Why written objectives need to be really SMART

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Why written objectives need to be really SMART

Osahon Ogbeiwi

ABSTRACT

There is general agreement that plans without well-formulated goals lack rationale, strategies lack relevance, actions lack direction, projects lack accountability, and organisations lack purpose (Mullins, 1999; Beardshaw and Palfreman, 1990; Bratton, et al, 2007). Moreover, goals need to be properly constructed to serve as credible and usable benchmarks by which the results can be monitored and evaluated via immediate outputs, intermediate outcomes over the short term or terminal impacts in the long term (Greenbank, 2001; Fitsimmons, 2008; Bipp and Kleingeld, 2011). Thus, it is a basic requirement of effective goal setting that objective statements are formulated using a clear and logical structure or framework. This article analyses examples of objective statements drawn from the literature and concludes that none of these can be truly described as SMART¹, posing the risk that organisations using them as guide will fail to attain their goals.

Key Words: SMART¹ objectives • Objective statements • Goal setting • OITT²

¹ SMART=specific, measurable, attainable, realistic, time bound; ² OITT=outcome, indicator, target level, time frame

Goal setting is a characteristic practice shared by successful programmes and organisations across every sector of human endeavour; and writing clear and well-structured statements to express objectives in a specific, measurable and achievable format is the norm (Beardshaw and Palfreman 1990; Bratton et al 2007; Day and Tosey 2011). Hence, it is best practice to use a conceptual framework as a tool for setting goals to provide a reliable and logical platform on which work can be planned and assessed (Mullins,1999).

Generically, researchers define a goal as the desired end result of an action that is expected to be achieved at some specified time in the future, and toward which all effort and essential resources are committed to achieving (Locke and Latham, 2002; Locke and Latham, 2006; Fitsimmons, 2008; Day and Tosey, 2011; Nanji et al, 2013).

In this article, the term 'objective' is used to refer to a sub-goal, one that expresses a desired outcome: a short-term effect or change expected to result from the outputs of activities performed (Organisation for Economic, Co-operation and Development (OECD), 2002).

In the hierarchy of goals illustrated in Figure 1, the effects of the immediate output of an intervention lead to the attainment of the objective in the short term, which in turn over the longer term contributes to achieving the broad or overall aim, described by some organisations as general goal and development, or a higher order objective (OECD, 2002). Besides the levels, Figure 1 also differentiates outputs, objectives and aims according to the differing time frames for their attainment and goal attributes.

The literature suggests that it may take 3-12 months to achieve a short-term outcome relating to an objective, and at least five years to accomplish a long-term impact relating to an aim. A synthetic review by Ogbeiwi (2016) identified seven thematic characteristics that distinguish an

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objective from other goal types, including:

- · Its stated object of outcome
- Specific scope
- · Mid-level or intermediate hierarchy
- · Short-term time frame
- Quantifiable measurability
- Significance of effectiveness
- Expression as a SMART (specific, measurable, attainable, realistic and time-bound) goal.

Hence, while *Figure 1* shows that an aim is the broad statement of the expected terminal achievement of an intervention, expressing its long-term impact and overall purpose, an objective is a specific statement of time-bound interim accomplishment. The US Centers for Disease Control and Prevention (CDC) defines objectives as 'annual milestones that the program needs to achieve in order to accomplish its goals by the end of a five-year funding period' (CDC, 2009).

SMART objective setting

Typically, writing objectives as SMART statements is the gold standard for goal setting, because it gives a clear direction for action planning and implementation (CDC, 2008). The

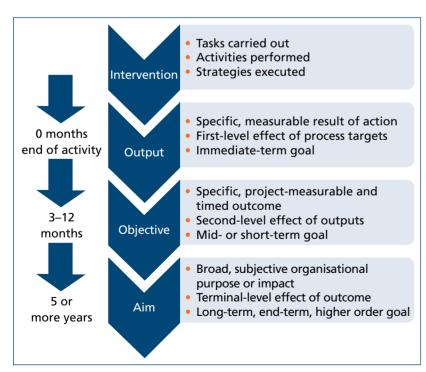


Figure 1. Linear direction of the chain effects of intervention goals

SMART model was originally outlined by George T. Doran in 1981 as the five essential criteria that the statement of every meaningful and effective objective should fulfil (Doran, 1981; CDC, 2008; Day and Tosey, 2011). Many programmes and organisations have since used the SMART acronym as a reliable model to guide formulation of objectives for different intervention levels by simply asking the question: 'Is the objective SMART?'

Different divisions of the CDC have produced tools such as checklists and templates for SMART objective setting (CDC, 2008, 2009; CDC Communities for Public Health (CPH), 2017; CDC Division for Heart Disease and Stroke Prevention (DHDSP), 2017; CDC Division of TB Elimination (DTBE), 2017). These checklists use the SMART acronym as a base, and goal setters simply answer questions related to each key word on how to make the objective statement SMART.

To aid the construction of an objective statement, the CDC DTBE (2007) provides a tabulated template split into seven parts: verb, metric, population, object, baseline measure, goal measure and time frame. Two other CDC divisions provide a template of incomplete statement, with gaps to be filled with expected components (Division of Sexually Transmitted Disease Prevention (DSTDP), 2017; DHDSP, 2017). Thus, there are few tools that offer structural guidance for writing objective statements using a SMART goal framework or templates against which goal setters can compare their formulated goal statements to determine whether they satisfy the SMART criteria.

Goal-setting frameworks

Goal-setting frameworks have been studied extensively since the 1950s. The most popular of these include:

- Management by Objectives (Drucker, 1955;
 Dahlsten et al, 2005; Bipp and Kleingeld,
 2011)
- Balanced Scorecard Approach (Kaplan and Norton, 1996)
- Goal Attainment Scale (Yip et al, 1998)
- Total Quality Management and continuous quality improvement (Ginsburg, 2001; Medlin and Green, 2009).

Other models have included the RAID (review, agree, implement, and demonstrate and develop) model (Parker et al, 2003) and the Productivity Measurement and Enhancement System (Pritchard et al, 2008). Bovend'Eerdt et al, (2009) reported the use of WHO International Classification of Functioning, Disability and Health (ICF) as a template for goal setting, and Scobbie et al (2013) described the G-AP (goal-setting and action planning) framework. In the field of engineering, Zhu et al (2002) looked at the use of object/objective-oriented maintenance management (OOMM) as a goal-setting framework.

While most of these frameworks are hinged on SMART goal setting, Day and Tosey (2011) criticised the use of SMART criteria in the education sector, recommending instead as an alternative the use of the 'well-formed outcome' framework for writing learning objectives, based on Zimmerman's (2007) eight criteria for appropriate goals. According to Zimmerman (2007), learning goals must satisfy the conditions of goal specificity, temporal proximity, hierarchical organisation, congruence with self and others' goals, degree of difficulty, self-generation, a level of conscious awareness, and clarity about whether the goal is process or performance related.

Day and Tosey's (2011) well-formed outcomes framework requires properly formulated educational objectives to be written on a POWER template, where POWER stands for: positive outcome, own role, what task (with dates), evidence of accomplishment and relationships required.

Practically, besides the CDC and the Day and Tosey templates, most frameworks simply outline the process steps that goal setters can follow in practice, rather than offering lexical frameworks for writing SMART objective statements. However, they are largely underpinned by Locke and Latham's (1990) motivational theory of goal-setting and task performance (*Figure 2*). This illustrates how goals formulated with goal attributes of specificity and difficulty, under certain mediating and moderating conditions, result in improvement of task performance, in turn

increasing the chance of goal attainment (Locke and Latham, 2002; Locke and Latham, 2006).

Thus, it can be assumed that a specific, challenging, clearly written goal framework is an indirect predictor of goal attainment. However, like the SMART criteria, Locke and Latham's theoretical framework outlines only the goal attributes that effective objectives should have to enable the attainment of the desired goal effect (Locke and Latham 2013); it does not specify the goal contents that give the statements these attributes. Therefore, there is still need for a reliable and practical conceptual guide to aid goal setters in writing objective statements with the right components of a SMART goal framework.

Model framework Writing SMART objectives

To be SMART and ensure goal clarity, according to Doran's original criteria, and to positively influence goal attainment according to Locke and Latham's (1990) theory, it is essential that every meaningful objective statement should specify:

- · The positive change or improvement desired
- The measurable indicator of the change
- The challenging but attainable level of the indicator
- The realistic time frame of when the change can be achieved (Doran 1981, Ogbeiwi 2016).
 Therefore, SMART objective statements could be constructed using a model framework that has four components:
- · The outcome
- Its indicator
- Target level and
- Time frame (OITT).

Figure 3 shows an example of an objective statement constructed using the OITT framework. To date, no empirical studies have investigated or reported on the goal frameworks used by goal setters for writing statements of objectives, or assessed the extent to which the objective statements formulated for their development or intervention plans are SMART.

Purpose of review

No empirical goal-setting research has yet been undertaken to investigate the constituent components of goal frameworks used to write

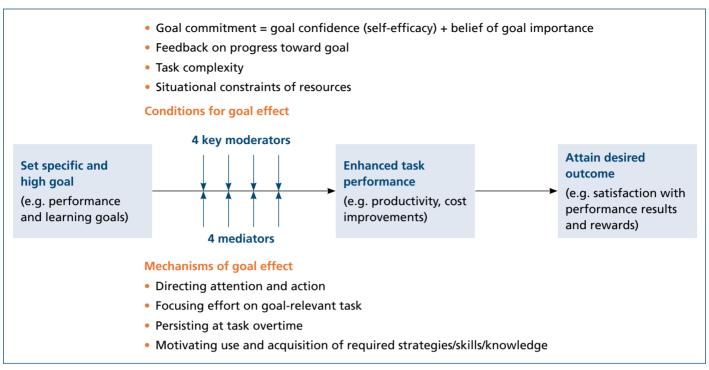


Figure 2. Locke and Latham's goal-setting theory (adapted from Locke and Latham 2002; 2006)

a SMART objective statement. This review, therefore, analyses the goal framework of SMART objective statements found in the literature and seeks to determine the extent to which they satisfy the five goal attributes of specificity, measurability, attainability, realisability and time.

The review is designed to answer a core question: Are SMART objective statements really specific, measurable, attainable, realistic and time bound? To answer the question, the goal framework of sample SMART objective statements is compared against the OITT components (*Figure 3*) as a standard analytical template.

Method

This review presents a quantitative descriptive analysis of published examples of SMART objective statements obtained through a purposeful search of the literature on SMART goal setting. It involved online searches of formal academic sources, such as the Health Management Information Consortium and Allied and Complementary Medicine databases, Pubmed, Medline, PsychArticles, CINAHL, and Google scholar, as well as using informal search engines such as Google. The search phrases used

were 'writing SMART objectives' and 'goal setting and framework', 'goal-setting in healthcare' and 'monitoring and evaluation toolkits'. Goal-setting framework articles were generated from these databases, but only those that gave access to full texts were printed for document review. Other materials were obtained through snowballing from the reference lists of accessed articles.

All materials were manually scanned for objective statements given as 'examples of SMART objectives' as the main selection criterion. In line with the chosen definition of an objective, any statements referred to as 'SMART process objectives' were excluded, while 'SMART outcome objectives' were included, even though some of them still described tasks as desired accomplishments.

The OITT framework was used as the standard template for determining whether the goal framework of each objective statement was truly SMART or not. Accordingly, to be SMART each objective statement had to be a single sentence specifying a complete set of OITT components (*Figure 3*).

To be an *outcome*, the specified accomplishment needed to be an expected short-term result or change that could be related

Notably, no examples of SMART objectives were found in any of academic goal-setting articles reviewed. A total of 17 examples of objective statements (*Table 1*) were collected from Doran (1981) and four major healthcare organisations, including the US CDC (11), Salford Royal NHS Foundation Trust in the UK (3), the World Health Organization (WHO) (1), and Save the Children UK (1).

To comply with copyright, written permission was obtained from Salford Royal NHS
Foundation Trust for the use its material in the study. The 11 CDC objective statements were published by five divisions of the CDC: the CPH, DHDSP, DSTDP, DTBE and Health Youths (CDC, 2009). The CDC are also the publisher of the conference presentation by Carl Osaki (2008).

The structural contents of each of the 17 objective statements were analysed descriptively and compared against the components of the OITT framework to determine the degree to which their structures or goal frameworks were SMART. Each statement was assessed by the number of OITT components specified and the percentage completeness of the four components. For each statements, completeness was assigned as 0% (no components), 25% (one component), 50% (two components), 75% (three components) or 100% (four components).

In interpreting whether the structure or framework of an objective statement is SMART or not in this study, the following criteria were applied according to *Figure 3*:

- · Specific: it states an outcome
- Measurable: it states an indicator of the outcome
- Attainable: it states an achievable relevant target level of the indicator

SMART objective statement:

To improve the economic status of the population in community X, such that the poverty rate falls from 50% to 30% by end of one year

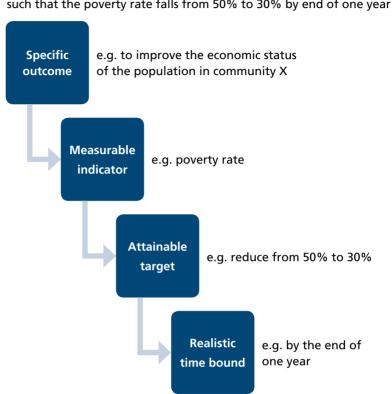


Figure 3. OITT framework of an objective statement

- Realistic: the target level can be attained with available resources in a particular time frame
- Time bound: the desired time frame is specified.

However, the realisability of the objective statements in this study was not assessed because the operational and resource contexts were unknown (the objective statements being published examples only).

The StatCalc epidemiologic calculator (part of the Epi-Info software tools, version 7.2.1.0) was used for 2x2 contingency calculation of Chi-square test values for differences in the number of individual components; statistical significance was determined by Mantel Haenszel test results and two-tailed *p*-values of less than 0.05.

Results

Contexts of objectives

Table 1 shows the 17 examples of objective statements taken from 12 project contexts. All are health related, except for the management

¹ SMART=specific, measurable, attainable, realistic and time-bound ² CDC=Centers for Disease Control ³ DSTDP=Division of STD Prevention ⁴ DTBE=Division of Tuberculosis Elimination ⁵ DHDSP=Division for Heart Disease and Stroke Prevention ⁶ CPH=Communities for Public Health

objective from Doran (1981) and Osaki's (2008) climate change research objective. The hospital and heart disease/stroke projects each yielded three objectives (17.6%); youth health two (11.8%); and the remaining nine — STD, TB, child health, diarrhoea, environmental health, climate change, human resource management, minority communities and management — one each (5.9%). Similarly, the areas of work or care for which the sample objectives were set varied, covering 11 work settings.

According to *Table 1*, health education and training have three objectives each, while breast surgery and health information system are each linked to two objectives. The remaining seven work settings, with one objective each, range across inventory system, STD treatment, TB case holding, immunisation, diarrhoeal prevention, surgical theatre management and research.

Type of objectives

To be considered an *outcome* objective the desired change should be a short-term *result* of a task, activity or strategy, rather than a change of the level of task performance or indicator. For example, No 10 (*Table 1*) is an *outcome* objective because raising awareness of stroke in a community is a short-term outcome of project implementation. It does not state accomplishment of particular awareness creation activities as a goal.

No 1 is a *process* objective, because it seeks to develop and implement an inventory system with change in operation costs being the indicator that measures the progress towards or accomplishment of the inventory system.

Of the 17 statements, 13 (76.5%) are process-oriented objectives that seek targeted accomplishment of tasks or work, and four (23.5%) are results or outcome oriented. Table 1 shows that the four work settings and contexts where outcome objectives are formulated are case-holding in TB, child immunisation, stroke awareness health education and diarrhoeal prevention.

Basic structure of objective statements

The majority, 11 (64.7%), originate from CDC-related sources. Apart from the CDC DTBE

objective, all the CDC objectives are written within a structure that includes the time frame, task or outcome to be accomplished, and the expected change in the measure from baseline to target.

Objective No 5 (*Table 1*), relating to an STD treatment goal, is typical of this template for writing objective statements in CDC programmes, which the CDC DHDSP (2017) set out as:

'By/_	/	, [WHEN— <i>Time</i>
bound] [WHC)/WHAT-	-Specific] from:
to:	[MEA	SURE (number,
rate, percenta	ge of char	nge and baseline)—
Measurable]'		

The five examples from Salford Royal NHS Foundation Trust, WHO and Save the Children mostly share a similar sequence, stating the desired accomplishment first, and the measure and time frame last.

Frequency of OITT components in objective statements

Table 2 and Figure 4 show the distribution of the four OITT components across the 17 objective statements. The most frequent component is the time frame, specified in 94% of statements. The least frequent component is outcome, specified in 18%. Figure 4 also shows that, while 59% of statements specify an indicator, 76% specify a target. The Chi-square test values for the observed differences between the number of statements with a specified outcome and the number with each of the other components are:

- Indicator (X2=5.92)
- Target (X2=11.46)
- Time frame (X2=19.57).

They are all statistically significant on the Mantel Haenszel test results (p < 0.05).

Completeness of the SMART goal framework

Table 2 and *Figure 5* show the number of OITT components in each objective statement, ranging from one (25% completeness) being included in four statements, two (50% completeness) in one statement and three (75% completeness)

Obj.	Related task	OITT¹ components specified in objective statement			atement	No of OITT ¹	%	SMART ² ?
No.		Outcome	Indicator	Target	Time frame	components	completeness	Yes/No
1	Develop and implement an inventory system	Unknown	Inventory	Reduce by \$1 million (£781000), with cost not to exceed 200 work hours and \$15000 (£11700)	31 December, 198,	3	75%	No
2	Local education authority staff will have trained health education teachers	Unknown	% health education teachers trained	75%	By year two	3	75%	No
3	Reduce operating costs	Unknown	Operating costs	5%	March 2012	3	75%	No
4	Increase day cases of breast surgery	Unknown	% converted day cases	from 20% to 25%	November 2011	3	75%	No
5	Unknown	Unknown	% providers that fully adhere to guidelines	from X% to Y%	By (month/ year)	3	75%	No
6	Unknown	Unknown	% adult patients with non-resistant TB who completed therapy	90%	2006 (within 12 months)	3	75%	No
7	Increase training sessions given for heart disease and stroke prevention programme partners	Unknown	Number of training sessions	from 10 to 14	29 June 2006	3	75%	No
8	Increase community health centres	Unknown	Number of community health centres	Four	15 February 2006	3	75%	No
9	Unknown	Unknown	Immunisation coverage	80 per cent	Next 5 years	3	75%	No
10	Unknown	Increase awareness of signs and symptoms	Unknown	from 11% to 15%	31 December 2009	3	75%	No
11	Unknown	Risk of diarrhoea is reduced	Unknown	by 50%	6 months	3	75%	No
12	District health educators will have delivered lessons	Unknown	% youth participants	90%	End of the school year	3	75%	No

¹ OITT = outcome, indicator, target level and time frame ² SMART = specific, measurable, attainable, realistic, time bound

in 12 statements. The mean of 2.5 components per statement represents an overall 61.8% completeness of the framework of the 17 statements studied.

None of the 17 statements contain all four OITT components, and therefore none is SMART (*Table 2*). *Figure 6* shows that the most common combination of components is *indicator/target/time frame*, which is present in 59% of statements. Thus, no statement has a structure with the required combination of OITT components.

Discussion

The objective statements analysed in this study may represent the products of goal-setting practice in multidisciplinary health contexts, but the findings may have wider application beyond healthcare organisations. Clearly, the types of objectives found in the literature suggest that goal setting in healthcare may be oriented more towards targeted accomplishment of tasks than the achievement of specific levels of desired results or outcomes of services.

However, the availability of different template designs for formulating objective statements indicates that there is no unified pattern for writing objective statements across different

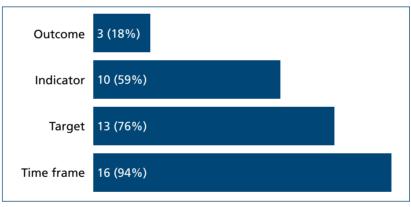


Figure 4. Frequency of OITT components specified in 17 examples of SMART objective statements

health organisations, even though the CDC templates represent a commendable attempt to standardise practice across different departments or services within the same organisation. The two template designs used clearly diverge: while the CDC recommends using the *time-accomplishment target-measure* pattern, the statements of the other organisations refer to *accomplishment-measure-time*.

Although using a particular template or pattern may be helpful in writing goals, this review indicates that it is a less useful tool for determining whether the statement produced is SMART, certainly not as important as the goal

Figure 5. Frequency of percentage completeness of OITT components in objective statement

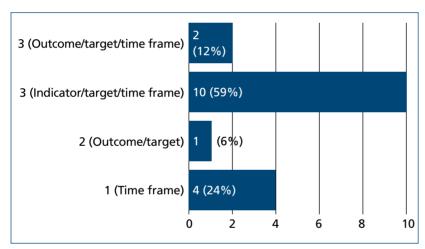


Figure 6. Frequency of combination of OITT components in examples of SMART objective statements

content or the completeness of the components required for the statement to possess SMART goal attributes.

In terms of completeness, this analysis finds that none of the examples of objective statements sit within a goal framework that encompasses all four OITT components. These examples have, on average, a 62% completeness rate and, on average, each health objective statement contains three OITT components.

According to the frequency of components in the statements, these examples suggest that goal setters in health organisations may be more likely to include a time frame in every objective or use acombination of *indicator*, *target* and *time frame* than specify an outcome. Rather than being objectives that state a specific outcome—along with the defining components of *indicator*, *target* and time frame—they are mostly statements of measurable and time-bound indicators, but make no mention of the intended short-term goal.

Thus, on the whole, the statements lack clarity and specificity about the result to be accomplished, of which the *indicators, targets and time frames* should be relevant measures. Therefore, none of the published examples of SMART objectives really are SMART, since they lack the complete goal framework comprising all four OITT components needed to satisfy each of the five SMART criteria.

It is noteworthy that most statements reviewed are process oriented. Even the SMART example published by Doran (1981) — the originator of SMART criteria — states as the objective a task performance, instead of an outcome. While some statements may be acceptable as SMART process targets, without a specific outcome, they do not qualify as SMART objectives if assessed on the OITT framework. Depending on the reliability and external validity of the OITT as an objective-setting tool, the inadequate frameworks in the published examples, which span a range of project settings, may suggest that there is a high prevalence of non-SMART objective statements in use in the health sector.

This observation primarily questions the motives behind objective-setting practices in the healthcare sector. Should goal setters set them to show the expected changes in task performance (Locke and Latham 2002), or the short-term effect or outcome results they expect from the outputs of implementing planned tasks (OECD 2002; Ogbeiwi 2016)? Should they state specific changes in indicators that are solely statistical measures of the changes towards a goal (OECD 2002), without specifying the goal itself? What expected results should goal setters really specify as outcomes in their objectives statements?

With the confusion surrounding the exact definition of an objective (Ogbeiwi 2016), it appears that the type of accomplishment specified in an objective statement reflects the goal setter's organisational understanding of what an objective is. Hence, organisations that use the term objective as a generic term may also assert that it can be both task (process) and outcome oriented. They may therefore encourage their projects to be formulated using objective statements that show expected accomplishments at different system levels of task, output, outcome and impact (OECD, 2002; DHDSP, 2017, DSTDP, 2017).

The immediate implication of the findings of this analysis is that few projects, if evaluated against this new template of the OITT framework, have outcome-oriented objectives that are in reality SMART. However, the current study may have a weakness, in that it looked at only sample objective statements and not objectives developed in real project contexts. Nonetheless, it does reveal the potential risk that projects relying on the use of these examples as objective-setting guides may lack the complete set of components required to formulate a SMART goal framework, including specific *outcome*, *measurable indicator*, *attainable target and realistic time frame* (Doran, 1981; Ogbeiwi, 2016).

According to Locke and Latham's goal-setting theory, clear, specific and challenging goals can engender improved performance towards goal attainment (Locke and Latham, 2006). So it is reasonable to assume that projects designed with an incomplete or defective goal framework are less likely to attain their desired outcomes.

Consequently, the possibility that globally many organisations are basing their planning on non-SMART objectives should be a serious concern to all stakeholders in the healthcare sector, since it implies that many healthcare projects with life-saving significance are likely to be built on them. This is worrying because it may mean that many health projects worldwide are implementing health plans with no hope of goal attainment.

There is, therefore, a need for projects to be designed on a framework of objective statements, such as the examples studied, to review the extent to which their objectives really are SMART. Hence, the above implications raise more questions for further research in real-field situations. First, to what extent is the goal

KEY POINTS

- Projects designed with an incomplete or defective goal framework are less likely to attain their desired outcomes
- There is no single, agreed template or standardised guidance for writing effective goal-setting objectives
- SMART goals are central to planning and attaining effective changes, however, many organisations fail to comply with SMART objectives
- Writing objective statements based on a template that encompasses the concepts of OITT (outcome, indicator, target and time frame) will ensure that organisations work towards specific, attainable and measurable aims

framework of objective statements of real projects actually SMART? Second, is it more likely that projects planned on the basis of objectives with a complete OITT goal framework will attain their desired outcomes? These questions should lead to further research to investigate the reliability, validity and efficacy of using the OITT framework as a standard tool for objective setting.

Conclusion

Writing SMART goals is fundamental to planning effective results-oriented action. Even though there are many goal-setting templates and guides, it appears that none currently offers a relevant and complete structural template to aid the construction of written objective statements that satisfy all the criteria for SMART goals.

The author proposes that writing objective statements that encompass the four components of the OITT goal framework as a conceptual template might help goal setters to formulate better objectives—SMART in goal attributes and goal content.

The objectives analysed in this article may have been drawn from just few examples and skewed toward the goal-setting practice of the CDC, but they provide a credible basis to invite programmes and organisations worldwide to review their SMART objective statements.

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