & Meyer, 1990; Jason A. Colquitt et al., 2001; Folger & Konovsky, 1989). The same is applicable for conflict management which is an antecedent to project performance (Chan et al., 2004) and it has been suggested in prior research that

organisational justice can be useful in difficult conversation or in delivering bad news (Lavelle, Folger, & Manegold, 2016; Richter, König, Koppermann, & Schilling, 2016). Another highly important key success factor for projects is communication according to Aljassmi and Han (2013); Gündüz, Nielsen, and Özdemir (2013) or Jha and Iyer (2007) whereas it is also perceived as a substantial benefit of organisational justice (Cropanzano, Bowen, & Gilliland, 2007). We are building on these links between certain key success factors and organisational justice, which can be proposed based on the combination of literature from different fields to explore these relationships in project environments. Nine key success factors from previous literature were identified to be potentially influenced by one or multiple dimensions of organisational justice as outlined above (Chan et al., 2004; Gunduz & Yahya, 2015). These are mainly human, behaviour and structure related and could act as mediators between organisational justice and project performance. The factors are: a) communication – is the client's communication timely and adequate; b) commitment – do the project team members feel emotionally attached to, and do they identify with, the project; c) coordination – does the project have clearly defined roles and does coordination work sufficiently well ; d) competence and managerial qualities – is the client capable, reliable, respectful and demonstrating integrity and does s/he deserve the benefit of the doubt; e) decision-making – does the project have a clearly defined, transparent and comprehensible way of decision making; f) compliance to client's expectations – does the project have a clear specification and do the project team members try to comply with it; g) conflict management – does the project have a clearly defined process of how to deal with conflict, is conflict seen as positive and is open communication encouraged; h) efficacy of organizational structures – does the project have a clear organisational structure; and i) efficacy of procurement method and contract – is the procurement method suitable for the client and the project, are rights and duties in the contract fairly distributed and unambiguously phrased. We assume that these key

success factors interact and that a combination of them acts as net-mediators. This means that the presence of multiple mediators creates an indirect effect between organizational justice and project performance. Hence, we propose the following hypothesis:

H2 *The relationship between increased organizational justice and project performance is net-mediated by key success factors.*

Furthermore we propose that these key success factors not only act as net-mediators, but that they also have an individual impact. Hence, we propose the following hypothesis:

H3 *The relationship between increased organizational justice and project performance is mediated by a) Communication; b) Commitment; c) Coordination; d) Competence and managerial qualities; e) Decision-making; f) Compliance to client's expectations; g) Conflict management; h) Efficacy of organizational structures; and i) Efficacy of procurement method and contract.*

These proposed relationships are summarised in a theoretical model, which is presented in Figure 1.

Method

Empirical Case

The study was conducted in the context of the construction industry as projects undertaken in this sector are typical examples of TMOs (Cherns & Bryant, 1984; Lizarralde, Blois, & Latunova, 2011). Their characteristics include being comprised of a large number of different

organizations brought together for a specific project, with a defined start and end date. The projects were mainly based in the UK and Central Europe.

Insert Figure 1

Data Collection and Participants

An internet-based questionnaire study was undertaken. A non-probability heterogeneous purposive and volunteer sampling strategy was utilized and 250 personalised emails were sent to the researchers' personal contacts. The link to the questionnaire was also published on various social networks and webpages to increase the reach. The sample comprises of project team members who work in the construction industry or are responsible for construction projects within their organization. The overall analysis shows that a high level of occupational qualification is present in the sample (95% of the participants have a qualification at degree level or higher; 61% of the participants have 11 or more years of experience working in the industry), which leads to the assumption that the responses are based on broad experience and high level of knowledge. Furthermore, participants of all kinds of roles with experience working on a variety of project types and sizes are represented, reflecting the diverse nature of projects and PM in the industry.

Measures

The measures for the different variables used in the study are explained below. The detailed questionnaire with all questions can be found in Appendix 1.

Organizational Justice

The three dimensions of organizational justice were measured with the well-established instrument developed by Jason A. Colquitt (2001). Procedural justice is assessed with seven items to develop a formative construct. An example is “Have you been able to express your views and feelings during the project execution?”. Distributive justice is evaluated with four items, e.g. “Did your outcomes from the project reflect the effort you have put into your work?”. Interactional justice is assessed with nine items, e.g. “Has he/she been candid in his/her communications with you?”. We used a Likert scale ranging from 5 = to a large extent to 1 = to a small extent to categorize the answers.

Key Success Factors

Commitment is determined by four items, e.g. “I really felt this project’s goals are my own ones”, based on prior research (Allen & Meyer, 1990). Communication is assessed with four items, e.g. “The client used adequate language and volume to communicate”. Competence and managerial quality is measured with four items, e.g. “The client showed integrity and reliability”. Conflict management is determined by four items, e.g. “Conflicts were seen as a chance to develop the project further.” Coordination is assessed with four items, e.g. “There was additional workload produced because the individual tasks were not adjusted to each other.” Decision-making is measured with four items, e.g. “The process of decision making was transparent and comprehensible.” Compliance to client’s expectations is determined by four items, e.g. “I had the feeling I really understood what the client wants”. Efficacy of the organizational structure is assessed with four items, e.g. “Everybody in the project team knew his/her role.” Efficacy of procurement method and contract is measured with six items, e.g. “The clauses of the contract were unambiguously phrased.” We used again a 5-point Likert scale for all key success factors (5 = strongly agree to 1 = strongly disagree).

Project Performance

The different elements of project performance are traditionally assessed with single-item measures (Serrador & Turner, 2014). To measure the element of cost, we asked "The project was completed within the budget" and to measure the element of time, we asked "The project was completed within the scheduled time." "The project specifications have been met by the time of handover" is used to assess the element of quality and "The client is satisfied with the project" is used to assess the client's satisfaction. Finally, we ask it the project was overall successful ("Overall it was a successful project."). These single-item measures are also scaled with Likert (5 = strongly agree to 1 = strongly disagree).

Data Analysis

Structural Equation Modelling (SEM) is a highly suitable method to specify models which possess linear relations amongst variables and the correspondent model is a hypothesized outline of directional and non-directional linear relationships between these observed and latent variables (MacCallum & Austin, 2000). In the course of SEM a measurement and structural model is specified, identified, estimated, tested and modified (Kline, 2011; Schumacker & Lomax, 2010). IBM SPSS Amos Version 23 was used to analyse the data. We adopted a three stage approach to analyse the data: first, the descriptive statistics were analysed; second, the measurement model was tested and third, the structural model was analysed and tested.

Results and Hypotheses Testing

Descriptive Statistics

For the individual self-reported data provided by the participants, demographic data (see Appendix 1) as well as the means, standard deviations, composite reliability and zero-order

Pearson's correlation (see Table 1) are presented. As shown, composite reliability is above 0.70 in all cases, apart from Commitment –which is close at 0.66 (see further comments on the findings relating to Commitment in the Discussion section later in the paper).

Insert Table 1

Measurement Model

Using confirmatory factor analysis (CFA), we assessed whether the constructs of organisational justice and the key success factors are statistically distinct in the current data set. Our assessment of the model in terms of its measurement reveals significant ($p < 0.001$) loadings for all indicators, ranging from 0.514 to 0.934 (Kline, 2011; Stevens, 2012) and satisfactory composite reliability scores from 0.659 to 0.948 (Field, 2013). The AVEs (average variance extracted) of the scales range from 0.496 to 0.821 and meet or exceed the suggested threshold of 0.5 for convergent validity (Hair, Black, Babin, Anderson, & Tatham, 2010). The discriminant validity of the factors is at an acceptable level as the MSV (maximum shared variance) is equal or less than the AVE for all constructs (ibid). Based on a the Hu and Bentler (1999) guidelines as well as the Browne and Cudeck (1993) rules of thumb a good model fit was established after three modifications with the final measurement model ($\chi^2_M = 1308.72$; $df_M = 749$; $\chi^2_M / df_M = 1.75$; RMSEA = 0.06; CFI = 0.90; TLI = 0.89; SRMR = 0.06). Most importantly, all equivalent models developed with the replacement rule by Lee and Hershberger (1990) show fit indices which are not as good as the final measurement model.

Structural Model

The structural model was analysed using path analysis and its fit was assessed based on the Hu and Bentler (1999) guidelines as well as Browne and Cudeck (1993) rules of thumb for model fit. We analysed two different models: for the first model (Model 1), we tested the general impact of organisational justice on project performance as well as the mediating role of the different key success factors. Model 1 showed good model fit which means that this model is a good representation of the data (χ^2_M: 4.79; df_M = 14; χ^2_M/df_M = 2.914; RMSEA = .10; CFI = .99; TLI = 0.97; SRMR = 0.01). The analysis of the direct effects in Model 1 reveals that all three dimensions of organisational justice are significantly related to project performance. Procedural justice has by far the strongest impact on project performance (b = 4.51, SE = .31, p < .001) compared to distributive justice (b = .44, SE = .04, p < .001) and interactional justice (b = .27, SE = .06, p < .001). To identify the indirect effects with all key success factors present as net-mediators bootstrapping (2000 bootstrapping samples, 90% bias-corrected confidence interval) was conducted (Preacher & Hayes, 2008). It unveiled that there is a net-mediated significant indirect effect between procedural justice and project performance (b = 3.92, SE = .33, p < .001) as well as between distributive justice and project performance (b = .85, SE = .07, p < .001). However, the net-mediated indirect effect between interactional justice and project performance was not significant. In order to identify the indirect effects through individual mediators the Sobel test was undertaken (Sobel, 1982). The Sobel test suggests that 21 out of 27 indirect effects are significant and that only the mediator commitment does not significantly mediate any relationship. The results of the Sobel test for Model 1 are shown in Table 2.

Insert Table 2

For the second model (Model 2) we tested how organisational justice influences the different elements of project performance mediated through the key success factors. Model 2 showed good model fit (χ^2_M: 49.63; df_M = 16; χ^2_M / df_M = 3.102; RMSEA = .10; CFI = .99; TLI = 0.94; SRMR = 0.02). However, this model fit was slightly less good than the model fit of Model 1 which means that the model which looks at the overall project performance instead of the individual elements of performance explains the relationships slightly better. Nevertheless, Model 2 helps to understand nuances in the relationships and suggests which dimensions of organisational justice might be most important depending on which priorities are present in a project. The direct effects of Model 2 show again that procedural justice has the strongest influence on the different elements of project performance followed by distributive justice and a very weak interactional justice which only significantly influences the overall project performance (see Table 3).

Insert Table 3

The net-mediated indirect effects based on bootstrapping (2000 bootstrapping samples, 90% bias-corrected confidence interval) were consistent with the findings from Model 1. All five elements of project performance showed an indirect net-mediated relationship with procedural justice with a significance of at least $p < .01$ with high regression coefficients between $b = 2.473$ and $b = 5.029$. The net-mediated indirect relationships with distributive justice were also significant at $p < .01$ but with much lower regression coefficients (between $b = .487$ and $b = 1.021$), whereas there was no significant net-mediated indirect relationship with interactional justice (see Table 4).

Insert Table 4

Again, the Sobel test was conducted to identify the individual indirect effects between the different dimensions of organisational justice and the elements of project performance (Sobel, 1982). Table 5 shows the detailed results for each dimensions of organisational justice and each element of performance. There is a total number of 135 indirect effects present in Model 2 of which 82 are significant at least at the $p < 0.05$ level. Again, the mediator commitment does not mediate any relationship significantly, whereas all other mediators have a significant impact on at least one element of project performance.

Insert Table 5

Hypothesis Testing

Hypothesis 1 proposed that there is a positive relationship between the different dimensions of organisational justice and project performance. This hypothesis was mostly supported by the data as all three dimensions of organisational justice show a significant positive relationship with the factor project performance (distributive justice: $b = .44$, $SE = .04$, $p < .001$; interactional justice: $b = .27$, $SE = .06$, $p < .001$; procedural justice: $b = 4.51$, $SE = .31$, $p < .001$). If the factor project performance is broken down into individual elements distributive and procedural justice still display significant positive relationships (see Table 3) and hence, support the hypothesis. However, interactional justice has only a significant impact on the overall project performance ($b = .26$, $SE = .12$, $p < .05$) and not on the other elements like compliance to time, cost and quality as well as client's satisfaction.

Hypothesis 2 proposed that the relationship between organisational justice and project performance is net-mediated by key success factors. This hypothesis was partially supported by the data. That is, distributive and procedural justice were significantly associated with project performance (distributive justice: $b = .85$, $SE = .07$, $p < .001$; procedural justice: $b = 3.92$, $SE = .33$, $p < .001$), whereas interactional justice was not. When looking at the more detailed nuances of the relationships it was revealed that the relationships between distributive justice and all elements of project performance are significantly net-mediated by the key success factors (see Table 4). However, only the relationships between procedural justice and compliance to time ($b = 2.47$, $SE = .80$, $p < .01$) and quality ($b = 2.71$, $SE = .93$, $p < .01$) and overall performance ($b = 5.03$, $SE = .49$, $p < .001$) are significantly net-mediated, and not the relationships between procedural justice and compliance to cost and client's satisfaction. And interactional justice is not significantly associated with any net-mediated relationships.

Hypothesis 3 proposed that the relationship between organisational justice and project performance is mediated by the different individual key success factors. This hypothesis was partially supported. For the relationship between distributive justice and project performance only the mediators communication (H3a), competence and managerial qualities (H3d), decision making (H3e), conflict management (H3g), efficacy of organisational structures (H3h) and efficacy of procurement method and contract (H3i) are significant (see Table 2). The nuances reveal that for the performance element of compliance to time the mediators decision making (H3e), conflict management (H3g) and efficacy of organisational structures (H3h) are significant, whereas for the element of compliance to quality the efficacy of procurement method and contract (H3i) is significant instead of efficacy of organisational

structures (see Table 5). For the performance elements of compliance to cost and client's satisfaction all four aforementioned mediators are significant and for the element of overall performance communication (H3a) is a fifth significant additional mediator (see Table 5).

For the relationship between interactional justice and project performance, all mediators apart from commitment (H3b) and efficacy of procurement method and contract (H3i) are significant (see Table 2). When looking at the individual elements of project performance the exact same mediators are significant for overall performance (see Table 5). For client's satisfaction, they are applicable as well apart from coordination (H3c). The relationships between interactional justice and the performance elements of compliance to time and cost are significantly mediated by communication (H3a), competence and managerial quality (H3d), decision making (H3e), conflict management (H3g) and efficacy of organisational structures (H3h). And for compliance to quality the aforementioned mediators are significant as well, except efficacy of organisational structures (H3h; see Table 5).

For the relationship between procedural justice and project performance all mediators apart from commitment (H3b) are significantly associated (see Table 2). The nuances reveal that for the relationship between procedural justice and the performance element of overall performance the same is applicable, whereas for the performance elements of compliance to time, cost and quality as well as clients satisfaction all mediators except commitment (H3b) and coordination (H3c) are significant (see Table 5).

To summarise, all hypotheses were partially supported and the detailed nuances of the relationships provide interesting insights in the relationships. These are discussed in the next section.

Discussion

The current research provides valuable insight into how the perceptions of fairness influence the performance of projects within their unique complex social settings. Our study reveals that the adoption of fair principles and procedures by the client or project sponsor, who is one of the main parties in the TMO, has a significant impact on how the project performs and if the project is perceived to be a success or not upon completion. In particular procedural justice demonstrates very strong effects on project performance in general and at a closer observation also on its different elements. This suggests that the PM procedures that are put in place at the start of the project and which are used for decision-making, which are the essence of procedural justice in this context, are crucial to ensuring that the overall outcome of the project is a positive one. This is consistent with findings from previous studies in non-TMO contexts which looked into the relationship between organisational justice and job performance and identified procedural justice as a driving force (Cohen-Charash & Spector, 2001; Jason A. Colquitt et al., 2001). Hence it is incumbent on the client/sponsor, preferably working collaboratively with the other members of the TMO, to design and implement PM procedures from the very start of the project when the TMO first comes together, right through to the end of the project when the TMO disperses, that result in decisions that are perceived to have been made through the following of fair processes in a consistent and transparent manner.

Additionally, considering the temporary and multi-organisational nature of projects, which creates a high degree of uncertainty, these tangible and explicit PM procedures can be seen to be a proxy measure for trust. Hence, the perceived procedural justice is used by other members of the TMO as a fairness heuristic in the evaluation of the client or project sponsor

(Lind, 2001; van den Bos, 2001a, 2001b). This is highly significant as a major issue in the workings of a TMO is that trust can be difficult to build up. This is because the parties of the TMO often come together just for the purpose of undertaking the project and as such there is little time to build and establish familiarity and working relationships that are needed for there to be trust. So paying attention to the design of the PM procedures and testing their efficacy against the criteria of organizational justice is likely to help in the swift build-up of trust between the different parties when the TMO first comes together.

Distributive justice is also significantly associated with project performance, however not as strong as procedural justice. Distributive justice can also be viewed as a fairly tangible dimension of organisational justice as the distribution of outcomes can be compared and evaluated. For example, through the release and allocation of resources to work on different aspects of the project, the allocation of monies to the different parties of the TMO for work undertaken or for the achievement of certain targets or demonstration of desirable behaviours, such as collaborative working or the sharing of best practices. Hence, in the uncertain environment of projects the project team members use this second dimension again as a fairness heuristic. In contrast to this interactional justice, which is about the communication of outcomes and procedures, is less important. The reason for this might be that interactional justice is less tangible and might require a higher degree of familiarity to emphasise its perception, with such familiarity often not present between members of a TMO due to its temporary nature. Another reason could be that procedural and distributive justice are more ascribed to the organisation, in this case the TMO, i.e. the project, whereas interactional justice is more associated with the individual, in this case the staff representing the client or project sponsor (Cropanzano, Rupp, & Byrne, 2003). And research has shown that

individuals are in general more considerate regarding decisions and procedures by organisations instead of individuals (Swalhi et al., 2017).

Previous research has also shown the need for caution when trying to delineate organisational justice into its dimensions, as taking the individual dimensions in isolation might not represent the richness of the concept (Ambrose & Schminke, 2009; Lind, 2001). Hence, based on our findings, we suggest that all three dimensions of organisational justice need to be present in order to improve the performance of projects. The degree of influence of the different dimensions might vary, with all three individually being necessary but not sufficient to achieve an enhancement in project performance. So those responsible for PM need to ensure that all aspects of organizational justice are addressed in the design and operation of the management systems. It is not enough just to design PM procedures that in theory lead to a decision-making process and the distribution of resources etc. perceived as fair, the individual members of the TMO, particularly from the client/sponsor organisation, need to pay attention to their personal interactions with members of the TMO that reside in other organizations and how these interactions are perceived from a justice perspective.

With our study we propose two models that identify the key success factors which mediate the relationship between the different dimensions of organisational justice and project performance in general (Model 1) as well as regarding its different elements (Model 2). Both models reveal that all mediators are significantly associated with project performance, except the variable of commitment. Commitment as a variable showing some minor reliability issues, as its composite reliability score is slightly below the recommended value of 0.70 (Hair et al., 2010) - however at 0.66 it is still well above the 0.50 recommended by Kline (2011). This might be one of the reasons why there is no significant association with this

mediator, but a firm conclusion can only be drawn after an additional study is conducted. Coordination as a mediator is only significant in the relationship between interactional and procedural justice and overall performance, not regarding distributive justice or the other elements of performance. Here it might be the case that the coordination of project participants is more of a higher-level activity which is important for the overall performance of the project, but not so much for the different elements of it. However, our research shows that all the other six key success factors of project performance, i.e. communication, competence of managerial qualities, decision making, compliance to client's expectations conflict management, efficacy of organisational structures and efficacy of procurement method and contract, are significant mediators between the relationships of organisational justice and project performance. This is an important finding as it suggests to maximise performance. Those responsible for PM in the TMO need to go beyond the traditional and well-established methods of identifying the key success factors at the start of a project and focus on ensuring that, in tandem, the conditions are present for organizational justice to be present. This will require some additional time and resource being allocated by the client/sponsor to PM in the early stages of the project but that additional investment will be more than repaid later in the project through enhanced performance and outcomes.

Conclusion

In summary, we found support for our model where the key success factors mediate the relationship between the different dimensions of organisational justice and project performance. Particularly strong relationships with project performance were found for procedural justice, whereas distributive justice showed mainly significant, but weak relationships and interactional justice seems to be the least influential dimension in this context. Seven of the key success factors (communication, competence and managerial qualities, decision-making, compliance to client's expectations, conflict management,

efficacy of organisational structures and efficacy of procurement method and contract) proved to be significant in mediating the relationship between organisational justice for each element of project performance, i.e. compliance to time, cost and quality, client's satisfaction and overall performance. The key success factor, commitment, did not show any significant mediating properties and coordination only mediated the relationship between organisational justice and the element of overall performance.

Results from the hypotheses tests

Overall, the hypotheses developed for this study were mostly supported. The hypothesised positive relationship between increasing organisational justice and the performance of projects is supported by the data (H1). The data also partially support the net-mediation, by the multiple critical success factors, of the relationship between organisational justice and project performance (H2) as well as supporting the influence on the relationship of individual mediators (H3). However, more attention to detail is required for H3 as the individual mediators display different significant relationships between the different dimensions of organisational justice and project performance. Furthermore, the single mediator of commitment does not show any significant influence on the relationship between organisational justice and performance, which means that H3b is not supported.

Answer to the research question

The research undertaken in this study allows us to answer the research question developed at the beginning: How does organisational justice influence project performance? The findings suggest that, in general, organisational justice has a positive influence on performance. Nevertheless, it is worth considering the detailed nuances revealed in the study. Amongst the three organisational justice dimensions, procedural justice has the strongest impact on performance. This means that in the uncertain environment of TMOs it is particularly

important to pay attention to how decisions are made and to consider if the team members have the opportunity to contribute and provide input to the process. Distributive justice also has a significant impact on performance, which means that the distribution of resources in TMOs requires attention to both meet needs and to ensure equity and equality. Both of these dimensions can be considered to be fairly tangible and hence, they are probably used as a substitute for uncertainty present and felt by people in TMOs. Whereas interactional justice is the least tangible dimension of organisational justice and has also the least impact on performance.

Managerial and theoretical implications

From a practical point of view, the study can potentially change the way projects are currently managed. It provides an alternative perspective to the current PM approaches to the design and implementation of PM procedures to enhance project performance. It also identifies new areas of responsibility and activity, particularly for the members of the TMO involved in PM from the client/sponsor organisation. Clients or project sponsors need to become aware of the importance of fair principles and procedures in projects and their potential impact and need to pay attention to the practical steps that can be taken, starting very early in the project when the TMO first come together, in relation to the conscious implementation of organisational justice. Specifically, the study findings can be used to raise awareness of the need for clients/sponsors to design fair procedures for decision making, distribute resources and outcomes in a fair way and to communicate these procedures and outcomes on an individual basis fairly. Broken down to the individual dimensions of organisational justice we have the following recommendations for project managers:

- Evaluate your project team member's need in respect of the distribution of resources and ensure that equality and equity are considered.

- Make sure you have consistent and transparent procedures in place, which your project team members can participate in the implementation of.
- Share information appropriately, i.e. be able to justify why you share information and which information you share
- Communicate truthfully
- Consider respect, propriety and dignity when talking to your project team members

Limitations and areas for future research

Our study has a number of limitations. First, the study was conducted in the context of the construction industry. Hence, a generalisation to projects in other industries cannot be made and studies in other project focused industries is needed. Second, the study was conducted in Europe with data from mainly the UK and Central Europe. As organisational justice might be perceived differently in different cultures the findings can only be applied in the context of Europe. Further studies in other cultural contexts like Asia or the Middle East should be conducted to further explore the influence of cultural issues on the relationships between organisational justice and project performance. Third, whilst the study has achieved its purpose of identifying what the relationships are, there is limited insight into why the relationships are the way they are. Hence qualitative studies should be undertaken to explain the findings of this study in greater depth. And fourth, only a limited number of key success factors has been tested in this study. It would be useful to conduct further studies with additional key success factors as mediators to get more insight into the relationships.

Contribution to knowledge

The major contribution of our study is the evidence presented that if organisational justice is present in the project environment then the performance of projects will be improved. Furthermore, the theory of organisational justice is developed in two ways. Firstly, we show that the relationship between organisational justice and performance is nuanced and complex, being influenced by the specific organisational context, in this case that of the TMO, established to manage a project. We extend knowledge generated from previous studies, such as Swalhi et al. (2017) and Mahajan and Benson (2013), which looked at job performance and investigated the impact on firm performance solely based on secondary data, respectively, by focusing on project performance and by collecting primary data. Our study further illuminates the impact on performance of organizational justice, both directly and indirectly through mediating variables, in a neglected organisational context: that of the TMO. Finally, prior research has mainly focused on the context of single organisations, with limited study of the context of the temporary and multi-organisational environment, which creates complex social settings which are relevant to the perception of organisational justice (Jason A Colquitt & Jackson, 2006). By placing our study in this complex environment, we enhance understanding of the contextual relevance when conducting organisational justice research.

We hope that our findings encourage further investigation of the underlying mechanisms that link organisational justice and project performance in TMOs.

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Figure 1. Proposed theoretical model.

Table 1. Descriptive statistics and correlations among the study variables.

	Mean	Std	1	2	3	4	5	6	7	8	9	10	11	12
1. Distributive Justice	2.32	1.03	(0.95)											
2. Procedural Justice	1.99	0.60	0.680	(0.75)										
3. Interactional Justice	2.16	0.77	0.436	0.800	(0.92)									
4. Communication	1.890	0.70	0.561	0.858	0.898	(0.87)								
5. Commitment	1.81	0.62	0.497	0.734	0.686	0.696	(0.66)							
6. Coordination	2.27	0.70	0.566	0.818	0.535	0.581	0.531	(0.79)						
7. Competence and managerial qualities	2.51	0.97	0.516	0.818	0.916	0.955	0.658	0.548	(0.87)					
8. Decision-making	2.16	0.81	0.365	0.723	0.509	0.562	0.419	0.810	0.557	(0.86)				
9. Compliance to client's expectations	1.72	0.55	0.455	0.785	0.705	0.731	0.654	0.707	0.756	0.797	(0.71)			
10. Conflict management	2.87	0.95	0.505	0.912	0.895	0.892	0.743	0.664	0.924	0.730	0.852	(0.70)		
11. Efficacy of organizational structures	2.43	0.78	0.454	0.816	0.589	0.633	0.456	0.921	0.631	0.882	0.815	0.751	(0.82)	
12. Efficacy of procurement method and contract.	2.41	0.79	0.560	0.930	0.752	0.785	0.679	0.744	0.787	0.681	0.780	0.866	0.734	(0.82)

All correlations are significant at the **p<0.01 level; Composite reliability in brackets

Table 2. Structural Model – Model 1 – Indirect effects – Sobel test statistics.

Mediator	Independent variable: Distributive Justice	Independent variable: Interactional Justice	Independent variable: Procedural Justice
Communication	2.008*	7.881***	4.762***
Commitment	0.34	0.396	0.398
Coordination	0.823	3.28***	5.024***
Competence and managerial qualities	1.894	8.946***	2.396*
Decision-making	3.465***	2.888**	8.674***
Compliance to client's expectations	1.415	2.052*	5.632***
Conflict management	3.378***	7.087***	8.047***
Efficacy of organizational structures	3.723***	2.906**	9.385***
Efficacy of procurement method and contract.	2.853**	0.333	9.714***

Dependent variable: Project Performance; ***p<0.001; **p<0.01; *p<0.05

Table 3. Structural Model – Model 2 – Direct effects.

Dependent variable	Independent variable: Distributive Justice		Independent variable: Interactional Justice		Independent variable: Procedural Justice	
	b	*SE*	*b*	*SE*	*b*	*SE*
Compliance to time	-0.385**	0.175	-0.269	0.28	2.718***	1.515
Compliance to cost	-0.484***	0.169	-0.237	0.27	3.595***	1.46
Compliance to quality	-0.376*	0.134	0.177	0.214	3.025***	1.158
Client's satisfaction	-0.684***	0.101	-0.134	0.162	4.975***	0.876
Overall performance	-0.634***	0.076	-0.26*	0.121	5.565***	0.656

***p<0.001; **p<0.01; *p<0.05

Table 4. Structural Model – Model 2 – Net-mediated indirect effects.

Dependent variable	Independent variable: Distributive Justice		Independent variable: Interactional Justice		Independent variable: Procedural Justice	
	b	*SE*	*b*	*SE*	*b*	*SE*
Compliance to time	0.625***	0.133	0.255	0.165	2.473**	0.802
Compliance to cost	0.719**	0.14	0.292	0.175	3.324	0.865
Compliance to quality	0.487***	0.16	0.116	0.197	2.71**	0.933
Client's satisfaction	0.879***	0.138	0.03	0.159	4.448	0.766
Overall performance	1.021***	0.095	0.062	0.122	5.029***	0.492

***p<0.001; **p<0.01; *p<0.05

Table 5. Structural Model – Model 2 – Indirect effects – Sobel test statistics.

Mediator	Independent variable: Distributive Justice	Independent variable: Interactional Justice	Independent variable: Procedural Justice
Dependent variable: Compliance to time			
Communication	1.665	2.788**	5.352***
Commitment	0.545	0.956	0.977
Coordination	0.694	1.198	1.237
Competence and managerial qualities	1.802	4.853***	2.213*
Decision-making	2.651**	2.365*	3.722***
Compliance to client's expectations	1.267	1.663	2.535**
Conflict management	2.758**	3.946***	3.5***
Efficacy of organizational structures	2.918**	2.474**	4.211***
Efficacy of procurement method and contract.	1.818	0.33	2.295*
Dependent variable: Compliance to cost			
Communication	1.809	3.682***	3.135**
Commitment	0.405	0.512	0.515
Coordination	0.705	1.262	1.319
Competence and managerial qualities	1.814	5.095***	2.235*
Decision-making	2.4*	2.181*	3.106**
Compliance to client's expectations	1.325	1.803	3.137**
Conflict management	2.68**	3.728***	3.864***
Efficacy of organizational structures	2.977**	2.509**	4.394***
Efficacy of procurement method and contract.	2.224*	0.331	3.343***
Dependent variable: Compliance to quality			
Communication	1.64	2.674**	2.441*
Commitment	0.619	1.708	1.839
Coordination	0.467	0.558	0.563
Competence and managerial qualities	1.636	3.037**	1.924*
Decision-making	2.099*	1.948*	2.524**
Compliance to client's expectations	1.291	1.718	2.744**
Conflict management	2.43*	3.129**	3.208***
Efficacy of organizational structures	1.98	1.672	1.998*
Efficacy of procurement method and contract.	2.08*	0.331	2.905**
Dependent variable: Client's satisfaction			
Communication	1.845	4.027***	3.34***
Commitment	0.353	0.416	0.418
Coordination	0.596	0.836	0.852
Competence and managerial qualities	1.817	5.166***	2.241*
Decision-making	2.982**	2.59**	4.853***
Compliance to client's expectations	1.387	1.967*	4.364***
Conflict management	3.071**	5.075***	5.437***
Efficacy of organizational structures	3.211***	2.645**	5.273***
Efficacy of procurement method and contract.	2.552**	0.332	4.952***
Dependent variable: Overall performance			
Communication	1.986*	6.822***	4.495***
Commitment	0.482	0.7	0.708
Coordination	0.817	2.912**	3.932***
Competence and managerial qualities	1.885	7.916***	2.373*
Decision-making	3.354***	2.823**	7.28***
Compliance to client's expectations	1.409	2.033*	5.27***
Conflict management	3.31***	6.443***	7.237***
Efficacy of organizational structures	3.676***	2.887**	8.795***
Efficacy of procurement method and contract.	2.832**	0.333	9.132***

***p<0.001; **p<0.01; *p<0.05

Appendix 1

Table A.1 – Demographic data of the research participants

Role in project			Role in organization			Work experience in years		
	N	%		N	%		N	%
Client	14	6.8	Administrator	5	2.4	0 – 5	32	15.6
Occupant	3	1.5	Assistant	32	15.6	6 – 10	48	23.4
Client's representative	21	10.2	Project Leader	90	43.9	11 – 15	33	16.1
Project Manager	48	23.4	Manager	24	11.7	16 – 20	34	16.6
Architect or engineer	43	21.0	Director	9	4.4	>20	58	28.3
Consultant	22	10.7	Managing Director	20	9.8			
Contractor	40	19.5	Partner/Owner	18	8.8			
Subcontractor	7	3.4						
Supplier	2	1.0						
Other	5	2.4	Other	7	3.4			
Total	205	100	Total	205	100	Total	205	100

Table A.2 – Demographic data of projects

Project type			Project size in million £			Project country		
	N*	%		N	%		N	%
Office	62	25.8	0 - 25	90	43.9	United Kingdom	8	3.9
Education	22	9.2	26 - 50	43	21.0	Germany	150	73.2
Sports and leisure	38	15.8	51 - 75	17	8.3	Switzerland	16	7.8
Culture	7	2.9	76 - 100	16	7.8	Austria	2	1.0
Housing	21	8.8	101 - 150	11	5.4	France	2	1.0
Health Care	11	4.6	151 - 200	4	2.0	Australia	3	1.5
Industry	47	19.6	> 200	24	11.7	United States	3	1.5
Infrastructure	24	10						
Other	8	3.3				Other	21	10.2
Total	240	100	Total	205	100	Total	205	100

*multiple answers possible