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Towards satisfying the client: optimizing, satisficing or disappointing?

RICHARD FELLOWS*

School of Civil and Building Engineering, Loughborough University, LE11 3TU, UK

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The construction industry is criticized extensively for poor performance. Despite the widely expressed objective of project participants to 'satisfy the client', clients tend to be disappointed with both process and product performance. A functional perspective of construction clients and examination of how the desires and demands of clients are determined and operate as drivers for construction projects facilitates a critical view of the issues involved. The conceptualization of satisfaction is investigated in the context of determining client values and value perspectives and their aspirations for performance. On the supply side, competitive advantage is examined and its relationship to business performance. The structure and structural changes in the industry are considered in relation to the common processes employed to realize projects and their impacts on participants. Means by which decisions are made, including common techniques and human factors are investigated to suggest what may be adopted to enhance the usefulness and accuracy of forecasts. The themes emerging from the critical review of theory and literature are drawn together to yield a number of conclusions and to produce a draft agenda for further, empirical investigation with a view to amending processes to secure more integration through acknowledging interdependence amongst participants and their performance and, especially, to achieve enhanced levels of client satisfaction.

Keywords: Clients, decisions, integration, performance, satisfaction, value.

Introduction

The most frequently stated aim of participants in the realization process of construction projects is to 'satisfy the client'. Client satisfaction is an important contributor to competitive advantage (more orders, less promotion requirements, etc.). In construction, given its competition-based work allocation processes, backed with legislation especially in the public sector, whilst the negative consequences of dissatisfied clients are abhorrent, positive consequences may be somewhat less than desired—further orders are not consequential but remaining on a 'tender list' and preserving/enhancing reputation are.

That apparently clear and concise, almost self-evident, statement, 'to satisfy the client', raises three fundamental questions:

Who is the client?
What is satisfaction?
How is satisfaction (of the client) secured?

The answers to those questions lead to considerations specific to construction, the particular project, the participants and other stakeholders. Contextual factors are important as motivators, constraints and parameters. The approach is akin to moving from assumed rationality to the more pragmatic bounded rationality (Simon, 1990). Rather than simplifying the situation, such transformations foster recognition of how complex the reality is!

Satisfaction is dependent on securing a benefit, usually a net benefit, and people are assumed to be satisfaction maximizers. Amounts of benefits, and of costs, are value judgements and so, depend upon the value system (the values) of the person(s) concerned. Money is the most commonly used medium for valuation of benefits and costs as it facilitates quantification of diverse variables in a single, common measure and so, enables easy comparisons. That is set within the

*E-mail: r.fellows@lboro.ac.uk

evolving 'value agenda' for construction, with the design quality indicator as its base, to foster attention on value deriving from ' … the relationship between people and buildings' (Thomson *et al.*, 2013, p. 215).

Satisfying the client (and, hopefully, other stakeholders) involves performance of both process and product. Those two aspects are, commonly, conflated, at least, in terminology, but process concerns project management performance whilst product concerns project performance. The pathways from initiation to performance realization in both aspects are replete with issues concerning identifying and pursuing objectives, whilst subject to constraints and parameters but, perhaps most importantly, involving assumptions, which, unfortunately, usually remain implicit.

While evaluation of the process and product is, usually, carried out separately, the inter-relationships remain contested and merit more, rigorous study—especially, the adoption of public private partnerships (PPPs) (Owen and Merna, 1997; Leiringer *et al.*, 2009). It is very common for discussion of performance of construction to relate to the process exclusively, which is understandable for project management personnel.

A fairly global, structural change is the almost exclusive use of subcontractors to carry out construction operations, thereby rendering 'main contractors' to be de facto management contractors; another is the emergence of project managers as either client consultants or client in-house staff. In processes, the extent of adoption of concession contracting in various guises (PFI [Private Finance Initiative], PPPs, Framework Agreements, etc.) has changed the participation of contractors and their financing radically (sources of revenue, risk assumption and profit—see, e.g. Gruneberg and Hughes, 2006).

Furthermore, neither relational contracting nor partnering has been developed and adopted as philosophies to any significant degree (Bresnen and Marshall, 2000; Leiringer *et al.*, 2009) but are adopted analogously to quality assurance in its early days—a label, often for marketing/promotion, rather than a committed belief and practice (Liu, 2001). Any changes to render them committed beliefs and practices (as per Hofstede [2001] concerning organizational cultures) require much effort and convincing over a long period, as well as support by top management.

Beyond the changes in structure and processes, boundaries are changing too and are more fuzzy (Fellows and Liu, 2012); larger and more complex projects exacerbate that situation and so, the importance of early-stage analyses, forecasts and decisions, involving various stakeholders, is becoming recognized (Morris and Jamieson, 2004; Morris, 2013). In life cycle analysis, product attributes far outweigh process attributes for those who are clients of the industry (Flanagan and Norman, 1983; Fuller, 2009; Corus, 2013) but life cycle analysis and planning of construction projects is in its infancy, along with management of value and, perhaps most fundamental, means for understanding the clients of the industry and other stakeholders' value-based objectives (Green and Simister, 1999; Kelly *et al.*, 2004; Thomson, 2011) which are becoming recognized as emergent over the project realization process (Luck *et al.*, 2001).

Thus, the aim is to determine the nature of client satisfaction on construction projects and how satisfaction may be achieved. This aim is addressed through a critical review of theory and literature to address the three questions, above, and leads to the development of an agenda for further, empirical research—perhaps, through action research to evaluate changes.

'The client'

Ownership of premises arises for many, diverse reasons and occurs differently amongst the world's societies. In most jurisdictions, land is, ultimately, owned by the State and so, owners are those to whom bundles of use rights (and duties) have been granted. Commonly, those use rights form a hierarchy of freehold, leasehold and tenancy. Reasons for owning real property (real estate) are historic (royalty, aristocracy, gentry and church in the UK), social (schools, hospitals, dwellings, etc.) and commercial/industrial (offices, factories, etc.); alternatively viewed as historic, social and investment. Especially with the emergence of an ever more influential, active and efficient global financial system (Hutton, 1996), 'financial landownership' (a subset of investment ownership relating to commercial property, primarily)—owning real estate directly or indirect ownership through shares (etc.) in property companies—is extremely important and has been found to be instrumental in shaping the world's cityscapes (see, e.g. Pryke and du Gay, 2002) due to its being the most active, powerful and volatile, form of ownership.

Usually, the 'client' on a construction project is identified as the party who commissions the work. That commissioning may be based upon own needs and constraints, as in owner-occupation, or on perceptions of profitable fulfilment of the needs of others, as in speculative development and public sector projects (the latter, on a not-for-profit basis but seeking socio-economic benefit). However, the nature of the commissioning parties varies enormously from a single individual to major organizations; in all instances, construction-related expertise and experience of the client are important variables. In most projects, issues of agency arise regarding the client (as principal), both

in-house and externally. Whatever the process, the primary function of the commissioning party, from a construction industry perspective, is to express demand.

Thyssen *et al.* (2010, p. 22) assert that 'the client is a complex assembly of different individuals with different values and perspectives. During the construction project the involvement of each individual will change as will their values[1] and perspectives, which may be contradictory and unpredictable' yielding a necessity for frequent review and appropriate amendment of project content. Human considerations of motivation require that changes are communicated promptly and with rationale (which applies equally when change cannot be accommodated).

Especially for larger projects, it is usual for client functions to be performed by separate organizations, a great many organizations for each function on the largest projects. The main client functions are user, commissioner, owner and financier—so, at least identifying the lead participant for each function is important to understand what they (are likely to) value in respect of the project and, therefore, the demand which may arise. The volatility of such a demand is important and, in most cases, is a function of the power structure, and changes therein, within the client and the project temporary multi organization (TMO) (Cherns and Bryant, 1984; Liu *et al.*, 2003; Alderman *et al.*, 2005).

Clients have been considered along a spectrum from naïve to sophisticated, the location on the spectrum depending on their experience of commissioning construction projects (number, frequency and size) and their expertise relating to the industry and its processes (Bertelsen and Emmitt, 2005; Thyssen *et al.*, 2010). Client experience and expertise tend to be correlated as the more clients commission construction projects, the closer and stronger are their links with the industry (designers and constructors) and the more likely they are to employ persons with construction expertise in-house—thereby seeking to overcome negative issues of agency.

User constitutes the primary client function. However, uses of construction products vary greatly as those products accommodate the majority of human activities and, to do so, provide environments which are more conducive to those activities than would exist otherwise. Indeed, the real measure of the effectiveness of a construction product is its contribution to the effectiveness and efficiency of the human activities for which it is used, as reflected in demand-side price signals (Massey and Catalano, 1978).

Unfortunately, the underpinning values' positive contributions tend to be very difficult to measure. While total revenues (if any) may be measured (and expressed in price signals, indicating exchange value), elemental components in the generation of revenues are much more difficult to quantify and so, usually, are approximations. Conversely (financial), costs may be measured quite readily and so, cost foci are, almost invariably, dominant (Leiringer *et al.*, 2009). Although the capital cost of realizing a construction project may be large, discounted cash flow analysis of the total life cycle costs of the project demonstrates that using and operating costs dominate (Winch, 2002; Fuller, 2009). Indeed, if total occupation costs are considered, realization costs associated with construction products are dwarfed. Such analyses confirm the necessity for much greater emphasis to be placed on understanding users and uses of construction products, through the benefits contributed by the building to the user client activities, and for those to be the foci rather than the project management foci of the 'iron triangle' of time, cost and quality of the realization process.

The capital investment financing function of the client may be categorized into two main aspects—financing of the project realization (short–medium term) and financing of ownership over the useful life of the project (long term). In the private sector, adequate expected return on investment is imperative. The public sector has tended to finance realization and ownership from their own resources (tax revenues, etc.) and loans (mortgages, etc.). Particularly since about 1980, there have been widespread, politically supported, privatization initiatives, including PPPs, PFI and other concessionary arrangements for the provision of infrastructure projects; justifications include reducing public sector borrowing and taxation, and reducing the costs of such provisions through securing efficiency gains which are, allegedly, present in the private sector. In the case of the UK, 'value for money' criteria are implemented by the public sector client agencies for evaluation of projects (Waites, 1996). However, such privatization requires large efficiency gains (probably, of at least 12%) to overcome the higher costs of finance for private businesses plus satisfaction of their profit requirements to yield net (financial) benefit.

For those who invest in real estate, two elements are important—income, and capital security and growth. Income is derived from users, directly as net rents or indirectly as dividends from property companies, whilst capital security and growth depend upon the market price of the property, its variability and prospects. Investors seek a combination of capital appreciation and income to match their outgoings and, dependent on their weighting of each, seek to maximize return for the risks which they consider they take.

Thus, the primary categories of client functions yield significantly differing perspectives on construction projects and processes which, in context, must be resolved to determine the performance criteria to apply to project realizations. Such resolution incorporates issues of

principal–agent relations within the hybrid of hierarchy and market relationships amongst participants, with the outcome impacted by individuals' negotiating abilities in the context of the prevailing power structure of the project TMO.

Value, values and briefing

Construction uses the term value very loosely and variably (Brady *et al.*, 2005; Leiringer *et al.*, 2009); on occasions it means worth, on others it means market price and on others it means cost. Despite that issue, value in construction ' … is … still promoted as a measurable commodity which is subject to maximisation' (Leiringer *et al.*, 2009, p. 273). For economics, and, hence, in business, value has two primary meanings—as 'use value', comprising a measure of utility (usefulness) of a good or service, and as 'exchange value', comprising a measure (usually in current money) of the sum at which a transaction occurs. Price is the sum that the vendor receives (or seeks)—revenue, inflow of funds; cost is the sum given by the purchaser (expense)—cost may also be quantified as what is foregone—the 'next best alternative' (opportunity cost), etc. Use value, or worth, is the sum total of the net positive attributes of an item, which depend on the ***values*** of the individual concerned.

A recent addition to the taxonomy of value contributions is experiential or participative value as in the service-dominant logic (Vargo and Lusch, 2004, 2008). That logic asserts that suppliers produce value offerings/propositions only; customers realize the value on using the offering. Dependent on the degree to which the offering is tailored to the requirements of the particular customer, that customer secures the 'basic' value (available to any customer) plus the 'particular' value (due to the tailoring); additionally, by participating in the supply process (co-creation), the customer secures experiential, or 'participative', value. That demand-side (user) conceptualization of value and its realization relate to use value enjoyment by the user which, then, through reflection or/and impression, is related to exchange value and, thence, leads to success evaluation and, hence, satisfaction (or otherwise).

Kotler (1972, p. 48) asserts that 'A transaction is the exchange of values between two parties'. Rokeach (1973) extends the consideration to note that values are the deeply held, enduring beliefs of people; 'a broad tendency to prefer certain states of affairs over others' (Hofstede, 1980, p. 19) and so, values impact affect. Value is the benefit resulting from an exchange and arises from peoples' preferences and so, prompts the notion of 'value for money' as an underpinning principle of a transaction. In the context of value management value, usually, is expressed as

$$\text{function} \div \text{cost} \quad \text{or} \quad f(\text{benefits} \div \text{sacrifices}).$$

VALiD (2012).

Schein (1990) believes that the essence of culture is a pattern of basic assumptions that constitute communal values which are taken for granted by the persons comprising the cultural group. Investigations by Hofstede (1980, 2001) suggest that the core of culture comprises fundamental beliefs which are learned early in life, are held very strongly and are extremely difficult to change; values constitute the next outward layer and comprise a hierarchical ordering of beliefs—here, values are enduring but malleable in the long term, especially amendments of their relative importances.

Hofstede surveys work-related values to produce profiles of national cultures but it is practices which, he asserts, determine and differentiate organizational cultures (Hofstede, 2002). Thus,

> … cultural differences between matched samples of respondents from different countries are primarily a matter of values, while cultural differences between matched samples of respondents from different organizations within the same country are primarily a matter of practices, as perceived by the respondents. Practices are reflections of symbols, heroes and rituals that are specific to one culture as opposed to others; they are the visible part of cultures, while values represent the invisible part. Practices are less basic than values, and are amenable to planned change; values do change, but according to their own logic, not according to anyone's plans. (Hofstede, 1998, p. 482)

He continues, by describing how organizational values and practices arise,

> There is little doubt that practices are designed according to the values of the founders and, in later phases, of significant top managers of the organization in question, but this does not mean that all members of the organization share these values … [however] Members have to follow the practices if they want to remain members … ([ ] added; Hofstede, 1998, p. 483)

Thus, Schneider's description of organizational culture, reflects Hofstede, that organizational culture is ' … how we do things around here in order to succeed … ' Schneider (2000, p. 26).

The link between values and practices is important for organisational development. That is 'Leaders' values [over time] become followers' practices' ([ ] added, Hofstede, 1998, p. 483) which is insightful in the

continuous evolution of organizational cultures and indicates why functionalist culture change initiatives often focus on values but enjoy limited success (Harris and Ogbonna, 2002, 2011).

That supports the findings of Schwartz and Bardi (2001) and Schwartz and Bilsky (1987) that values are both common and similarly associated by people in different societies/groups but do vary in importance between societies/groups and situations. (For a discussion of values relating to projects, see Mills *et al.*, 2009.)

Values can be classified as ends (situations: outcomes—as in the functioning of a project in use) or means (instrumental values: processes—as in project realizations which consume less resources and produce less pollution). Values are '… desirable, transsituational goals, varying in importance, that serve as guiding principles in people's lives' (Schwartz and Bardi, 2001, p. 269). Values are positive because they are desirable, and generic because they are transsituational and so are different from specific objectives which they underpin. Schwartz and Bilsky (1987, p. 551) advance:

> … five features that are common to most … definitions of values … (a) concepts or beliefs, (b) about desirable end states or behaviours, (c) that transcend specific situations, (d) guide selection or evaluation of behaviour and events, and (e) are ordered by relative importance.

It is common to regard values as motivators of human behaviour. Schwartz and Bilsky (1987) suggest 9 motivational domains of values; amended to 10 motivational types of values in Schwartz and Sagiv (1995), along with needs (Maslow, 1943; Alderfer, 1972) and means (Vroom, 1964). Values refer to what people believe to be important and so are instrumental in generating goals and targets and in processes adopted for their achievement (e.g. competition—as an effective work allocation process). Schwartz and Bilsky's (1987) motivational domains of values support the perspective of congruence between people's values and those expressed for tasks/projects having a positive effect on performance.

Schwartz and Sagiv (1995), Schwartz and Bardi (2001), and Bardi and Schwartz (2003) advance a model of motivational types of values which is derived from research into individual's values and consistency between them (Table 1). The research confirms differences between value hierarchies of different occupational and national groups. That stresses the

Table 1 Higher order values, constituent motivational types of values and goals

Higher order value	Motivational types of values	goals
Universalism	Broad-minded, wisdom, social justice, equality, world at peace, world of beauty, unity with nature and protecting the environment	Understanding. Appreciation, tolerance, protection of the welfare of all people and of nature
Benevolence	Helpful, honest, forgiving, loyal and responsible	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact
Conformity	Politeness, obedient, self-discipline, honouring parents and elders	Restraint of actions, inclinations and impulses likely to upset or harm others and violate social expectations and norms
Tradition	Humble, accept position in life, devout, respect for tradition and moderate	Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provides
Security	Family security, national security, social order, clean and reciprocation of favours	Safety, harmony and stability of society, of relationships, and of self
Power	Social power, authority, wealth and preserving public image	Social status and prestige, control or dominance over people and resources
Achievement	Successful, capable, ambitious and influential	Personal success through demonstrating competence according to social standards
Hedonism	Pleasure and enjoying life	Pleasure and sensuous gratification for oneself
Stimulation	Daring, a varied life and an exciting life	Excitement, novelty and challenges in life
Self-direction	Creativity, freedom, independent, curious and choosing own goals	Independent thought and action, choosing, creating and exploring

Derived from Schwartz and Bardi (2001).

necessity for identification of the values of project stakeholders and, more especially, to develop frameworks to secure acceptably compatible manifestations of those values for project realization—performance targets, etc. That is a primary task of the project manager to address throughout the project life cycle from its conception.

Thus, research into briefing (Green and Simister, 1999) and value management (Kelly *et al.*, 2004) asserts the importance of express determination of the requirements ('business contribution' and project specific) of the commissioning client; those requirements are founded in the values of that client as determined by the investigators. Those value-determined requirements are examined for feasibility (and the level of realization for the project to be handed over) and so, together with parameters (e.g. finance available) and constraints (e.g. town planning stipulations and building regulations) yield the 'project performance specification'—the agreed brief for the project. However, such briefing and value management techniques (VALiD, 2012), although concerned with determining the client's value-based requirements, then assess appropriate performance targets; thus, although addressing aspects of the commissioning client's aspirations, relate those to project success (first level outcome), leaving consequent satisfaction (second level outcome) implicit. Client functional plurality and interests of other stakeholders remain issues.

Essentially, the brief is a live starting point for the realization of the project and its subsequent occupation and use before final disposal. Despite the reality that details remain to be determined, that there will be changes due to variations and that a vast array of influences will occur over the life of the project, traditionally, those initial predictions are perceived to be accurate and fixed. Moreover, they are commissioning client oriented, the basis for determination of performance targets, and statements of what the project should provide and against which performance will be judged. In particular, values of powerful members of the TMO who input to the project will impact to move the 'working profile' of project requirements towards their own values (architectural aesthetics; structural integrity; energy efficiency, etc.).

Luck *et al.* (2001) find that development of the brief is becoming an on-going process throughout pre-construction and employs client personnel as well as designers and, occasionally, constructors. Such ongoing involvement of major project participants demonstrates recognition of the emergent nature of requirements and evaluation of feasible solutions (Sanoff, 2000; Luck, 2003, 2007) and so, through employing heedful sensemaking (Weick, 2005) and reflective design practice (Schön, 1983) moves solutions in the direction of optimality. Such continuity of evolution of the brief is reflected in the RIBA *Plan of Work 2013* (RIBA, 2013), moving away from the early fixity and rigidities (relating to design amendments and variations) of previous process models; and fostering adoption of co-creation (see, e.g. Payne *et al.*, 2008; Vargo and Lusch, 2008). That is echoed in the value (co-)creation workshop approach discussed by Thyssen *et al.* (2010) but which has proved problematic to implement.

Mills *et al.* (2009) find certain alignments amongst values of a number of project participants but also, notable misalignments within organizational functional types; values across different organizational functional types show marked differences. Unfortunately, the empirical study did not include clients themselves but it seems probable that a similar situation would apply to client functional organizations internally and in relation to other project participants.

Clients are believed to favour 'gains' (cost reductions, duration reductions and quality enhancements) and abhor 'losses'—that may induce the use of pessimistic performance predictions (to increase the possibilities of *ex post* 'gains'). The predictions may be manipulated to tend towards self-fulfilling prophesies as large differences between predictions and realizations may be viewed by consultants, and others, as indicating lack of expertise (Fellows and Liu, 2000).

However, Flyvbjerg *et al.* (2005) find large and systematic discrepancies between forecasts and out-turn costs (of 20–45% on public sector infrastructure projects in Europe), which are attributed to 'political' reasons to secure financial approval for the projects to proceed, and the use of 'inside view' techniques and, consequently, the operation of the 'planning fallacy' (Kahneman and Tversky, 1979; Kahneman, 1994). Individual projects, particularly if including leading edge technology (and developments)—e.g. Concorde, Sydney Opera House, Bay Area Rapid Transit and Scottish Parliament—may be subject to extreme forecast discrepancies, with out-turn costs being several multiples of the initial budget (as accepted/approved) (see, e.g. Hall, 1980; Kahneman, 2011, p. 250).

A final element in the psychology of such predictions concerns the impact of norms. Norms are historic statistics to indicate what may be expected under similar circumstances in the future, are used as comparators and so, likely to act as anchors for producing predictions, thereby constraining performance to such levels which are, therefore, perpetuated. That situation occurs due to the pervasive use of 'inside view' techniques for producing forecasts; 'outside view' approaches are likely to yield significantly different results (Flyvbjerg, 2006; Kahneman, 2011). Thus, predictions may operate to mask and prevent possible

improvement through forecasters' risk averse behaviour and, consequent, preference for the status quo.

Performance

Construction projects are realized through combinations of great diversities of activities constituting design, construction and regulation/control functions (Figure 1). Either end of the realization processes, client/customer—demand side—activities occur as the rationale for commissioning the project; and its occupation, use, adaptation(s) and final disposal, increasingly with (partial) recycling into subsequent projects. Construction products and their realization processes are complex (Miller and Hobbs, 2002) but so is the performance package of the project-in-use as required by the client (Caldwell *et al.*, 2009); essentially, clients require complex performance packages to enhance performance of their own activities.

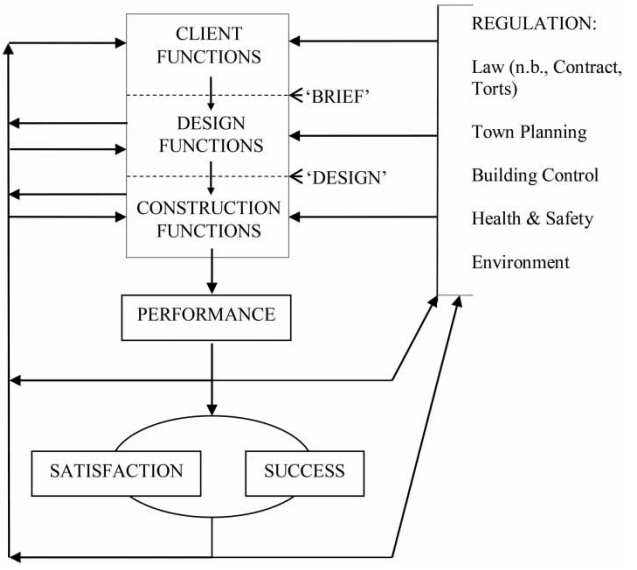

Figure 1 The project realization process (developed from Fellows, 2009)
Notes: (1) Adopting a co-creational perspective, the boundaries between client, design and construction functions are fuzzed (broken down) increasingly with recognition of the emergence and integration of client requirements, design possibilities and construction practicalities. (2) Performance of project realization leads to success and, thence, satisfaction of participants (or otherwise if performance is 'poor') and, hence, further perspectives of overall success. (3) Performance–Success–Satisfaction also produces feedforward in the 'cycling' of project data and information to aid realizations of future projects through participants' perception–memory–recall filtering ('experiences'). (4) A similar model applies to projects in use (beneficial occupation) but with 'Facilities Management' and 'Maintenance and Adaptation' replacing 'Design' and 'Construction' as major functionary groups.

Whatever the context, the essential client function is 'user' as, without a user who is prepared and able to pay a sufficient price for that use entitlement, and thereby generate (effective economic) demand, there will be no demand expressed to the construction industry. Of course, the demands which are expressed are quite fragile (especially in the early stages of possible project realization, conception, feasibility, etc.) and so may be modified or curtailed, but with increasing difficulty and costs as the realization progresses.

Thus, the demand which reaches the construction industry is derived through amalgamating the value-based criteria of the client functional actors, perhaps 'filtered' through a developer perception. That demand expression is, then, subject to amendment through design, regulation, realization constraints (notably [n.b.], finance) and construction to yield outcome.

A neo-classical and Friedmanite (Friedman, 1970) approach to performance concerns only the profitability components of financial performance. However, a more holistic view categorizes performance as 'business' (essentially, financial metrics in many instances), 'technical' and 'relational'. Commonly, non-financial metrics are regarded as important because they are perceived as (causal) enablers of business/financial performance. In construction project realizations, technical performance for the project is determined by design through development and interpretation of the brief; the technical performance of the construction process is also dependent on the design as translated into sequenced construction processes by the constructors. Thus, given commonality of technology and technical abilities of the constructors, and that the design of the project is, usually, provided to them, the differences in technical performance between constructors are likely to be minimal (as expressly provided in many project allocation processes—n.b., selective tendering). Attention to relational aspects is founded on changing relationships in project realizations to enhance cooperation, collaboration, integration and commitment amongst participants on the basis that improved relationships are causal of improved performance (Bennett and Jayes, 1995; Dainty *et al.*, 2005; Constructing Excellence, 2009).

> Although nobody has found—or is likely to find—a simple one-to-one relationship of any aspect of organizational culture with organizational performance, there is little doubt that organizational culture affects performance; in the long run, it may be the one decisive influence for the survival or fall of the organization … (Hofstede, 1998, p. 491)

Culture provides a fundamental context within which projects are located; organizational cultures are embedded in national cultures. Thus, enduring and demonstrably beneficial changes in firm and industry practices may change the culture of the industry in the long term (e.g. the move from open to selective tendering following Banwell, 1964, and the emphases on relational contracting, partnering and wider criteria for work allocation being advocated).

Competitive advantage, although originating in terms of economic/financial performance imperatives (Porter, 1985), has extended to incorporate other metrics. Although, often, still conflated with performance, competitive advantage is distinguished. A firm which has a competitive advantage creates more economic value than its competitors (Peteraf and Barney, 2003) by uniquely implementing a strategy which facilitates cost reduction, exploitation of market opportunities or/and neutralization of threats. Performance, then, flows from the relative competitive position of a firm in the form of rents where '… superior performance takes the form of monopoly rents to protected positions … ; or Ricardian rents to idiosyncratic firm-specific resources … ; or 'Schumpeterian rents' to the dynamic capability to renew advantages over time … .' (Powell, 2001, p. 875); however, appropriation of those rents is subject to enduring contest between the parties through determination of the final contract sum.

Performance comprises measures of metrics which involve distributional consequences—n.b., financial measures of performance (turnover, profit, etc.); those metrics are open to impacts by many factors which are exogenous to the firm (e.g. taxation and inflation) as well as power-based internal appropriations (e.g. wage bargains). Competitive advantage relates to greater effectiveness of output and, in particular, greater efficiency of producing that output—which leads Porter (1985), despite rather conflating competitive advantage and performance, to assert that competitive advantage is secured through either or both of cost leadership and output differentiation, the former being the usual work allocation *desideratum* in construction.

Over many years, construction project realizations have been widely criticized for poor performance (Latham, 1994; Egan, 1998; Construction Industry Review Committee, 2001), criticism which has been levelled at the performance of the products also. The bases of such generic criticisms, which, commonly, concern fragmentation, are found in traditional organizational management theories and assumptions, epitomized in rational behaviour and the quasi-mechanistic paradigm. That paradigm employs a reductionist lens to view organizations as quite stable systems with predetermined, rigid (formal) structures and specified objectives such that input requirements, transformation processes and resultant outputs are deterministically predictable with ease and accuracy, irrespective of the procurement approach adopted. Changes can be problematic but are addressed by adaptation of mixes of resources, most of which are available quite readily (given adequate funds).

Weick (1977), Quinn and Cameron (1988) and many other researchers have questioned the 'traditional' perspective of organizations, suggesting, instead, that '… political games between organizational actors, intuition, and random events come into play in shaping an organization's future' (Thiétart and Forgues, 1995, p. 19). Furthermore, the structure of the construction industry has undergone significant changes in many countries since 1980 such that 'main contractors' no longer execute construction operations themselves but, exclusively, manage subcontractors. Such structural changes have, consequently, occasioned shifts in the (fluid) power structuring of the TMOs (Liu *et al.*, 2003) which are assembled bespokely to realize construction projects. Those TMOs may be characterized as shifting, multi goal coalitions (Cherns and Bryant, 1984), the transient members of which, notoriously, behave in self-oriented, opportunistic ways in pursuit of their own goals (Ireland, 2004). 'Essentially, business is about appropriating value for oneself … only by having the ability to appropriate value from relationships with others … can business be sustained … [there]…must … be conflicts of interest between vertical participants in supply chains, just as there are between those competing horizontally' ([ ] added, Cox, 1999, pp. 171–72). Such conflicts seem to be causal contributions to the common zero-sum-game of construction project realization and detrimental to performance and outcome of projects as opportunistic, self-oriented appropriation of value detracts from achievement of the underlying values.

Thus, decisions remain dominated by the '… institutionalised mindset that prioritizes cost cutting … over any consideration of through-life operational value' (Leiringer *et al.*, 2009, p. 281) because 'Aspirations of providing through-life value for clients must be balanced against responsibilities to provide returns to shareholders' (p. 283).

Further structural changes have been occasioned through the widespread use of concession arrangements for procurement by public sector clients—notably, the various forms of PPP—which have brought about new, financially driven, supply-side organizational structures, including (more) temporary consortia (Gruneberg and Hughes, 2006). Such arrangements occasion fundamental changes in constructors' cash flows and, consequently, their financial requirements —revenue arises from users paying for using the completed project which is operated and maintained by

the consortium; profit is realized only late in the concession period after all costs—capital and revenue—have been recovered. Many constructors involved in such arrangements have endeavoured to extricate themselves by selling on their interests as soon as possible following completion of construction to afford them revenue in a pattern more akin to 'traditional' contracting. People prefer the status quo. Consequently, many of the potential benefits of such arrangements, through amalgamating design, construction and operating responsibilities in one supplying organization are likely to be unrealized (see also, Leiringer *et al.*, 2009).

(I cannot get no) satisfaction

Success is: 'the accomplishment of an aim or purpose'; and satisfaction is: 'fulfilment of one's wishes, expectations, or needs, or the pleasure derived from this' (OED, 2011). Thus, logic indicates that success (achievement of project performance targets) should yield satisfied stakeholders. However, two issues arise —the appropriateness and acceptability of the targets to the stakeholders (requiring resolution of the profit-seeking conflict in the demand-supply chain), and potential for intervening events. Intervening events may occur between setting targets and their achievement, and between achieving targets and the perceptions of stakeholders to modify/moderate the relationships.

The debate concerning project success and participant satisfaction is (again) replete with terminological confusion. Indeed, the terms and measures of them are frequently conflated (as in Yang and Peng, 2008, p. 460). Project success is evaluated regarding process (project management) performance whilst product (project, in use) performance remains, largely, ignored or assumed, as feedback is notably absent (but see, n.b., Preiser *et al.*, 1988; Kujala and Ahola, 2005). What is notable, for any appraisal, is that the result depends on who is asked, what is asked, how and when, as well as whether the examination is based on rater or ratee assessments (see, e.g. Liu and Walker, 1998). The second confusion relates to performance, success and satisfaction. Performance is realized outturn (measurement), whilst success is comparison of performance against some pre-determined level (target), and satisfaction concerns how a person feels about the perceived performance achieved.

Although individual goals apply for each client stakeholder, their reconciliation in the context of what other project participants determine to be viable, produces the targets for project performance (Figure 2). Given clients' aspirations, experience, expertise and advice of their agents/consultants, those targets constitute client expectations.

Assessments of performance and the human/psychological consequences are relevant for all stakeholders, not only the (commissioning) client. Liu and Walker (1998), using the goals–behaviour–performance–outcome (GBPO) cycle model, articulate the derivation of participant satisfaction from the level of success (together constituting outcome) in achieving required performance and the valences of those success factors to the individual, the contribution of participants' behaviours to performance and the determination of what is desired from the goals (and objectives and targets) of the participants—as shown in Figure 3.

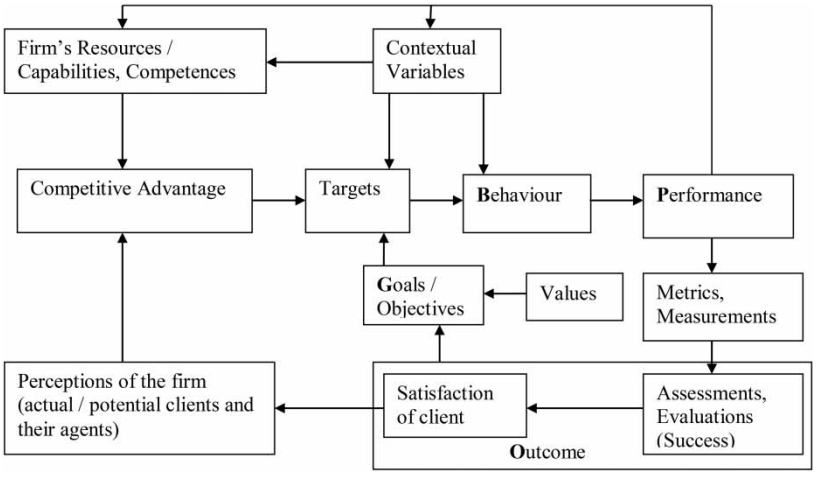

Figure 2 Cycle of competitive advantage for a project episode. (Perceived competitive advantage is relative to other, actual / potential suppliers.)
Note: Arrows may be read as expressions of aspiration.

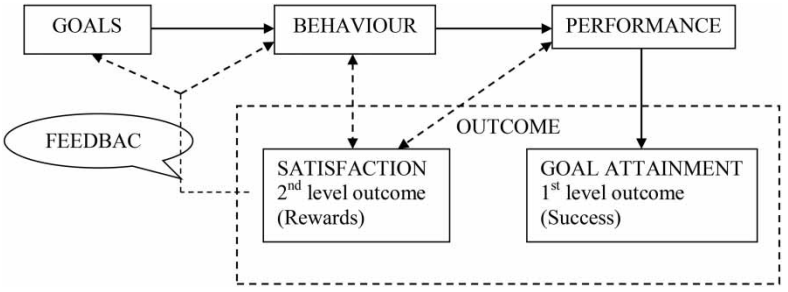

Figure 3 GBPO cycle with first and second levels of Outcome (derived from Liu and Walker, 1998). The second level outcome depends on the first level outcome achieved and its valence

The role of expectations in determination of satisfaction is considered by Hartmann and Hietbrink (2013) in the context of road maintenance projects. They adopt the expectation-disconfirmation theory (Oliver, 1980) and note four models relating expectations, experiences and satisfaction: disconfirmation (the model assumed most often)—satisfaction falls away when experiences (realization perceptions) fall short of expectations; assimilation—experiences are adjusted to meet expectations; ideal point—any difference (+ ve or – ve) between expectations and experiences reduces satisfaction; experience-only—experiences are highly influential in determining satisfaction (as in a Markov process; Abbott, 1990).

In common with other psychological constructs (e.g. trust), satisfaction has, usually, been considered as a uni-dimensional construct along a spectrum from totally dissatisfied to totally satisfied. Increasingly, it is recognized that, for such multi-faceted (and so, multi-variable) constructs, uni-dimensionality is inappropriate as both satisfaction and dissatisfaction can be felt at the same time but relating to different aspects of the subject matter (Babin and Griffin, 1998)—process (project management) and product (project) performance. Furthermore, Babin and Griffin (1998) articulate the importance of individuals' 'reference points' in their assessments and so, are fundamental to their consequent, subjective feelings. (Kahneman and Tversky (1979) and Kahneman (2011) discuss the importance of peoples' 'reference points' as their basis for judging the outcome of a decision; especially, in the context of prospect theory.)

Busacca and Padula (2005) develop a multi-dimensional model of satisfaction comprising three categories of performance attributes contributing to overall satisfaction—required, basic performance attributes (as in motivational hygiene factors—Herzberg *et al.*, 1967); uni-dimensional performance attributes and (unexpected) delight performance attributes—as shown in Figure 4 (analogous to a value management perspective

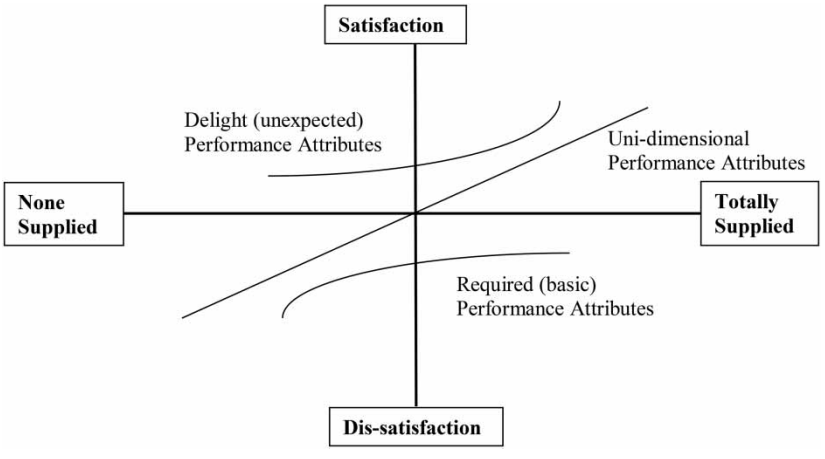

Figure 4 Three factor theory of (client) satisfaction (developed from Busacca and Padula, 2005)
Note: (1) The uni-dimensional performance attributes' relationship between amount supplied and consequent satisfaction may not be linear due to increasing/diminishing returns (according to utility theory). (2) The performance attributes comprising each factor and the factors themselves are likely to be subject to weightings when combined into total satisfaction.

of functional categories; and the basic, particular and participative categorization of customer value).

Given the diversity of performance facets of construction projects, each is likely to contribute to satisfaction, although the nature of the model is contested. From a project management (process) perspective, Yasamis *et al.* (2002) note that contractor performance is a significant contributor to client satisfaction. More holistically, Mbachu and Nkado (2006) investigate client needs in relation to satisfaction through the alternative models of satisfaction based on single, overall measures or based on multi-attribute measures but find that the models produce results which are not statistically different. Unfortunately, they endeavour to address client needs as the base rather than demand, whilst recognizing the '… possibility of clients' stated requirements not sufficiently addressing their real (latent) needs' (Mbachu and Nkado, 2006, p. 32) and so, demonstrating the emergent nature of those requirements and the potential for a co-creational approach. Further that there is often '… insufficient time for in-depth viability appraisal … ' and other decision problems which detract from optimizing solutions.

Even though a brief is emergent and may not expressly articulate the categorization of the performance attributes, recognition of them through reflective practice, co-creation, etc. is a valuable contribution towards achieving client satisfaction through development and adoption of appropriate performance targets. However, multiplicities of diverse interests and desires are likely to remain throughout project TMOs and, perhaps especially, within clients (Cherns and Bryant, 1984). Thus, Möller and Laassonen (1986, p. 184) caution:

> It is well known that the importance of choice criteria varies across the buying centre members. Typically, persons representing different departments and interests suggest different criteria, and even in the case of a common set they generally employ varying importance weights;

hence, the 'traditional' desire for a 'single point of contact' (representative) of the client.

Identification of the goals/targets is derived from the values and, consequent, demand expressions of the commissioning client, as perceived (usually, with assumptions) by other project participants. Given that those project participants are 'professionals', which places strong moral obligations on them to practise their professions for the good of society (humanity and the environment) and not just the demand of the client, they are obliged to incorporate such considerations into the targets and, hence, the project design. However, market forces, power plays and opportunism, may operate to mitigate such moral behaviour and to focus attention on the commissioning client's desires, as moderated by those of the designer(s) (Storey *et al.*, 2008). Resultant targets may be modified further through risk averse behaviour to publish the targets once amended to improve the likelihood of their being achieved or surpassed (i.e. the targets are relaxed, given performance norms and expectations of realizations such that the probability of success is increased —Fellows and Liu, 2000) or to secure budget approval for project go-ahead (Flyvbjerg *et al.*, 2005).

'… goal-directed behaviour leads to performance and further leads to an outcome which is then perceived and evaluated by the individual' (Liu and Walker, 1998, p. 214). However, just as the setting of initial targets involves much human judgement, and, hence, may be subject to manipulation, so, too, the measurements of performance are not totally objective—settlements of extension of time applications, valuations of variations, etc. all include negotiated components in the agreed/accepted final amounts. Furthermore, even the 'objective elements' cannot be measured with absolute accuracy.

Thus, all measures of project realizations are subject to errors and potential biases, whether forecasts or out-turns, and the targets which form the evaluation-base comparators may remain 'fixed' when amendment is appropriate due to client changes, etc. through the emergent nature of design, or be amended due to manipulations of designers/constructors without the client's knowledge or agreement. Hence, the client does not compare 'like with like' in determining the success of the project realization.

Discussion: decisions and realities

Participants must make sense of the continuous, complex, ambiguous and equivocal dynamics of project requirements and constraints (Weick *et al.*, 2005; Brockmann, 2011). That requires data and information which are interpreted through knowledge, learning and experience to inform decisions about the project. Such forward-looking employs a becoming ontology (Winter *et al.*, 2006), with '…uncertainty as an issue of ontology rather than an issue of epistemology' (Weick, 2005, p. 63). However, human cognitive limitations (Simon, 1979), necessitate simplification of the data and information through heuristics. Thus, sensemaking involves cognitive, intuitive and reactive construction of meaning and so, is likely to adopt bounded rationality (Simon, 1979). By addressing the question 'What's the story?' (Weick *et al.*, 2005), sensemaking fosters a narrative approach to generate a rich picture of the emerging project. However, the inclusion of plausibility as a principle of sensemaking tends to

restrict searches for solutions through adoption of satisficing (Weick, 1995).

Sensemaking is important for addressing non-routine issues and problems—most appropriately using controlled thinking (system 2, the 'lazy', cognitive system—Kahneman, 2011, p. 31). Non-programmed (wicked) problems involve unexpected elements so, there is a tendency for people to normalize them and conflate the current problem with something within the person's experience. Designing and constructing a building requires pooling of expertise in addressing arrays of both non-routine and routine problems and so, even for non-routine problems, the process is likely to '...induce automatic, skill-based thinking which is more suited to routine [programmed] problems' ([ ] added; Weick, 2005, p. 56)—antithetical to reflective practice advocated for effective project realization (Schön, 1983).

As project participants are drawn from various disparate communities of knowledge and practice, the need to reach an appropriate and common understanding of what the project is required to achieve, both process and product, is essential. However, 'When information is distributed amongst numerous parties, each with a different impression of what is happening, the cost of reconciling these disparate views is high, so discrepancies and ambiguities in outlook persist' (Weick *et al.*, 2005, p. 418) which is likely to generate conflict, and pursuit of solutions determined via the power structure of the TMO, notably, experientially based and 'standard' solutions (Weick, 2005). Here, appropriate boundary objects can play a vital role as 'The critical feature [of boundary objects] is that they act as common information spaces that enable interaction and coordination without consensus or shared goals' ([ ] added; Bartel and Garud, 2003, p. 333).

In addressing wicked problems (e.g. realizing a building), sensemaking must pay attention to every item of data and information. Less heedful approaches involve normalizing, reduced awareness of what is being omitted and discarded, and '...susceptibility to the fallacy of centrality' (Weick, 2005, p. 62). That concern should extend to recognition that designing and constructing a building is a social as well as a technical process and so, sensitivity should address the relational aspects to secure understanding of each participant's meanings and their importances in contributing to the emerging project.

Here, the concept of satisficing embraces means for achieving plausible solutions which are acceptable to participants who have diverse and, likely, competing criteria. Given reliance on experience and norms, the plausible solutions of sensemaking may be acceptably satisficing but fall significantly short of optimal and so fail to delight the client.

However, Cherns and Bryant (1984) stress that most projects which reach the construction industry represent the result of conflicts within the commissioning client organization and so, differing vested interests are important from the outset—some of which want the project as realized to be a demonstrable success whilst others wish for degrees of failure in order to advance their proposals in the future.

In addition, usual decision-making criteria for project selection and, then, allocation of work to design consultants, constructors, etc., operate to select the most optimistic alternative (most benefit and lowest cost), and hence, the most difficult to achieve due to the effects of regression to the mean and the occurrence of 'the winner's curse' (Kahneman, 2011). Furthermore, the techniques employed to produce performance forecasts (cost planning, estimating, work programming, etc.) are 'inside view' and are reductionist, deterministic representations of stochastic processes, usually expressed as single-figure predictions (see, e.g. Reugg and Marshall, 1990; Fellows and Liu, 2013).

The consequence of those issues is that the projects which are selected for adoption are the most difficult to realize to match or exceed the stipulated performance targets and so, are most likely to 'fail'. Thus, projects are labelled with poor performance, unsuccessful outcomes and, through cognitive dissonance (Festinger, 1957), dissatisfied stakeholders, notably, clients. Time pressures throughout are problematic, including constraining iteratively seeking optimal solutions through heedful sensemaking and reflexivity.

The situation is not aided by managers' self-perceptions and multi-participant structuring of processes. Managers see themselves as '… not gamblers but prudent and determined agents who are in control of both people and events' but who, when producing forecasts, '… tend to ignore or downplay the possibility of random or uncontrollable occurrences that may impede their progress toward a goal' (Lovallo and Kahneman, 2003, p. 59). However, if forecasts are met or bettered, vigilance over control tends to dissipate rapidly. The multi-participant structuring of processes encourages managers to take risks '… in part, because they do not expect that they will have to bear them' (Kahneman and Lovallo, 1993, p. 29), which, also, fosters the 'blaming of others' approach for performance shortcomings.

Behavioural assumptions, observations and investigations have yielded a number of popular decision models—including the rational model, with the optimization decision rule; bounded rationality (Simon, 1990), rational within constraints using a 'satisficing' criterion; political (arena), with temporary power-based alliances; and 'garbage can' (organized

anarchy), with *post hoc* rationalization of decisions. In practice, a decision is likely to demonstrate a combination of the features of several models.

Behavioural research into how people make decisions has found, consistently, that people use simple heuristics, beliefs, etc. rather that quantitative, statistical calculations (Kahneman and Tversky, 1979); '… background beliefs and tacit knowledge are much more important in determining social actors' behaviour than explicit calculation over potential gains and losses associated with specific decisions' (Bachmann, 2001, p. 346). People are variously risk (loss) averse but, also, are fairly quantum independent—approximately equal effort is expended to secure a given percentage gain whether the sum of the gain is large or small thus, under the prospect theory (Kahneman and Tversky, 1979) the nature and location of the reference point (from which gains/losses are judged) is critical. In most instances people evaluate losses/gains relating to individual decisions rather than aggregating them and considering effects on total wealth—hence, projects are seen as 'stand alone' rather than elements of a 'programme' or of an organization's portfolio of investments.

There are a number of 'traps' in decision-making which are attributed to human failings and become manifested as errors and/or biases. They are considered to be traps because the decision-makers, and most other persons, are unlikely to be aware of or to detect their presence but they have significant impact on the outcomes achieved. The traps include framing, anchoring, recallability, sunk costs, confirming evidence, status quo, overconfidence and prudence (Hammond *et al.*, 2001).

Framing concerns how the decision situation (problem, alternatives/prospects) is described. Furthermore, as people tend to examine decision alternatives one-at-a-time—i.e. incrementally—they tend to mask any portfolio effect which could operate to reduce the risk associated with combinations of decisions. The sequence in which the elements of a decision are examined also is likely to influence the decision made. Kahneman and Tversky (1979) note the isolation effect wherein decision-makers remove and ignore elements which are common to two or more decision alternatives—a common approach for investment decisions.

Anchoring usually relates to data used in examining the alternatives—people tend to be more highly influenced by the data provided or discovered first and so lead to differing results.

Recallability is the ease with which a person can access information (usually stored in the person's memory)—the more active and more vivid the encounter, the easier it is recalled and so, the greater the decision weight attached to it. Human memory does tend to decay over time and to distort what is recalled, in part, due to impacts of other memories.

Traditionally, sunk costs should be ignored as they occurred in the past and decisions relate to the future. However, Diekmann *et al.* (1996) and Vaidyanathan and Aggarwal (2003) determine that sunk costs are likely to impact on sellers' asking prices and the minimum prices at which they will transact, on buyers' bids and the highest sum they will bid and, in consequence, on the transaction price agreed.

Confirming evidence is data and information which support the beliefs, desires or preferences of a person. In making decisions, people give confirming evidence both greater weight than disconfirming evidence and, usually, greater weight than the confirming evidence merits.

Status quo refers to a person's normal preference for 'no change', a further aspect of risk aversion; thus, status quo often acts as the 'default'.

Overconfidence concerns the common human condition of believing to be able to exert more impact on (future) events than is merited objectively. That applies to levels of accuracy of forecasts as well as to control over events and people (both self and others).

Prudence is another facet of risk aversion—in particular, in relation to applying high weightings to avoidance of, even small and/or improbable, losses. It also relates to peoples' certainty bias—preferring a smaller gain which is certain to a larger probable gain (the product of the sum and its probability).

Commonly, people endeavour to overcome difficulty and complexity in decision contexts by the use of heuristics or approximate models. Tversky and Kahneman (1974) identify three categorical judgmental heuristics which people often use in making decisions—representativeness, availability, and adjustment and anchoring (the latter two are noted, above). Representativeness involves a number of common errors regarding statistics, notably insensitivity to prior (base) probability—the underlying likelihood of an outcome; insensitivity to sample size—larger samples are likely to yield statistics which are closer to population parameters; misconceptions of chance—as in reliance on results from tests of small samples, the 'gambler's fallacy, etc.; insensitivity to predictability—such as reliance on unreliable information; illusion of validity and misconceptions of regression (towards the mean).

Kahneman (2011) cites various instances of people's preferences for human inputs to decisions over reliance on algorithms, and for complex approaches over simple (parsimonious) techniques; however, he presents evidence for the common superiority of simple algorithms and for algorithms over humans (see, e.g. p. 226). Those findings confirm the extensive subjectivity which is used in decision-making—and so, the

importance of the human elements—but, hence, the weakness of reliance on such behaviourally based decisions.

A final aspect of decision-making concerns the perspective adopted—inside or outside. The inside perspective is most common and adopts Newtonian reductionism in that the whole (project) is progressively split into components which are, then analysed individually and the results are aggregated additively to produce the result (cost, duration, etc.); in such a view, synergy and effects of merge events are ignored. The outside view (or reference class forecasting—Lovallo and Kahneman, 2003) takes a holistic perspective and accommodates synergy by basing analyses on outcomes of an appropriate (reference) class (of projects); the distribution of outcomes of that reference class is used to forecast the outcome for the instance under decision. Flyvbjerg (2006) stresses that the use of reference class forecasting, on major infrastructure projects, would overcome the major prediction errors which are common.

Conclusions

Construction projects, both realization processes and resultant products in use, are extensively criticized for poor performance, particularly from the perspective of commissioning clients. That is of concern, especially as the most commonly expressed aim of primary participants in the realization process is to 'satisfy the client'! In the zero-sum-game which characterizes most construction project realizations in the free market context which encourages opportunistic behaviour, it seems unsurprising that clients are disappointed, probably, in part, at least, because those other participants are, in reality, endeavouring to satisfy their own business performance imperatives of profitability and growth and so, are competing for appropriation of benefits (value) from the project.

The situation is not helped by difficulties of identifying the multiplicity of client functionaries on large projects and, then, determining their requirements (demands) and appropriately weighting them to arrive at a comprehensive and appropriate brief for the project. Many of the performance forecasting techniques which are employed, coupled with the human behavioural and decision-making issues, compound the problems.

Projects are realized and operate through processes which involve an increasingly diverse array of specialist activities which must be integrated due to high levels of interdependence. Whilst the technical and business abilities of participants are high, it is the relational arena in which concerns arise. Participants' concepts of value are diverse and so, are subject to multiple representations which '… are continuously contested, deconstructed and negotiated' (Leiringer *et al.*, 2009) in realization processes. If clients are to be delighted with the performances they receive, solutions must move in direction of their informed perceptions of optimality, rather than norms of plausible, satisficing solutions achieved through compatibility of performance amongst the most powerful, opportunistic TMO participants.

Competitive market and contracting systems are not conducive to fostering perspectives of commonality of interest, with commitment and cooperation for good coordination but, through the ubiquitous use of zero-sum-games, foster self-interested opportunism and price orientation, generally with a short-term emphasis. Partnering requires a change in culture, including dispensing with the practice and beliefs of lowest bid wins competition.

The following agenda is suggested to assist both research and practice to move in the direction of greater satisfaction of clients and other project stakeholders:

1. Client advisors must study the client in depth and in the context of their activities, overall objectives and current situation to really understand their requirements and economic demands to offer professional advice. On occasions, such advice may be not to commission a construction project but, more usually, concerns determination of criteria and parameters regarding the project from the perspectives of the main participants/stakeholders. As those criteria are likely to be contested and competing, appropriate reflective judgements are vital in determining appropriate outcomes, including holistic considerations (see Volker *et al.*, 2008; Thomson *et al.*, 2013); considerably more investigation into elicitation of the criteria, etc. and their use in project decision-making is required.
2. The techniques of value elicitation and mapping (Mills *et al.*, 2009; VALiD, 2012) may be employed for the main client functionaries and other project participants as the basis for determination of an acceptable profile of emergent value determinants to assist formulation of project performance targets, with periodic reviews to ensure continuing appropriateness. That may be supplemented with research into an array of recently completed projects to determine the appropriate models and dimensions for achievement of satisfaction (of client functionaries and other stakeholders). Findings from those two investigations should be compared for consistency between values and satisfaction constituents. Project

performance and measurements of project success should be incorporated also with a view to determine a holistic process model relating values, targets, performance, success and (stakeholder) satisfaction, developing the GBPO model further.
3. Implement more appropriate forecasting methods which employ stochastic approaches to ensure that predictions are given with quantified variabilities and explanations of the main variables which impact on those predictions. That could include adopting 'outside views' as in reference class forecasting (see Fellows and Liu, 2013), and recognizing the emergent nature of project performance requirements.
4. Select and appoint participants on more comprehensive criteria (relating to client value profiles), including abilities and preparedness to cooperate with other participants and to include mechanisms in governance processes to maintain cooperation and avoid negative conflicts proactively (as in Dispute Resolution Adviser mechanisms; e.g. Wall and Fellows, 2010).

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Note

1. Given the nature of values, it is unlikely that the values of participants change over the duration of a project; however, the relative importance of values may shift but the most likely change is in the practical expression of the values relating to the project performance/content.

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