From Customer Needs to Project Requirements:

Helping customers/users clarify and confirm their basic business or equivalent needs, before specifying the project/ product requirements to best help satisfy these needs [1]

By Alan Stretton

INTRODUCTION

In the last issue of this journal, I discussed re-affirming the importance of users in all project contexts (Stretton 2022j). After pointing out that users appear to be still largely neglected in bodies of knowledge of project management, I recommended that the latter should include at least some guidelines about capturing the basic needs of users – by which I mean their business (or equivalent) needs – before attempting to define the requirements of projects that would best help satisfy these needs.

I also noted that there are already some relevant materials in the literature to draw on – albeit rather sparse ones – mainly relating to the needs of customer organisation users of project-related services. These include contributions by Frame 1994, and articles on EPC (Engineering, Procurement, Construction) organisations providing Front End Loading (FEL) services, mainly in the major/mega project fields (e.g. in Prieto 2015).

I have discussed both of the above in various articles in this journal. Additionally, I have discussed Civil & Civic's work in this field, with its Client Needs Determination (CND) services (e.g. in Stretton 2013e, 2016c, 2019c). Civil & Civic set down quite extensive guidelines for undertaking CND in its own internal documents, for example in Civil & Civic 1980, and in a 1987 supplement, which together included 34 pages on CND.

In this article I will attempt to draw together, and expand on, some of these materials on capturing the needs of customer organisations, and hopefully provide an embryo framework which could help others in further developing more generalised guidelines.

I also noted in Stretton 2022j that the importance of customers' needs has been seriously addressed in some service industries such as IT, in which Business Analysts have become prominent – as have Agile techniques. However, as Frame 1994:103 has pointed out, customer needs in their total context goes beyond mere technical issues.

> What is being suggested in Step 1 [Understand the present system in its total context] goes beyond conventional systems analysis advice. Understanding the technical

[1] How to cite this work: Stretton, A. (2022). From Customer Needs to Project Requirements: Helping customers/users clarify and confirm their basic business or equivalent needs, before specifying the project/ product requirements to best help satisfy these needs, featured paper, *PM World Journal*, Vol. XI, Issue XI, November

> dimensions of the current system is of course vital ….. However, needs analysts must go beyond purely technical investigations of problems. They should strive to understand the present system in its total context.

This article is specifically concerned with users needs in their broadest contexts.

UNDERSTANDING CUSTOMERS' BASIC NEEDS IN THEIR BROADER CONTEXTS

> *The importance of doing a good job of identifying needs and specifying requirements cannot be overstated. To appreciate this, we must recognize that need definitions start off a series of events that ultimately results in the production of a deliverable designed to satisfy the needs. It is needs that get the project ball rolling. Requirements [for projects, etc], in turn, are developed from an understanding of needs. (Frame 1994:99)*

Customers' basic needs directly relate to their business (or equivalent) contexts

We start by observing that customers' needs are rarely, if ever, for a project per se. Their needs are invariably focused on their broader business needs (or their equivalent in other contexts, such as educational, healthcare, infrastructure, etc.).

It is vitally important that these broader basic business needs are accurately determined. The validity and utility of all subsequent activities, and ultimate real satisfaction of the customer needs, depend on it.

From a project management perspective, when these subsequent activities include projects – as they normally do – failure to satisfy the customers' needs will quite typically (and often quite reasonably) be interpreted as a project failure. In such circumstances, project management should have a particularly strong vested interest in ensuring, or verifying, that the customers broader business needs have been accurately determined.

One approach to doing this is for project management to be actively involved in helping customers/users clarify and confirm their basic business or equivalent needs. This has been done in the past in certain contexts, and would appear to be also applicable in a wider range of contexts. This is the primary area of interest of this article.

Customers' basic business (or equivalent) needs should not be confused with the requirements of project(s) subsequently undertaken to help satisfy these needs

Whilst project managers tend to think project first, customers rarely do, if ever. This was first brought home to me some sixty years ago, when a Civil & Civic customer commented to me along the following lines.

> "Alan, I want the worry of a project like I want a hole in the head. But I can see that I need to undertake this project to help me implement my longer-term business plan. So, I'll simply have to put up with it".

Project managers need to be continually mindful of this important distinction between the customer's perception of his/her broader business needs, and the project manager's somewhat natural propensity to think project first.

BROAD APPROACHES TO HELPING CUSTOMERS CLARIFY THEIR BASIC NEEDS

Developing a good understanding of customer organisation in its broader context

The following approaches to getting to understand customer needs are framed around a customer organisation.

Civil & Civic set out the following guidelines for understanding the customer's situation in its broader context. The written record of this that I possess is dated 1980 (Civil & Civic 1980), but I can attest to the fact that it was being developed and practiced from the mid-1960s (and may well have been documented from around that time, but I have no records of these documents).

> To achieve complete client satisfaction we must obtain a deep understanding of such things as:
>
> - The nature of our client's business – what it does and how it operates – its objectives – its competition
> - The processes which are to be accommodated by the project in hand
> - The terminology and language used in the client's business
> - The client company's organisation structure – who are the key people and their personalities
> - The real reasons for the client entering into the project

In somewhat similar vein, Frame 1994:104 makes the point that the first step in needs definition is to understand the present system in its total context. He goes on to say that this means going beyond purely technical investigations of problems, and addressing such questions as

- What is the organisational milieu in which the system functions?
- Who are the relevant actors?
- What is the political environment like?
- What is the hidden agenda?

One can go even further in seeking to understand some types of customer organisations, by looking, in turn, at that organisation's own customers. Winter, Andersen et al 2006 quote the approach of Normann 2001 of looking at the customer organisation's relationships with its own customers. Their long quotation begins as follows.

> a particularly useful way of re framing, in our experience, is to focus on the customer of the company as the major stakeholder, and to mentally frame oneself as part of the customer's business. Many pay lip service to this idea; few take it to their hearts.

The approach of "mentally framing oneself as part of the customer's business", epitomises a type of strong customer orientation which is evidently very appropriate in the context of helping customers clarify their basic needs.

Partnership-type arrangements help in clarifying customers' basic needs

Capturing needs is very often easier said than done. As Dalcher 2014 reports,

> Steve McConnell notes that the most difficult part of requirements gathering is not recording what the users want but the exploratory development activity of helping users figure out what they want.

In somewhat similar vein, Frame 1994:106 points out that the role of the needs analyst is essentially a helping one (which is the way we also saw it in Civil & Civic). Frame put it this way:

> Customers generally do not know what they need with any degree of precision. A major function of needs analysts is to work closely with customers to help them develop a more precise sense of their needs. ……..

Frame 1994:106 specifically refers to such close working relationships as partnerships.

> A good statement of needs is the product of a partnership between the needs analysts and the customers.

Civil & Civic certainly saw the needs identification process as a kind of partnership (although its internal descriptor for the relevant service – Client Needs Determination [CND] – might not have suggested it). A 1987 supplement to its 1980 manual *"Project Management for the 80s"* (Civil & Civic 1980) said:

> It is important that clients be as deeply involved as possible in the needs determination process.

In Civil & Civic, such partnering-type aspirations were strongly facilitated by the institution of joint governance arrangements for each project with what was called a Project Control Group (PCG), dating from the early 1960s. The PCG acted as the broad equivalent of a Board of Directors for the project, and comprised senior management and operating people from both Civil & Civic and the customer organisation. Core membership was typically:

- Client management – the most senior available client decision-maker
- Client representative – the primary contact for day-to-day matters
- Civil & Civic management – a key senior manager, acting as the PCG chair

- Civil & Civic project staff – the project manager, acting as the PCG secretary

A Project Control Group was established as soon as possible after formal initiation. Meetings were normally held at monthly intervals, but with some flexibility about frequency. The meetings were designed as a vehicle to:

- Provide both the client's and Civil & Civic's top management with an overview of the project's progress, and significant problems/opportunities;
- Provide a high-level decision making forum on major issues, to ensure that appropriate action is agreed, and taken, throughout the life of the project;
- Provide regular and formal communication and interaction between the client's management and Civil & Civic's management;
- Facilitate the development of informal communication lines, and positive people relationships, to complement more formal communications;
- Help resolve major differences where necessary;
- In some instances refer items back to the project manager with indicators about additional information needed to make reasonable decisions
- Promote continuing active involvement by all relevant parties.

From the above, it can be seen how PCGs facilitated what were essentially partnering-type arrangements between Civil & Civic and its customers.

SOME COMPONENTS OF CUSTOMERS' NEEDS, & RESTRAINTS, RECONCILING

In this section I am going to draw on materials from Civil & Civic 1980 & 1987, which give some examples of broader contexts in which three typical issues relating to customer organisational needs were investigated and discussed.

Emotional needs

This descriptor was used to cover a wide range of "softer" and/or complex issues such as image, politics, involvement, risk and the like.

The image a customer organisation wants (or needs) to convey to others can be an important component of its broader needs – e.g. images denoting attributes such as being efficient, traditional, modern, hi-tech, expensive, community responsive, etc.

Politics within a customer organisation is another component that should not be overlooked. Frame 1994 has a whole chapter (Ch. 6) on acquiring political skills and building influence in the project management context. In this context he defines politics as follows (p.127).

> Politics is the process whereby attempts are made to achieve goals through accommodation and the exercise of influence.

This overlaps with the multiple-customer attribute of most customer organisations, which we will be discussing in more detail shortly.

Financial needs

The level of customer organisations financial capabilities can vary greatly, and this should be ascertained early for each customer, to check if assistance in that area is likely to be needed in checking the financial implications of the customer's stated needs.

Relevant financial factors could include:

- How the financial evaluations are to be made
- Assessing the validity of the feasibility studies re these needs
- Evaluating the impact of total project costs
- Confirming satisfactory funding arrangements exist
- Recognising when expert financial help is required

Physical needs

Civil & Civic's main operating domain was building and construction, and this is reflected in the physical needs it exampled, which included: Departmental and room areas; Access; Plant layout; Structure; Finishes; and Utility services.

Restraints

Civil & Civic also placed substantial emphasis on identifying restraints, and listed and discussed the following types of restraints.

- Site
- Environmental
- Statutory
- Customer policy
- Financial or budgetary
- Market
- Time

Reconciling needs and restraints

To this point we have a statement of customer's needs, which usually represents the "ideal", and have identified various restraints which will affect the achievement of this "ideal". The aim of this step is to reconcile the needs and restraints with minimum loss of the "ideal".

Specifying the customer's needs; Obtaining customer confirmation/approval

We are then in a position to consolidate the above into a specification of the customer's basic business needs. This must be a written document – Civil & Civic had substantial guidelines on its format, including use of non-technical language that the customer can readily understand. The customer's confirmation of this needs specification document, and approval to proceed to the next stage, must, of course, also be in writing.

SOME MORE DETAILED APPROACHES TO HELP CLARIFY CUSTOMERS' NEEDS

Various methods of engaging with customers to help clarify their basic needs

Civil & Civic discussed a familiar range of different methods of engaging with customers to help clarify their basic needs. These included:

- Direct interview – asking questions, including "why", "what", "who", "when", "which". These can be supported with personalised
  - Structured questionnaires
  - Check lists

- Demonstration methods. These could include
  - Models or mock-ups
  - Pictorial representations
  - Comparable existing examples

Some appropriate attributes for effective needs analysts

Frame 1994:100 identified the following six traits of effective needs analysts.

1. Needs analysts must have a strong ability to deal with customers and extract from them a sense of what they truly need
2. They must have good political skills. This means they must recognise that all customers are not equal in a political sense.
3. They must be technically competent. They should be able to match customers' ill-defined needs to possible solutions
4. They must be open-minded and possess a good imagination. Open-mindedness is necessary so that they do not close off possible solutions to problems because of a narrow outlook
5. They must have a high tolerance for ambiguity. Because customers do not generally know what they need or want, they will provide the needs analyst with mixed signals.
6. They must be articulate.

Project managers and specialist needs analysts

Frame 1994:101 then goes on to say.

> The traits listed here are certainly desirable in project staff members charged with defining needs and specifying requirements. Unfortunately, they are not commonly found in most project staff members, who tend to view needs definition and requirements specification narrowly through a technical prism.

Our experience with our project managers in Civil & Civic was significantly more positive than Frame intimates in this quotation. As might be expected, the extent to which our project managers developed skills in needs analysis varied widely – but overall, the majority became reasonably to highly competent in helping customers clarify and confirm their basic needs – via our Client Needs Determination (CND) services. Civil & Civic set down guidelines for undertaking effective CND in very substantial detail, which certainly helped substantial numbers of our project managers do this work effectively

At the time (from the mid-1960s) the demand for Civil & Civic's CND services increased very rapidly, to a point that we had to develop individuals and small teams who specialised in CND in the business areas that were in most demand at the time, such as health-care, education, meat processing, and the like. As just indicated, in the course of doing this, many of our project managers became highly skilled in helping customers clarify their basic business needs.

We also had a few other individuals with highly developed skills in CND who could be, and were, co-opted to help other project managers when needed.

MULTIPLE CUSTOMERS ('MULTI-CUSTOMERS'), & CLARIFYING THEIR NEEDS

> *An important step towards achieving customer satisfaction is to raise the question, Who are our customers? Note that there is a world of difference between this question and the one that is most frequently raised: Who is our customer? The point is, on our projects, we always deal with multiple customers.* *(Frame 1994:96)*

Customer organisations are usually characterised by having a multitude of people or groups of people with different objectives and perspectives in relation to their organisation's needs. Civil & Civic described this as "internal & external compounding" of clients. Frame has used the descriptor "multiple customers" in the above quotation. He also distinguished between internal and external customers, as follows,

> Identifying customers is complicated by the fact that we often must deal with internal customers as well as external ones.

I have struggled a little to find an appropriate overall descriptor for the pluralities of such customers associated with the customer organisation, but have elected to describe these multiple customers more succinctly as 'multi-customers'.

Some multi-customer attributes of typical customer organisations

Perhaps the most obvious types of multi-customers are those different individuals or groups within organisations which have different objectives and perspectives, whether they are legitimately conflicting objectives, or contrived ones. These can commonly lead to situations where recognition of a set of needs for one multi-customer group generates hostility from other multi-customer groups with different interests and perceived needs.

Civil & Civic also cited such potential multi-customers as overseas parent organisations, cross-shareholders, and middle-men and agents, in some contexts.

Other more directly project-related multi-customers could include joint venture partners, committee decision makers, and government funding bodies. Such lists of multi-customers could go on and on.

Some steps for undertaking needs clarification in multi-customer contexts

> *The project team often faces the difficult task of sorting through the contending needs of different customers in order to define customer needs and requirements. Needless to say, this is a challenging undertaking. …. The needs definition process must be filled with compromise and balance.* *(Frame 1994:97)*

The Civil & Civic guidelines had a good deal to say at various points about the need to reconcile different needs of different multi-customers. However, they did not contain integrated guidelines on how to go about this – which is hardly surprising in view of the nearly endless possible permutations and combinations of such different needs. However, Frame 1994 offered a potentially very helpful "needs defining task force" approach in his four "Steps for improving needs definition", to which we now turn.

Step 1. Understand the present system in the total context

We discussed this in some detail in an earlier section on "Developing a good understanding of customer organisation in its broader context", which included Frame's emphasis on going beyond purely technical investigations, to include the total context of the customer organisation.

Step 2. Identify multiple customers and prioritise their needs

Frame first notes that Step 1 should provide the needs analysts with a good idea of who is affected by the project and who has an interest in its outcome. He summarises the essence of Step 2 as follows.

> In Step 2, the analysts refine the list of interested parties and strive to determine the nature of their interests. …

Step 3. Put together a needs-defining task force

Frame then notes that, as a result of undertaking Steps 1 and 2, the needs analyst has a rough idea of the technical dimensions of the problem, who the customers are, and what their interests are. He then goes on to describe the main elements of Step 3 broadly as follows.

> It is now time to involve customers directly in the needs analysis. This can be done effectively by creating a needs-defining task force representing the different sets of customers. …. The task force can strengthen the needs analysis in at least three ways.

> First, since it is made up of representatives of different constituencies, it allows for the cross-fertilisation of ideas. The resulting suggestions as to what customer needs are will therefore be more robust than if needs were identified by only one or two people.
>
> Second, the task force allows the different customer groups to develop a consensus about their needs through give-and-take interaction. This shifts the burden of making some hard decisions from the needs analysts to the customers themselves. Furthermore, whatever priorities emerge through this process are likely to be less arbitrary than if determined by a single individual.
>
> Third, because relevant customer constituencies play an active role in defining their needs, they have, in effect, "bought into" the project.

A task force approach which involves multi-customers is certainly a powerful one. I do not know how often this was used in the Civil & Civic context, but certainly recall several specific instances when this approach was adopted, and with excellent results.

Step 4. Educate the customers

Two key elements of Frame's approach to this step are encapsulated in the following quotations (p.104).

> A major function of needs analysts is to work closely with customers to help them develop a more precise sense of their needs. An important step can be taken in this direction by educating customers. Most obviously, they should be given some understanding of the technical issues involved. What are these issues? What kind of deliverables can be developed to address them? What are the capabilities of the deliverables? What are their limitations?
>
> It would also be useful to educate customers on some of the rudiments of project management. …..

It is noted that this step is applicable to both individual customers and multi-customers.

This completes discussions of direct processes of clarifying and confirming the basic needs of customer organisations. We now briefly discuss the next two steps in processes of converting these needs to appropriate outcomes.

ESTABLISH BEST WAYS TO SATISFY NEEDS, AND PROJECT REQUIREMENTS

Developing alternative approaches to converting customer needs to outcomes

After helping customers clarify and confirm their basic needs, and obtaining customer confirmation and approval to proceed, then comes the task of planning how to best convert these needs into the desired outcomes. The most effective approach is almost certainly to develop alternative approaches to doing this, evaluate these alternatives, and choose the best option. I have deliberately chosen to add discussion of this approach to the above discussions of needs determination for two reasons. The first is that this approach is most likely to achieve an optimal solution. Without it, a likely sub-optimal solution would effectively dissipate some of the value of the work of needs analysis, and compromise achievement of the desired outcomes. The second reason is that this approach is not often discussed in the literature, in spite of its obvious benefits.

The following quotation from Clarke 2002:40 indicates Civil & Civic's approach to this stage, in the context of the building industry within which it operated.

> The first job of the project team, therefore, was to consider 'alternative ways in which the various problems encountered in the design of a building can be overcome'. These alternatives would be mulled over, costed and compared, in conjunction with an assessment of alternative methods of construction. 'to enable the correct solution to be obtained'. The 'correct solution' was the best *value* solution for the client. … With the client actively participating in the project team during the initial design planning, they were in a position to reach an *informed* decision as to which alternatives generated the most value for them.

This quotation can, of course, be generalised from the Civil & Civic building context into other project-related contexts. No matter the context, the exploration of alternative approaches, their evaluation, and choice of the best option, are vitally important first steps in helping ensure that the confirmed customer needs are successfully converted to the planned outcomes.

Projects are normally either the primary, or very substantial, components of this post-needs-confirmation work. It rather naturally follows that project management should be either actively involved in these process, or, at the very least, closely consulted.

I would like to see these important points about generating alternative approaches to satisfying the identified needs, and project management involvement in these processes, more prominently discussed in the project management literature.

Once the best option has been chosen, the next project-related step is normally to establish the technical requirements of the relevant project(s) components of the chosen approach, as now briefly discussed.

Defining requirements of component projects to best help satisfy customer needs

A broad sub-theme of this article is that many, if not most, project managers can develop skills in active involvement in helping customers clarify and confirm their basic needs, and/or in developing and evaluating alternatives approaches to satisfying these needs.

Regarding the actual work of defining project requirements, it is first noted that, in project-based organisations, project managers are invariably involved in doing this.

However, evidently this often does not apply in production-based organisations. Dalcher 2014 describes a relatively common situation in such organisations as follows.

> …requirements management …..is an often ignored aspect of project elaboration that is done by business analysts, systems analysts, systems engineers or requirement engineers. Project managers often inherit an agreed statement of requirements which can become a confining constraint around the project.

This leads us to a broad question put by Morris 2013:88, as follows (his italics).

> Should project management be responsible for ensuring that requirements are adequately defined? This is one of the defining issues of the project management discipline.

Later in his book, Morris answers his own question as follows (pp. 167-8)

> For years, there have been arguments about how involved project managers need to be in managing the technical development of a project. ….. Yet there is plenty of evidence that technical issues cause projects and programs to fail. …..
>
> The answer surely is that project and program managers need to ensure the right processes and practices are being followed with respect to technical definition and development so that obvious errors are avoided.

There appears to me to be an unanswerable case for project management to undertake this type of checking, at the very least. However, I also contend that project managers themselves should be responsible for the effective definition of project requirements.

Who else is better placed than project managers to ensure well defined technical requirements which the project must deliver, and to do so in formats best suited to facilitate subsequent project execution?

This is yet another broad issue which largely neglected in bodies of knowledge of project management and similar standards, but one which I believe should be given much more attention, for reasons indicated above.

This concludes the main body of this article, which will now be summarised.

SUMMARY/DISCUSSION

This article has been concerned with processes for clarifying and confirming the basic business (or equivalent) needs of customers/users, before specifying the project/ product requirements to best help satisfy these needs

This is an important topic, simply because, if the customer/user's basic needs in their broader contexts are not accurately identified, then ensuing processes, including component projects and their outputs, will almost certainly fail to satisfy that customer's real needs. Yet, some of the most prominent project management publications, including bodies of knowledge, have little to say about properly identifying such needs, let alone offering any guidelines on how to go about helping clarify and confirm them.

In this article I have tried to assemble and encapsulate into a broad embryo format the most relevant documented materials that I know of which are directly concerned with helping customers – in this case customer organisations – clarify and confirm their basic business, or equivalent, needs.

We started with a discussion on understanding customers organisation's basic needs in their broader context, which are directly related to their business (or equivalent) needs. In particular, it was emphasised that these basic needs should not be confused with the requirements of project(s) subsequently undertaken to help satisfy these needs.

We then briefly looked at broad overall approaches to helping customers clarify their basic needs. These included discussion on developing a good understanding of the customer organisation in its broader context, which included a couple of broad checklists from Frame and Civil & Civic. We then discussed the merits of developing partnership-type arrangements to promote processes of helping customers clarify their basic needs, including a note on the relevance of the Project Control Group (PCG) approach used by Civil & Civic to facilitate such arrangements.

This was followed by a summary of some of the components of customers' needs which were set down in Civil & Civic's approach, including customers' emotional needs, financial needs, and physical needs. This was followed by discussions on identification of restraints to satisfying "ideal" needs, and the necessity for reconciling the needs and restraints, before being in a position to then specify the resultant needs, secure customer confirmation, and obtain customer approval to proceed to the next stage.

We then looked at some more detailed approaches to helping customers clarify their needs. This started with a short list of various methods of engaging with customers to help clarify their basic needs. This was followed by a listing from Frame 1994 of six appropriate attributes for effective needs analysts. Frame opined that these traits were not commonly found in project managers. However, our experience in Civil & Civic was that, with detailed documented support, the majority of our project managers became quite competent (and some very competent) at what we called Client Needs Determination (CND). We also had a few other CND-skilled individuals who were co-opted to help other project managers when needed.

Customer organisations typically comprise a multitude of people or groups of people, many of whom have different objectives and perspectives in relation to their organisation's needs. I have called these multi-customers. As Frame notes, the project team often faces the difficult task of sorting through the contending needs of different multi-customers in order to define the overall customer organisation's needs – a challenging undertaking which can involve high levels of compromise and balance.

After noting some multi-customer attributes of typical customer organisations, we set down four steps proposed by Frame 1994 for undertaking needs clarification in multi-customer contexts. A core feature of Frame's approach is to create a needs-defining task force representing the different sets of customers, which can strengthen the needs analysis in at least three ways. First, it allows for cross-fertilisation of ideas. Second, it allows the different customer groups to develop a consensus about their needs through give-and-take interaction. Third, because relevant customer constituencies play an active role in defining their needs, they have, in effect, "bought into" the project. It is a powerful approach to taking some of the stress out of achieving compromise and balance in helping establish overall customer organisation needs in the multi-customer context.

Finally, we turned to the next stage of establishing the best way of satisfying the customer's needs and emphasised the importance of developing alternative approaches to converting these needs to outcomes, evaluating these alternatives, and choosing the best option. I deliberately chose to include this following stage, because it is unlikely that an unevaluated approach will be the best – and that therefore some of the value of the needs capturing will be lost, and achievement of the desired outcomes correspondingly compromised. This is strongly recommended as a necessary step before undertaking the definition of requirements of component projects of the chosen approach to best help satisfy the customer needs.

It is also noted that this process of developing and evaluating alternative approaches is seldom specifically covered in the project management literature, including bodies of knowledge. It is my contention that it should be included in the latter, along with guidelines for helping customers/users clarify and confirm their basic business or equivalent needs, before specifying the project/ product requirements to best help satisfy these needs. It is hoped that the materials in this article might contribute to a more comprehensive set of such guidelines.

REFERENCES

CIVIL & CIVIC (1987). *Notes on needs and restraints.* Sydney, Civil & Civic Pty. Limited (Mimeo)

CIVIL & CIVIC (1980). *Project management for the 80s.* Sydney, Civil & Civic Pty. Limited (Mimeo)

CLARK, Lindie (2002). *Finding a common interest: The story of Dick Dusseldorp and Lend Lease.* Cambridge, UK; Cambridge University Press

DALCHER D. (2014). Rethinking success in software projects: Looking beyond the failure factors. In *Software Project Management in a Changing World,* Eds. G Ruhe & C Wohlin, Springer, pp. 29-52.

FRAME, J. Davidson (1994). *The New Project Management.* San Francisco CA, Jossey-Bass

MORRIS, Peter W. G. (2013). *Reconstructing Project Management.* Chichester, West Sussex; Wiley-Blackwell

NORMANN, R. (2001). *Reframing business: When the map changes the landscape.* Wiley

PRIETO, Bob (2015). *Theory of management of large complex projects.* E-book published by Construction Management Association of America (CMAA)

STRETTON, Alan (2022j). Re-affirming the importance of users in all project contexts. *PM World Journal*, Vol. XI, Issue X, October. https://pmworldlibrary.net/wp-content/uploads/2022/10/pmwj122-Oct2022-Stretton-re-affirming-importance-of-users-in-all-project-contexts.pdf

STRETTON, Alan (2020a). Specialist PM and more generalist project-related contributors to organisational strategic management. *PM World Journal*, Vol. IX, Issue 1, January. https://pmworldlibrary.net/wp-content/uploads/2020/01/pmwj89-Jan2020-Stretton-organisational-strategic-management-and-specialist-generalist-PM.pdf

STRETTON, Alan (2019c). Expanding the scope of project management services in the construction industry, to add value and reduce costs. *PM World Journal*, Vol. VIII, Issue III, April. https://pmworldlibrary.net/wp-content/uploads/2019/03/pmwj80-Apr2019-Stretton-expanding-scope-of-project-management-services-in-construction.pdf

STRETTON Alan (2016c). Series on project management's contributions to achieving broader ends (2): Customers' needs and project requirements. *PM World Journal*, Vol. V, Issue III, March. https://pmworldlibrary.net/wp-content/uploads/2016/03/pmwj44-Mar2016-Stretton-customers-needs-project-requirements-broader-outcomes-series-article2.pdf

STRETTON Alan (2013e). Identifying/verifying customers' needs before specifying product/ service requirements in the program/project context. *PM World Journal*, Vol. II, Issue V, May. https://pmworldlibrary.net/wp-content/uploads/2013/05/pmwj10-may2013-stretton-verifying-customer-needs-sep2009-SecondEdition.pdf

WINTER, Mark, Erling S. ANDERSEN, Roger ELVIN & Ralph LEVENE (2006). Focusing on business projects as an area for further research: An exploratory discussion of four different perspectives. *International Journal of Project Management,* Vol 24, Issue 8, pp 699-709.

About the Author

Alan Stretton, PhD

Faculty Corps, University of Management and Technology, Arlington, VA (USA)

Life Fellow, AIPM (Australia)

Alan Stretton is one of the pioneers of modern project management. He is currently a member of the Faculty Corps for the University of Management & Technology (UMT), USA. In 2006 he retired from a position as Adjunct Professor of Project Management in the Faculty of Design, Architecture and Building at the University of Technology, Sydney (UTS), Australia, which he joined in 1988 to develop and deliver a Master of Project Management program. Prior to joining UTS, Mr. Stretton worked in the building and construction industries in Australia, New Zealand and the USA for some 38 years, which included the project management of construction, R&D, introduction of information and control systems, internal management education programs and organizational change projects. He has degrees in Civil Engineering (BE, Tasmania) and Mathematics (MA, Oxford), and an honorary PhD in strategy, programme and project management (ESC, Lille, France). Alan was Chairman of the Standards (PMBOK) Committee of the Project Management Institute (PMI®) from late 1989 to early 1992. He held a similar position with the Australian Institute of Project Management (AIPM), and was elected a Life Fellow of AIPM in 1996. He was a member of the Core Working Group in the development of the Australian National Competency Standards for Project Management. He has published 250 professional articles and papers. Alan can be contacted at alanailene@bigpond.com.au.

To see more works by Alan Stretton, visit his author showcase in the PM World Library at http://pmworldlibrary.net/authors/alan-stretton/.