The Application of the *i3d3* Model for Measuring Project Success

Centre for Comparative Construction Research, Bond University
https://bond.edu.au/cccr

6 December, 2019

Abstract

There is much confusion about what constitutes a successful project, or a quality outcome, since often the criteria applied are not made clear at the outset and the boundaries for what is to be included in the evaluation become blurred. To overcome this problem, a new approach called *i3d3* is presented for measuring project contributions based on the objectives of multiple stakeholder groups across the key life cycle phases of *initiate* (design), *implement* (deliver) and *influence* (delight). It also enables a method for benchmarking success regardless of type, size, location or date so that differential performance outcomes within a portfolio of projects or programs become manifest. It is concluded that there are generic and measurable criteria, or success factors, that are applicable for any project, whether this is an infrastructure, policy initiative, new product development, event, disaster recovery or other change intervention. A single score, on a scale of -100 to +100, can be computed to identify success and to compare projects regardless of context. This paper sets out the detailed procedure and calculation methodology behind the *i3d3* model for measuring project success.

Keywords: design decisions; project management; end-user satisfaction; benefit realization

1 Introduction

This paper unpacks the proposed methodology for *i3d3* – as originally developed by Langston, Ghanbaripour and Abu Arqoub (2018) – using a step-by-step procedure according to its three generic phases of *project initiate* (design), *project implement* (deliver) and *project influence* (delight). The *i3d3* model is agnostic to project type, size, location or date. It can be used to determine if a project is a success or a failure. It can also be used to rank projects in order of success. The resultant procedure is undertaken separately for each phase using different methods. Ultimate success is the arithmetic mean of success scores, equally weighted, across all three phases.

Figure 1 shows the conceptual framework (Langston, Ghanbaripour and Abu Arqoub, 2018) and details the structure of the model.

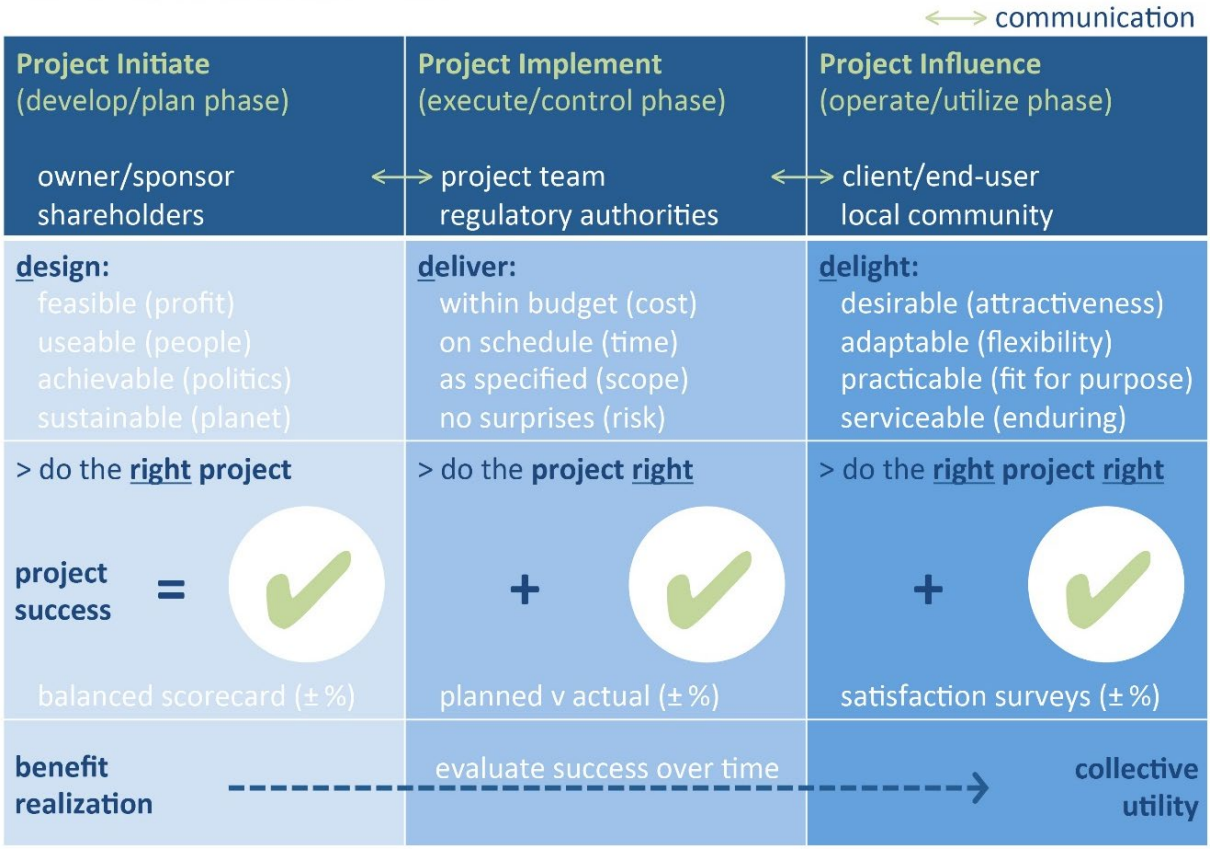

Figure 1: *i3d3* conceptual framework

Each phase of *i3d3* is explained in sequence.

2 Project Initiate Success

Success during this phase is judged from the perspective of the owner/sponsor of the project and shareholders. The focus is on selection of the project and includes success factors such as whether the project's design is feasible, useable, achievable and sustainable. These design success factors are collectively assessed in sequence and test whether the project itself reflects an appropriate course of action. A balanced scorecard approach is adopted to determine success.

Five steps are involved in assessing success within this phase.

Step 1: Being feasible is assessed from a profit-based perspective. The metric used to judge success is benefit-cost ratio (BCR), defined as the sum of the discounted benefits divided by the sum of the discounted costs over the life of the project. Benefits reflect forecast cash income, while costs reflect forecast cash expenditure. Cash flows may arise from capital, operating and financing commitments into the future. In *i3d3* it is important that they exclude intangible social, political and environmental factors that do not lend themselves to be discounted over time as is common in a traditional social cost-benefit analysis. In fact, in many cases these factors actually can become more significant, not less. Discount rate is applied to financial cash flows and is computed as the real weighted cost of capital (i.e. inflation-adjusted investment return). It has the effect of reducing the value of future benefits and costs as time passes up to a practical limit of 100 years. BCR is translated to a success score as shown in Figure 2.

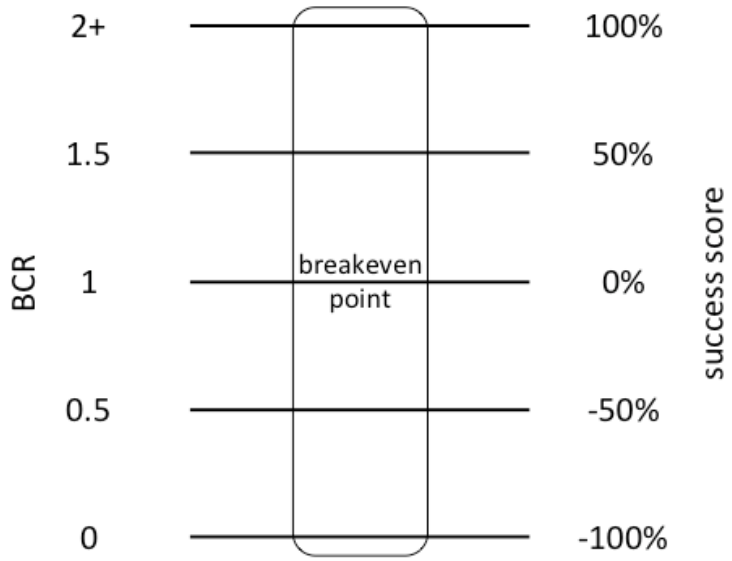

Figure 2: BCR success scale

Step 2: Being useable is assessed from a people-based perspective. The metric used to judge success is local project support (LPS), defined as the sum of opinion across a representative sample of the local community based on a clear and unbiased summary of the proposed project. A single statement seeks opinion on the level of support that exists in the community and computes LPS via a simple five-point Likert scale (see Table 1).

Table 1: LPS survey

Statement:	*strongly disagree*	*disagree*	*no opinion*	*agree*	*strongly agree*
I support this proposed project	-2	-1	0	1	2

A response rate within the sample of at least 30% (with a minimum of 30 responses) is targeted. Follow-up actions may be necessary if this is not initially achieved. In real time, this data would have been collected via the project sponsor's website using online polling. However, in this research, data must be collected retrospectively. The mean score of responses across the representative sample is then computed to arrive at LPS, which is translated to a success score as shown in Figure 3.

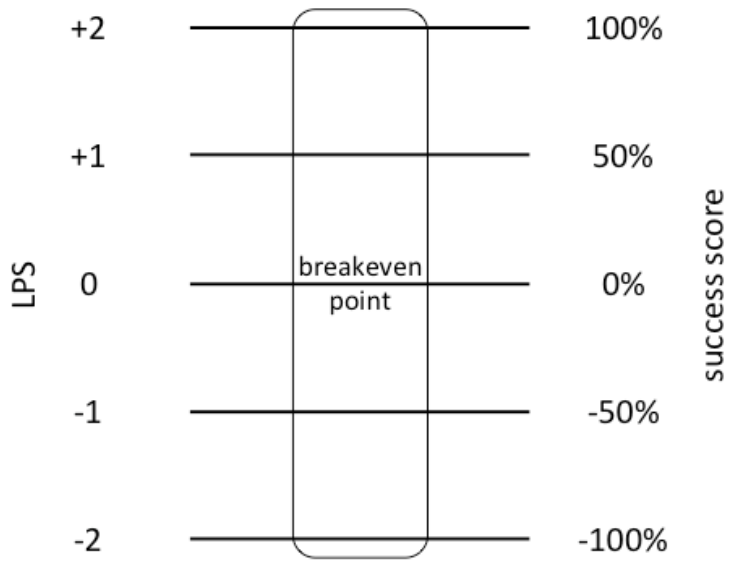

Figure 3: LPS success scale

Step 3: Being achievable is assessed from a politics-based perspective. The metric used to judge success is risk and reward (RAR), defined as the mean of the positive unknowns (opportunities) divided by the mean of the negative unknowns (threats) arising from the project's future governance over its life. Both probability and consequence are rated as 1 (low), 2 (moderate) or 3 (high) for each unknown and are multiplied together to compute individual risk and reward scores that lie between 1 and 9. At least five opportunities and five threats should be identified that impact on what might be called *cultural innovation* (or betterment). RAR is translated to a success score as shown in Figure 4.

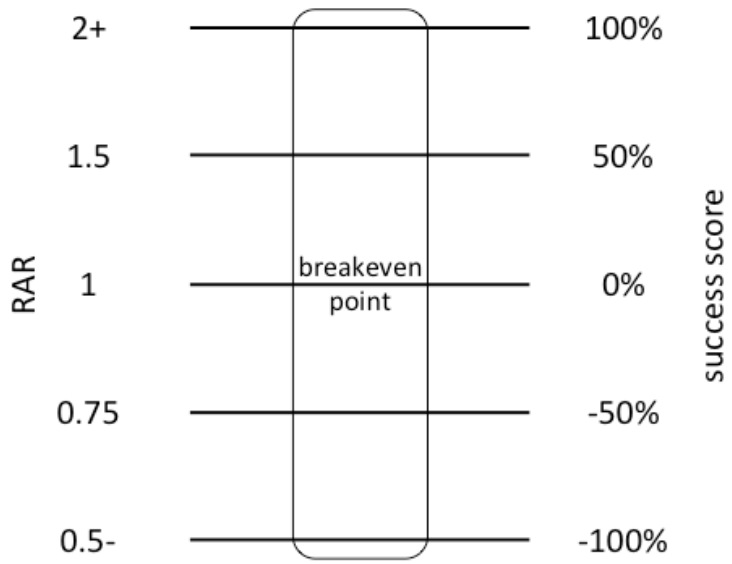

Figure 4: RAR success scale

Step 4: Being sustainable is assessed from a planet-based perspective. The metric used to judge success is ecological footprint (EFP), defined as the effect of upstream and downstream impacts resulting from the project over its life. These are computed using a scale comprising extreme (0 stars), high (1 star), moderate (2 stars), low (3 stars), minimal (4 stars) and regenerative (5 stars) across the categories of (i) non-renewable energy demand (embodied carbon), (ii) water quality impacts, (iii) air pollution, (iv) natural resource

depletion, (v) biodiversity loss, and (vi) non-degradable or non-recyclable waste to landfill. EFP is informed by available environmental impact statements, life cycle analyses and other assessments, and translated to a success score as shown in Figure 5.

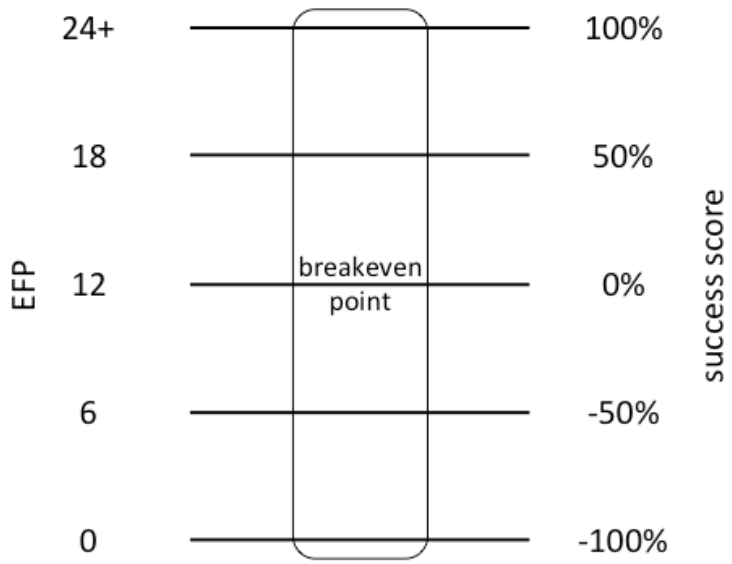

Figure 5: EFP success scale

Step 5: The overall success score for design is the outcome of a decision support system (DSS) and is defined as the arithmetic mean ($\bar{x}$) of the success scores (S) for BCR, LPS, RAR and EFP that arise from the profit, people, politics and planet sub-systems respectively (see Equation 1). DSS values less than zero are considered unsatisfactory and normally would require changes to be made before proceeding further. In other words, design failure (i.e. DSS value < 0) should be avoided as it would be interpreted as unlikely to create an outcome that makes a progressive (i.e. positive) contribution to our world.

$$\text{DSS value} = \bar{x}\,(S_{BCR}, S_{LPS}, S_{RAR}, S_{EFP}) \qquad \text{(Eq.1)}$$

Figure 6, *adapted* from Beech (2013), highlights there is a sequence during the design process to ensure overall success can be achieved without exploring solutions that ultimately do not meet stakeholder expectations. Each success factor is treated like a compliance 'gate' before proceeding further, although ultimately there is a trade-off between factors to ensure that all meet minimum thresholds (e.g. financial return may be reduced to help mitigate anticipated environmental damage).

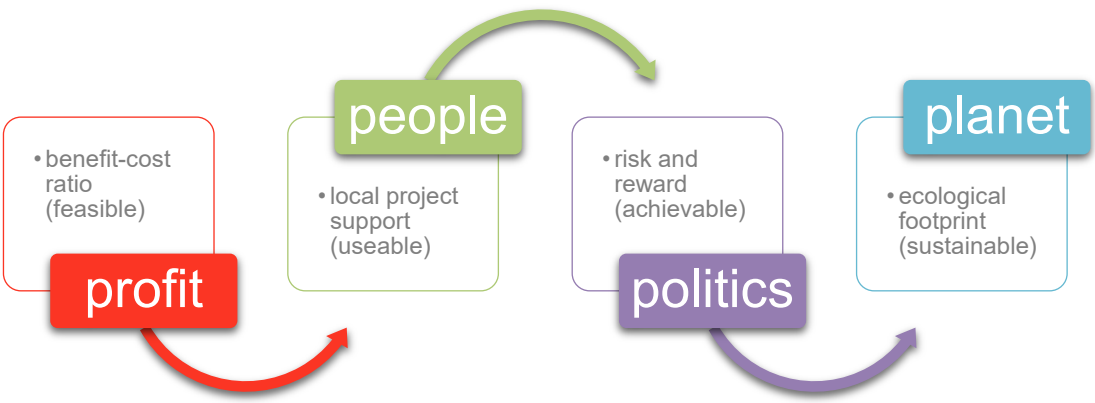

Figure 6: 4P design process

Figure 7, *adapted* from Langston (2018), illustrates the DSS logic that underpins good design in the context of project brief development. The key decision sequence of feasible, useable, achievable and sustainable is made clear, with progression occurring anticlockwise from the upper point of the diagram (denoted as *project brief*). An information database provides evidence for market, needs, policy and infrastructure analyses that lead to achievement of four important and generic milestones: business plan, project design, regulatory compliance and resourcing requirements (respectively). External input is required to assess income and expenditure, stakeholder satisfaction, cultural innovation, and environmental impacts. These are considered essential decision 'gates', regardless of project type, size, location or date, and directly influence corresponding measurable outcomes of BCR, LPS, RAR and EFP. Poor outcomes lead to reconsideration of fundamental decisions via feedback loops, which then impact on future project choices.

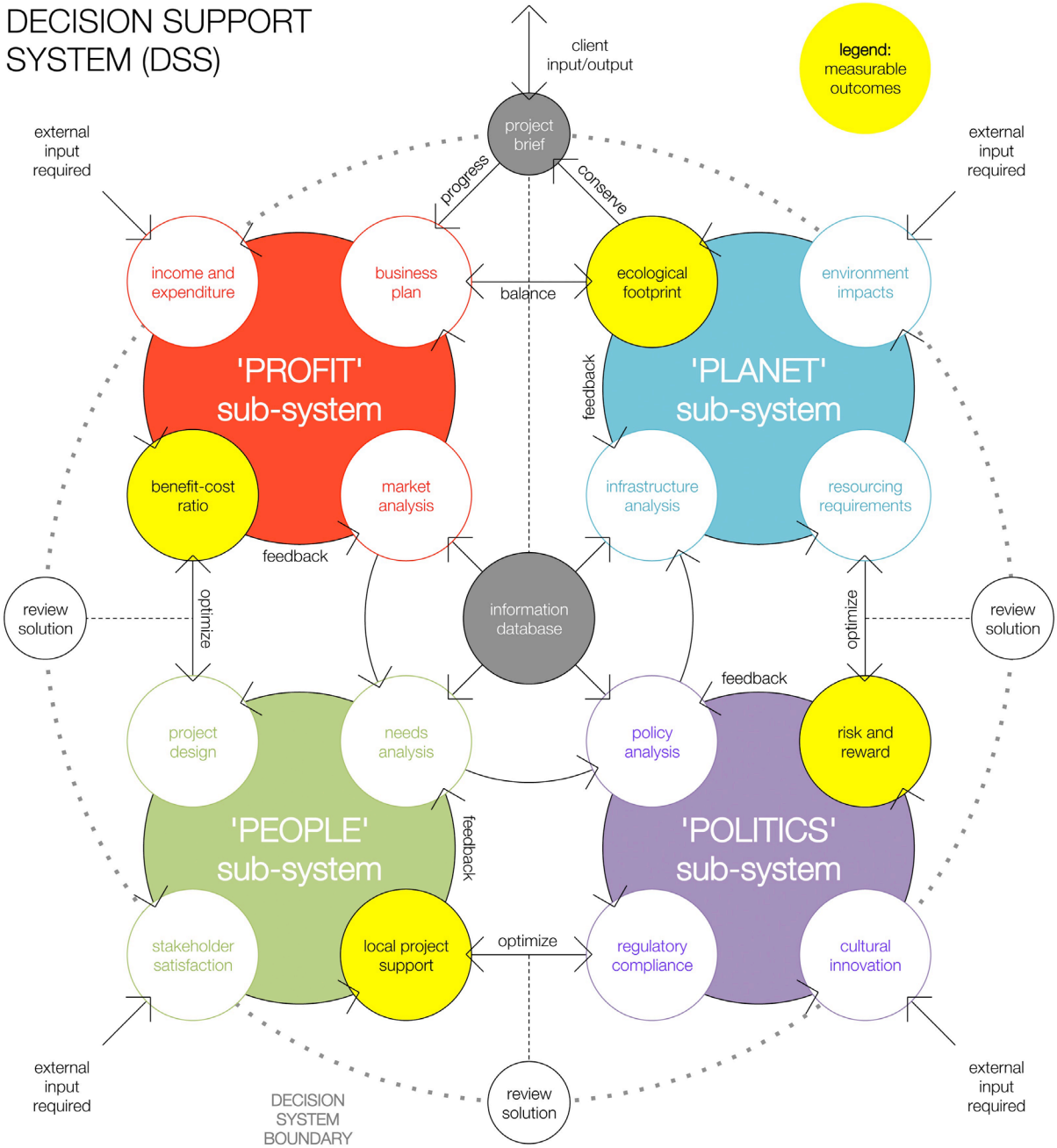

Figure 7: Decision-making processes

There is opportunity to review and optimize decisions throughout the DSS before fundamental design principles are settled and before detailed documentation and production can proceed. It is critical to treat the project brief as a 'conversation' with the design team to ensure that the best outcome is reached and owner/sponsor and shareholders are all fully on-board.

Design typically is a compromise between the often-opposing actions of 'progress' and 'conserve'. A balance needs to be struck. By treating the four sub-systems of design as having equal weight, decisions taken during this phase are forced to recognize and address any shortcomings rather than overlook or devalue them. It is suggested (although not mandatory) that, at least for the four design success factors, projects should surpass minimum standards of performance, and these standards have been identified in the previous discussions by the term breakeven point.

3 Project Implement Success

Success during this phase is judged from the perspective of the project team and regulatory authorities. The focus is on materialization of the project and includes success factors such as whether the project is delivered within budget (cost), on schedule (time), as specified (scope) and with no surprises (risk). The deliver success factors are assessed holistically and test whether the project itself achieves the agreed expectations upon handover, or indeed prior to handover using interim milestones to check progress in conjunction with or in lieu of conventional earned value reporting.

Communication between project initiate and project implement phases is critical to ensure that design and materialization are aligned. This helps ensure that projects are completed in a cooperative spirit with an understanding of sponsor goals and avoiding delivery conflicts.

The equation for determining the best mix of success factor performance is given by Equation 2 (Langston, 2013). Project delivery success (PDS) is calculated for both planned and actual performance, and the percentage change between them is computed. High positive changes between planned and actual PDS are preferred and indicate that delivery expectations were exceeded. A successful project should avoid a negative overall PDS score.

$$PDS = \frac{scope^3}{cost \cdot time \cdot risk} \qquad \text{(Eq.2)}$$

where:

cost = *the cost of implementing the project*
time = *the duration of the project from start to finish*
scope = *a measure of the size or extent of the project*
risk = *the √mean risk level (probability x consequence) of all risk events*

Six steps are involved in assessing success within this phase.

Step 1: Cost is defined as the price of the project, and both planned cost and actual cost are needed to compute the success score. Cost should include all cash outflows related to the project, such as consultant fees, taxes, fees, approvals, commissioning and testing, and defect rectification. Costs may be expressed in local currency or in a foreign currency, although in the latter case, the same exchange rate must be used for both planned and actual expenditure. Costs are not discounted to take account of the time value of money.

Step 2: Time is defined as the duration of the project, and both planned time and actual time are needed to compute the success score. It can be measured in hours, days, weeks or months from commencement to completion with no deductions for non-working periods, holidays, weekends or delays. External disruption to production schedules must not be eliminated from the calculation.

Step 3: Scope is defined as the size of the project, and both planned scope and actual scope are needed to compute the success score. An appropriate measure of scope needs to be selected that reflects corresponding changes in cost, time and/or risk should it be varied. In order words, the unit of scope must adequately describe the extent of works in a single metric (e.g. number, length, area, volume, functional unit, etc.). Scope changes during implementation must be approved.

Step 4: Risk is defined as the level of uncertainty of the project, and both planned risk and actual risk are needed to compute the success score. Risk, whether positive or negative, is the result of the probability (or likelihood) of an event and the consequences (or impact) that might result if it were to happen. Reduced risk is permissible if mitigation strategies are planned and included in scope, cost and time forecasts. A 3x3 matrix is recommended to compute risk where probability (1-3) and consequences (1-3) are multiplied together to realize a result between 1 (minimal) and 9 (extreme). Overall risk level is defined as the square root of the arithmetic mean of individual risk events regardless of whether they have a positive or negative influence. The probability for all actual risks is notionally set to 3 but their consequences may be lower than planned if they did not eventuate. Unanticipated risk events are added to the actual risk calculation only.

Step 5: The overall score reflects the percentage change between planned expectations and actual performance. PDS is effectively the success score as shown in Figure 8. It is capped within the range -100 to +100.

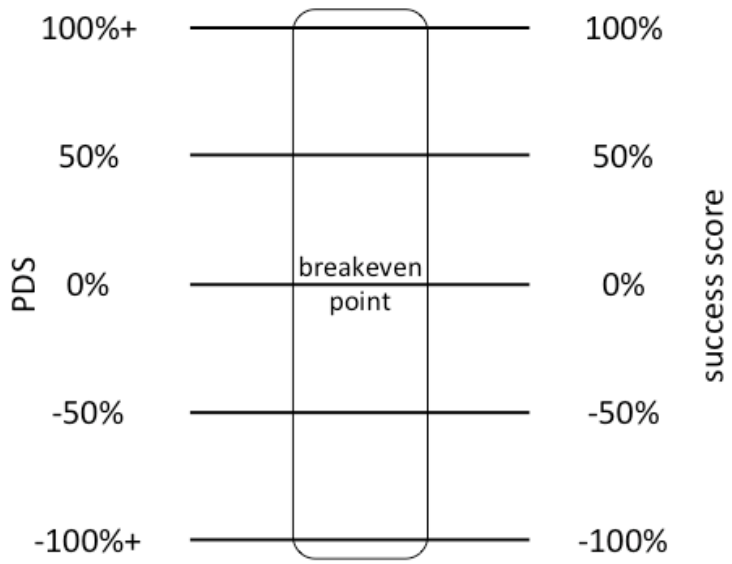

Figure 8: PDS success scale

However, the contribution that each of the four success factors has on the PDS is determined retrospectively using an algorithm that distributes the impact that each factor has on the PDS (see hypothetical example in Table 2).

Table 2: Scaling of PDS success factors

	planned	*actual*	*impact*	*% change*	*scaled change*
cost	25,000,000	26,500,000	245.10	-5.66%	-5.39%
time	250	240	270.63	4.17%	3.97%
scope	15,000	16,000	315.31	21.36%	20.33%
risk	2.08	2.11	255.98	-1.47%	-1.40%
				18.40%	17.51%
PDS	259.81	305.30		17.51%	-100≤PDS≤100

The measurement of PDS is based on the *PMBOK Guide*® (PMI, 2017). The link between *PMBOK*® knowledge areas and derived generic key performance indicators (value, efficiency, speed, innovation, complication and impact) is illustrated in Figure 9. The underpinning model for PDS takes the form of a tetrahedron, where the vertices, edges and faces all have assigned meaning (Ghanbaripour, Langston and Yousefi, 2017; Langston, Ghanbaripour and Abu Arqoub, 2018).

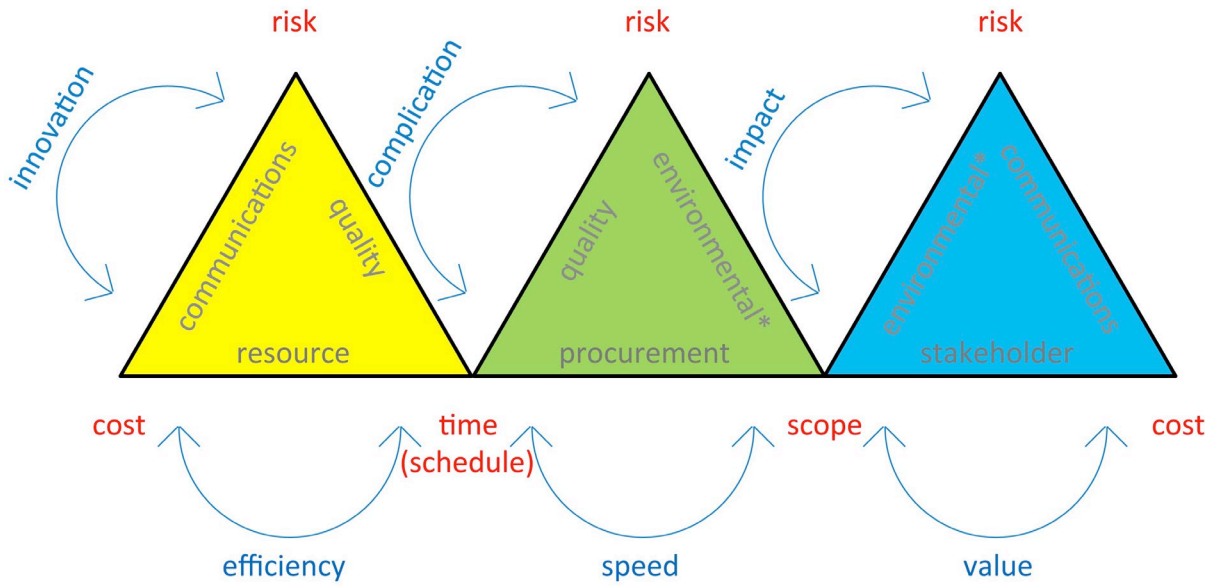

Figure 9: 3D integration model

Step 6: Project complexity is concerned with the magnitude of the challenge ahead. It is not an output but rather an input to the management of the change process of delivery. Complexity is considered to be a continuum from simple to chaotic. This continuum implies increased challenge from what is commonly called 'known knowns', to 'known unknowns' and 'unknown unknowns', and can even include the concept of 'wicked' problems that challenge effective resolution at all. Complexity is a variable in assessing project delivery success.

To assess the likely position of a new project on the complexity continuum, a means of scoring key project variables must be established. The *Complexity Forecasting Cube* (CFC) is a novel tool applied at the previous project initiate phase to determine complexity potential, represented by a number between 1 and 27 inclusive (Langston and Dhaduk, 2019). It takes the form of a 3D matrix that reflects simple (low score) to chaotic (high score) projects based on three coordinates:

- *X coordinate:* the scale of the challenge (low = local, moderate = regional/national, high = international)
- *Y coordinate:* the extent of uncertainty (low = mostly known knowns, moderate = many known unknowns, high = many unknown unknowns)
- *Z coordinate:* the diversity of stakeholders (low = single client, contractor and/or market, moderate = multiple clients, contractors and/or markets, high = broad community of project stakeholders displaying a wide range of interests and power)

Figure 10 summarizes the CFC, which is akin to a Rubik's cube (3x3x3 matrix). Each row of the cube is illustrated separately for greater clarity. The forecasted complexity potential score, which is computed as the multiplication of all three coordinates, signifies if a project is likely to be seen as simple (1-2), low complexity (3-4), complex (5-8), high complexity (9-15) or chaotic (16-27). Darker colours indicate higher complexity potential.

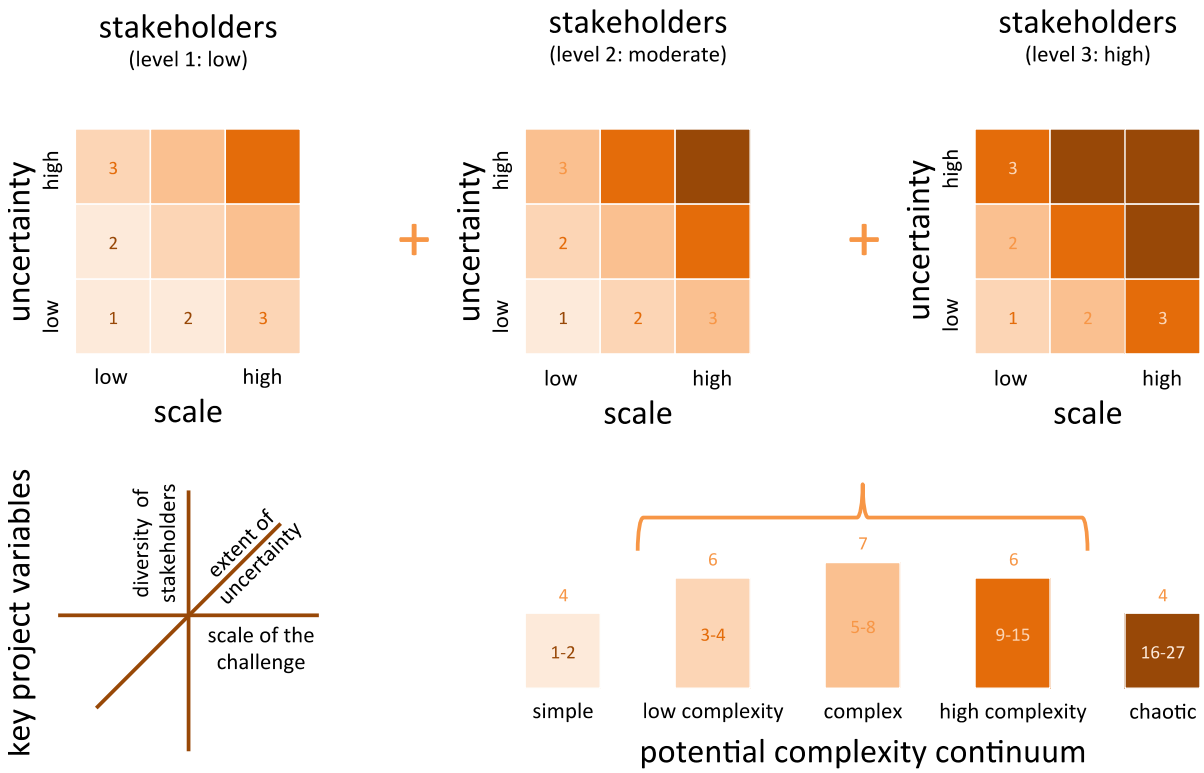

Figure 10: Complexity forecasting cube

The complexity score is deployed to adjust for the difficulty of the project challenge, and is akin to high platform diving in that the level of difficulty of the dive chosen factors into a diver's final score. Where chaotic or high complexity potential is expected, any negative success factor is adjusted to 50% or 75% of its normal value (respectively). Where simple or low complexity potential is expected, any positive success factor is adjusted to 50% or 75% of its normal value (respectively).

4 Project Influence Success

Success during this phase is judged from the perspective of the client/end-user of the project and the local community. The focus is on operational performance of the project and includes success factors such as whether the project is seen as desirable (attractiveness), adaptable (flexibility), practicable (fit for purpose) and serviceable (enduring). These delight

success factors are assessed individually using a representative sample of stakeholders and a standard online questionnaire, and collectively tests whether the project itself is appreciated by those it was intended to serve.

Each success factor is assessed according to a list of ten generic project outcomes, plus up to two respondent-definable outcomes that give respondents a chance to include other issues that they think are significant to them. For each outcome, respondents provide their personal opinion (Question A) and personal relevance (Question B) using a five-point Likert scale, as shown in Tables 3 and 4.

Table 3: Project outcome opinion

Question A:	*strongly disagree*	*disagree*	*no opinion*	*agree*	*strongly agree*
Opinion of project outcome	-2	-1	0	1	2

Table 4: Project outcome relevance

Question B:	*not important*	*slightly unimportant*	*neutral*	*slightly important*	*very important*
Relevance of project outcome	1	2	3	4	5

A response rate within the sample of at least 30% (with a minimum of 30 responses) is targeted. Follow-up actions may be necessary if this is not initially achieved. The feedback ought to be collected after sufficient time has elapsed to make an informed comment, enabling users to gain familiarity with the project, explore its full functionality and overcome the initial fears or possible resistance to change. Time is also of importance because it allows any delivery frustrations to dissipate. Personal opinion (-2 to +2) and relevance (1 to 5) scores are multiplied together to arrive at weighted values that lie between -10 and +10. The arithmetic mean across all outcomes is then computed.

Five steps are involved in assessing success within this phase.

Step 1: Desirable relates to the attractiveness of the project and speaks of intrinsic value to the client/end-user or local community. It may include beauty, elegance, quality, empowerment and other intangible attributes that bring delight and happiness, or enable transformation. Considering the project holistically, each respondent is asked to assess Question A and Question B for the project outcomes listed in Table 5.

Table 5: Project outcomes (desirable success factor)

Nice to look at?
High quality?
Profitable?
Well-designed?
Valuable?
Prestigious?
Durable?
Popular?
Joyful?
Unique?
User-defined: _____?
User-defined: _____?

Step 2: Adaptable relates to the flexibility of the project and its ability to accept change without causing too much unnecessary disruption or churn. It may include future modifications or change of purpose, process re-engineering and avoidance of becoming prematurely obsolete. Considering the project holistically, each respondent is asked to assess Question A and Question B for the project outcomes listed in Table 6.

Table 6: Project outcomes (adaptable success factor)

Versatile?
Easily modified?
Able to be customized?
Multi-use?
Transportable?
Better with age?
Modular?
Scalable?
Technically clever?
Timeless?
User-defined: _____?
User-defined: _____?

Step 3: Practicable relates to the project being fit for purpose and fulfilling the specified requirements of the client/end-user or local community in terms of functionality and utility. Does it work well? Does it deliver on what was originally specified or needed? Considering the project holistically, each respondent is asked to assess Question A and Question B for the project outcomes listed in Table 7.

Table 7: Project outcomes (practicable success factor)

Functional?
Appropriate?
Robust?
Safe?
Healthy?
Problem-solving?
Easy to use?
Affordable?
Comfortable?
Ethical?
User-defined: _____?
User-defined: _____?

Step 4: Serviceable relates to the enduring nature of the project. Is it a project that will be treasured in future years and capable of upgrade as and when required? It may include sustainability, operational energy profile, future-proofing, premature obsolescence, and ongoing contributions to those it aims to serve. Is it in harmony with its natural surroundings? Considering the project holistically, each respondent is asked to assess Question A and Question B for the project outcomes listed in Table 8.

Table 8: Project outcomes (serviceable success factor)

Low maintenance?
Easily cleaned?
Recyclable?
Non-toxic?
Repairable?
Energy efficient?
Reliable?
Accessible?
Regenerative?
Habitat-safe?
User-defined: _____?
User-defined: _____?

Step 5: Two pairs of success factors will be constructed. These comprise 'wants' (the arithmetic mean of desirable and adaptable scores) and 'needs' (the arithmetic mean of practicable and serviceable scores). These values (for each respondent) are graphed on an X-Y scatter diagram. Satisfaction (or end-user happiness) is computed as the percentage of data points that lie in the upper right-hand quadrant (Q1) compared to the total number of data points across all quadrants. A hypothetical example is shown in Figure 11 (Q1 = 56.83%).

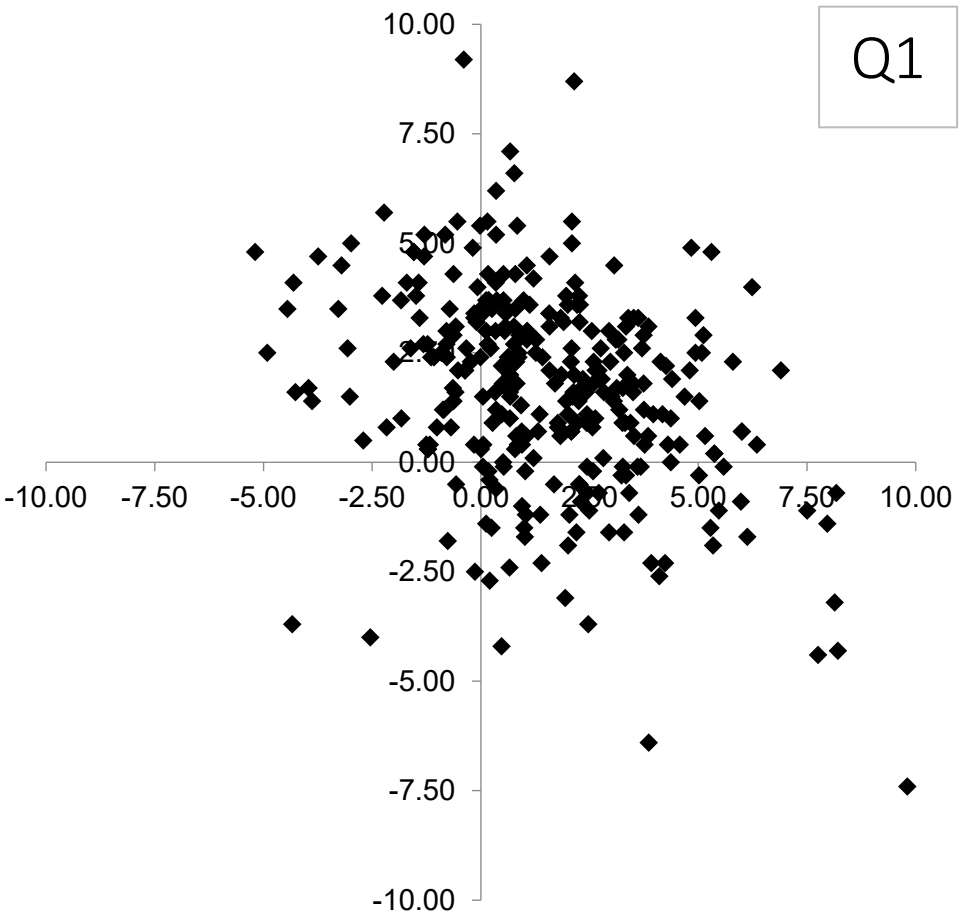

Figure 11: End-user happiness

End-user satisfaction (EUS) is equal to Q1. It can be compared with LPS multiplied by 50 to determine the extent of alignment between pre-delivery (design) expectation and post-delivery (delight) satisfaction. It is translated to a success score as shown in Figure 12. A successful project should have a value of at least 50% for EUS.

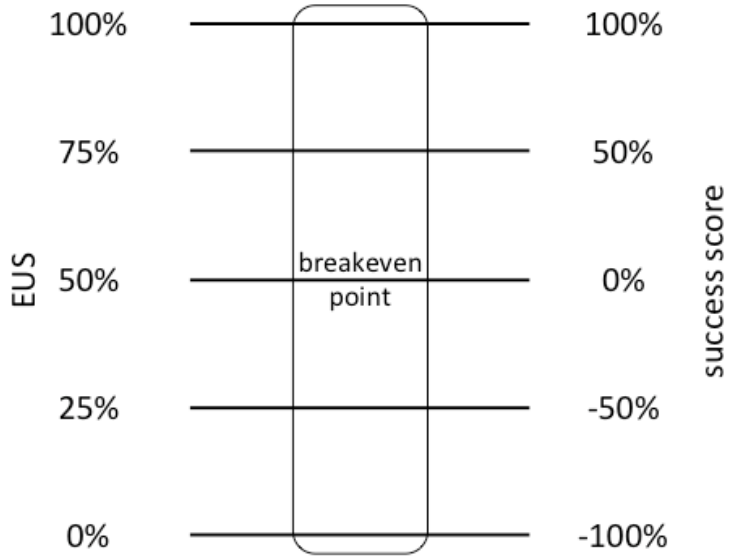

Figure 12: EUS success scale

The influence that each success factor has on the overall score can be computed via Equation 3, where *i* equals the number of responses per success factor and *n* equals the total number of responses across all success factors. These values are then used to proportion EUS across the success scores for each factor.

$$\text{Influence} = Q1 \,.\, \frac{\bar{x}\,(A \,.\, B)_i}{\bar{x}\,(A \,.\, B)_n} \qquad \text{(Eq.3)}$$

Meaningful communication between the phases of project initiate and influence is critical to ensure that end-users are properly consulted. The role of the project manager is considered central in facilitating this dialogue. The concepts of *long life* (feasible and desirable), *loose fit* (useable and adaptable), *least pain* (achievable and practicable) and *low energy* (sustainable and serviceable) can serve as a language that aids communication between project designers and end-users. They help to align the intentions of the designer with the actual needs and wants of the end-user.

Figure 13, *adapted* from Abu Arqoub, Langston and Skulmoski (2018), indicates the mechanics of how end-user opinion can provide a positive reinforcing feedback (virtuous) loop for project designers, while also enhancing a project's success. There are four virtuous loops in *i3d3*. For example, a feasible project developed during design is expected to be more desirable by end-users, which would encourage them to have longer engagement with the project and mitigating premature obsolescence. A long life makes the project even more feasible. The same thinking applies to help make projects more useable, more achievable and more sustainable, and therefore supports continuous improvement.

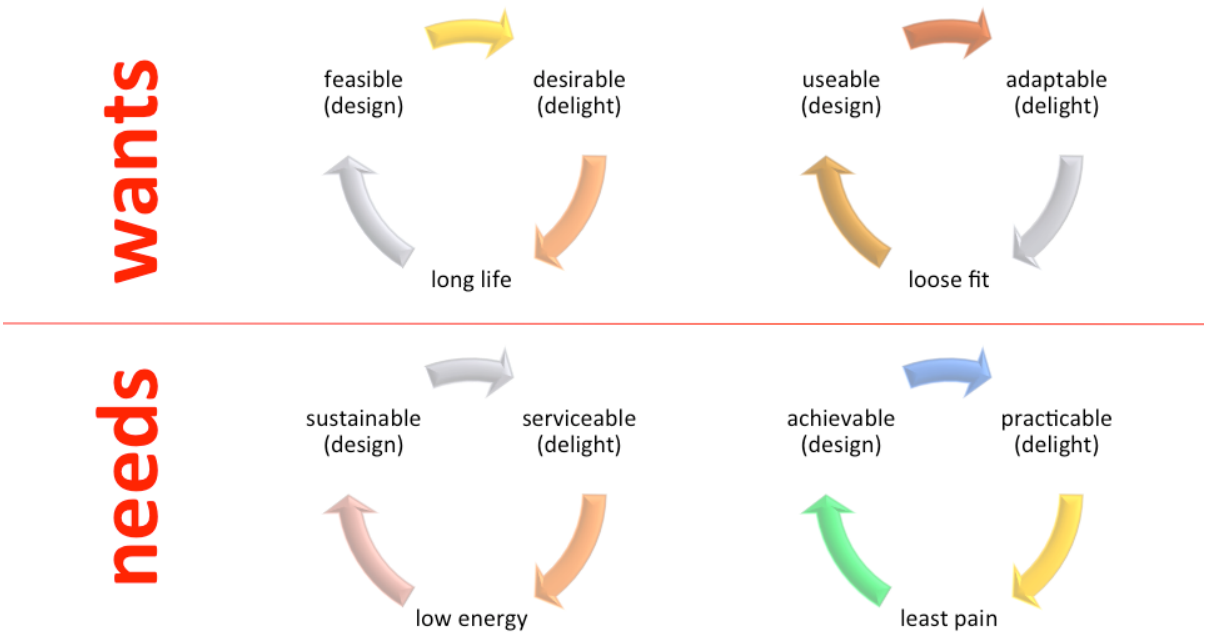

Figure 13: Virtuous loops

5 Benefit Realization

Benefit(s) realization is about ensuring project objectives are fulfilled. This may take many years to eventuate. Hence, success is an on-going activity with perceptions concerning end-user delight changing over elapsed project life. This research allows up to one year from project completion to assess the four delight success factors, and it is acknowledged that this gives only a small insight into the operational satisfaction of large projects that may have very long and dynamic operating lives.

Success is a function of stakeholder satisfaction and is reflected in the relationships that are formed and maintained between key people over time. With that comes the realization that there is more than one stakeholder to please, that project objectives will vary between them, and that the passage of time is an important ingredient in understanding and quantifying satisfaction. Judging criteria should be transparent. But none of this precludes generic criteria independent of project type, size, location or date.

There is horizontal connectivity between success factors (e.g. feasible, within budget, desirable) that ties back to the wider system characteristics of financial (long life), social (loose fit), ethical (least pain) and environmental (low energy) consequences. Benefits can arise from any of these consequences.

Ultimate success is computed as the arithmetic mean of design, deliver and delight success scores, each judged in the context of a different stakeholder group. The stakeholder group for project initiate phase is comprised of owner/sponsor and shareholders; project influence is project team and regulatory authorities; and project influence is client/end-user and local community. High scores are preferred.

Table 9 demonstrates how this might be converted into a single rank index (scores provided here are for illustrative purposes only).

Table 9: Overall success scores

Consequences	*Project Initiate*	*Project Implement*	*Project Influence*	*Score (%)*
Financial (long life)	feasible	within budget	desirable	78
Social (loose fit)	useable	on schedule	adaptable	69
Ethical (least pain)	achievable	as specified	practicable	71
Environmental (low energy)	sustainable	no surprises	serviceable	62
Score (%)	80	58	72	**70**

The four consequences (financial, social, ethical and environmental) can be mapped against the seventeen Sustainable Development Goals published by the United Nations (see Figure 14). Financial consequences relate to *Goal 8* (Decent Work and Economic Growth), *Goal 9* (Industry, Innovation and Infrastructure), *Goal 11* (Sustainable Cities and Communities) and *Goal 12* (Responsible Consumption and Production). Social consequences relate to *Goal 1* (No Poverty), *Goal 2* (Zero Hunger), *Goal 3* (Good Health and Well-being) and *Goal 4* (Quality Education). Ethical consequences relate to *Goal 5* (Gender Equality), *Goal 10* (Reduced Inequalities), *Goal 13* (Climate Action) and *Goal 16* (Peace, Justice and Strong Institutions). Environmental consequences relate to *Goal 6* (Clean Water and Sanitation), *Goal 7* (Affordable and Clean Energy), *Goal 14* (Life below Water), *Goal 15* (Life on Land) and *Goal 17* (Partnerships for the Goals).

Figure 14: Sustainable Development Goals
(https://www.un.org/sustainabledevelopment/sustainable-development-goals/)

It is useful for project success to be viewed through the lens of global humanitarian contributions, where appropriate. In *i3d3*, *Goals 1-16* have the potential to be realized when the relevant consequence score is 50 or more, as shown in the final column of Table 9. Only the primary goal under each consequence is eligible to be selected. For *Goal 17* to be relevant, the delivery complexity score needs to be 12 or more, indicating significance in the scale of the challenge, the extent of uncertainty and/or the diversity of stakeholders. A 'humanity index' out of 100 can be computed. Benefit justification needs to be recorded to complete the mapping exercise.

Stakeholder benefits relate closely to project success. The net benefit for a project should include the humanity index, but should also take account of whether individual benefits are actually realized. However, not all stakeholders receive equal reward – there will potentially be both winners and losers – so it is necessary to map identified benefits against individual stakeholders. Benefits can be tangible or intangible, direct or indirect, planned or emergent, and short, medium or long term (PMI, 2019). Of interest here is the comparable level of benefits between stakeholders, and whether these benefits are positive or negative. Some stakeholders may possess different levels of power (or influence) and interest (or involvement) that can affect their relationship with the project over time, resulting in varied strategies for engagement. Stakeholders need to be managed closely (high power and interest), kept satisfied (high power and low interest), kept informed (low power and high interest) or monitored (low power and low interest).

Obviously, not all projects will be successful – for example, some may just be motivated by self-serving political imperatives or be poorly planned responses to an emergency situation – and fail to deliver the benefits or collective utility demanded of them, let alone the global humanitarian contributions they make. Being able to rank projects in hindsight according to their level of success, however, is still valuable. It enables both reflection and continuous improvement to occur, ensuring we have an opportunity to learn from things that worked and from things that didn't. That is what continuous improvement is really all about.

6 Conclusion

The *i3d3* approach is expected to apply to projects of any type, size, location or date. Criteria are generic. Size may affect the quantum of benefits realized but not the requirement to secure benefits and positive collective utility. The approach is also applicable to any country, whether rich or poor, and hence can support international comparisons.

The novelty of *i3d3* lies in its comprehensive approach and integration of (a) design decisions that ensure projects are feasible, useable, achievable and sustainable with (b) the classic delivery expectations of being within budget, on schedule, as specified and with no surprises, as well as (c) providing client, end-user and/or local community satisfaction in terms of the balance between their wants (outcomes that are desirable and adaptable) and their needs (outcomes that are practicable and serviceable). Using the overall project success score obtained from *i3d3*, we should be able to compare levels of project success between different project-based endeavours of potentially any type. Whether comparing a doghouse with an opera house, or a new aircraft roll-out with a refurbished apartment building, or a telecommunications tower with relocating an organization to bigger premises across town, *i3d3* can rate the success of projects in both relative and absolute terms.

In essence, *i3d3* is a composite index consisting of indicators designed to measure success on the different factors that determine benefits to diverse groups of stakeholders. Projects that display financial (feasible, within budget and desirable), social (useable, on time and adaptable), ethical (achievable, as specified and practicable) and environmental (sustainable, no surprises and serviceable) benefits are more likely to provide positive collective utility to society as a whole. These indicators are called success factors and apply across project life cycle phases. We can only expect to do better if we are willing to learn from the lessons of the past. The rigour of the evaluation makes those lessons transparent and supports the principle of continuous process improvement.

The *i3d3* calculation template for use in measuring and ranking project success is freely provided and can be downloaded from https://bond.edu.au/cccr. Two case studies of its application are also available upon request.

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