

## **Validation of criteria for service delivery performance assessment tools**

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### **Abstract**

Service delivery deficit remains an overwhelming predicament in South Africa. With ageing infrastructure, prolonged decision-making times in government, and the way in which municipal councils deliver electricity, water, sanitation services and domestic/industrial waste removals, public unrests, triggered by these factors are set to continue. Although these induce a lot of worries, the main concern is, if nothing is done urgently, the situation would soon degenerate into a fully-fledged revolt of the masses. While there are some diagnostic tools developed to assess service delivery health with the aim of improving service delivery performance, the tools, with their qualifying criteria need to be evaluated for fitness within the South African context.

This paper investigates and validates, through focus group driven evaluation, what performance criteria should be used to select an existing service delivery diagnostic tool to measure the performance of service delivery in South Africa. A tool must thus sufficiently satisfy the criteria, to be considered adequate, appropriate and effective in South Africa.

### **Keywords**

Service Delivery, Performance Assessment, Performance Criteria, Focus Group, Analytic Hierarchy Process

## **1. INTRODUCTION**

An all-embracing, all-inclusive, universally agreed definition of the term *Service Delivery* does not exist. While Du Toit, Knipe, Van Niekerk, Van der Walldt and Doyle (2002) associate the term with a governing body delivering some collective basic services promised to the electorate, Fox and Meyer (1996) believe it is a phrase simply describing government's responsibility to deliver goods and services to the benefits of its citizens. Acknowledging that the term is used widely (and sometimes loosely) all over the world, we take cognizance of the South African context and vernacular and define it as the provisioning of services (intangibles), goods (tangibles) and socio-economic dynamism by government and state-owned enterprises that enable the citizenry to live sustainably and prosper.

The challenge with South Africa is that since democratization, notwithstanding increases in successive budgets, and many legislative frameworks to enhance Service Delivery, backlogs arising from unascertained reasons continue to grow. Government, realizing the impact caused by public disturbances emanating from these backlogs has set up and mandated some of its organs and departments to monitor how well it delivers public services: The Department of Public Service and Administration (DPSA) (2016) and Pillay (2016), the Planning, Monitoring and Evaluation department (Madale, 2014) and the Public Service Commission (PSC) (2014, 2015), just to mention a few. According to Ajayi & De Vries (2018), while these oversight institutions use traditional questionnaires, methodologies and tools to assess the performance of Service Delivery, the tools are not grounded theoretically, evaluated scientifically or proven to lead to any improvements in Service Delivery, strengthening the argument of Tirivangasi & Mugambiwa (2016) who contend that notwithstanding these government assessments, service delivery gaps continue to be a problem, leading to protests that paint a negative picture of South Africa both locally and internationally. There are therefore compelling reasons, not only to design and develop tools and techniques that follow rigorous scientific principles for Service Delivery assessments, but to first define the criteria which such tools and techniques must satisfy to achieve the desired result. This is inevitable as an independent review by the World Bank (2011) on accountability of South Africa's Public Services, stipulates that one of the major reasons for Service Delivery issues is inadequate assessment (including monitoring and feedback) of the health of Service Delivery. Although, a Systematic Literature Review by Ajayi & De Vries (2018) on *Diagnostic Assessment of Service Delivery Health in South Africa* did provide a synopsis of available Service Delivery Assessment tools with their consequent performance metrics, the study did not validate or evaluate the performance metrics for fitness, appropriateness or suitability to the South African state. Also, a priority ranking of the tools, based on any philosophy or approach was not conducted.

It is therefore intended in this research to adopt an approach, which has enjoyed widespread application in Design Science Research, i.e. focus group discussion, in conjunction with the principles of the Analytic Hierarchy Process (AHP) to define and validate tool criteria needed in the design and evaluation of such a tool, and a framework for a solution acquisition pathway.

## **2. BACKGROUND**

For many reasons, government and other stakeholders around the world show interest in and measure the performance of government services, using various tools and techniques with pre-defined Key Performance Indicators (KPIs). We provide background on existing service delivery performance assessment tools in section 2.1, also elaborating on possible criteria to compare existing tools. Sections 2.2 and 2.3 provide information on the extracted tools criteria and problem validation respectively.

### **2.1. Existing Service Delivery Performance Assessment Tools**

SERVQUAL (Parasuraman, 1988) has been used extensively for Service Delivery performance assessment in many countries (Alexandria, 2001; Ali, 2014; Brysland, 2001; Ilhaamie, 2010; Iyikal, 2016; Martinovic, 2017; Mik, 2001; Prodromos, 2014; Ramseook-Munhurrin, 2010) including South Africa (Green, 2014). Other tools from the literature which have been trimmed based on certain quality criteria defined by Ajayi & De Vries (2018) are ESTP (Extended Service Template Process) (Williams, 2007), ASPIRE (Area for evaluation, Set goals, Performance indicators, Information sources, Report results, Evaluate) (Uy, 2016), BSC & GEE (Balanced Score Card & Generalized Estimating Equation) (Edward, 2011), CSDA (City Service Delivery

Assessment) (Ross, 2016), PJM (Performance Journey Mapping) (Höber, 2015), EGPE (External Government Performance Evaluation) (Yu, 2016), and MP (Manufacturing Performance) (Amrina, 2010).

## **2.2. Performance Evaluation Criteria from the Literature**

A review of the literature reveals quite a handful of public service delivery performance evaluation criteria: Independence (Edward, 2011; Yu, 2016), Relevance (Uy, 2016; Yu, 2016), Validity (Amrina, 2010; Yu, 2016), Reliability (Yu, 2016), Comprehensibility (Amrina, 2010; Edward, 2011; Höber, 2015; Uy, 2016; Williams, 2007), Comparability (Höber, 2015), Objectiveness (Edward, 2011; Höber, 2015; Ross, 2016), Predictive ability (Ross, 2016; Williams, 2007), Diagnostic ability (Williams, 2007), Balance (Höber, 2015), Conflicts avoidance (Höber, 2015; Ross, 2016), Engagement (Ross, 2016), Focus (Ross, 2016; Uy, 2016), Ease of use (Amrina, 2010; Höber (2015); (Uy, 2016) and Usefulness (Amrina, 2010; Höber, 2015; Uy, 2016). As indicated in the remaining parts of this article, the service delivery performance evaluation criteria had to be subjected to review, interpretation and validation via a *focus group discussion* to give the criteria meanings that are relevant within the South African context.

## **2.3. Problem Validation**

Sections 26 and 27 of the South African Constitution (ACT, 1997) place some obligations on government, within available resources to ensure citizens' access to public services such as electricity, water, sanitation, waste removal and affordable housing. However, shortfalls in the provision of these services have led to enormous public disturbances typified by violence, plundering of innocent citizens goods and properties, and sometimes police brutality. Government has responded to this conundrum by putting in place policy frameworks, regulatory instruments and oversight institutions but to no avail (National Planning Commission South Africa, 2011; Public Service Commission South Africa, 2015). Makanyeza (2013) and the World Bank (2011) however suggest that the development of a proper Service Delivery health diagnostic tool could be a panacea to the predicament. As indicated in section 2.1, some diagnostic tools do exist, the gap however is, in South Africa, none has been evaluated based on country relevant criteria or proven to lead to improvements in Service Delivery. Notwithstanding these existing tools, Tirivangasi and Mugambiwa (2016) contend that the situation hasn't improved, citing up to one thousand service related public disturbances within just one month during year 2014.

## **3. RESEARCH QUESTIONS AND METHODOLOGY**

The above context leads to a primary research question and supporting research objectives. The following subsections elaborate on the research question and an appropriate research methodology to answer the research question.

### **3.1. Research Question and Objectives**

*Which service delivery performance criteria should be used to select an existing diagnostic tool to measure service delivery performance to address Service Delivery gaps in South Africa?*

The study therefore explored the following objectives:

- a. Objective 1: Validate the need for a service delivery diagnostic tool for assessing public service delivery performance.
- b. Objective 2: Validate criteria extracted from literature and identify additional criteria (from a Focus Group Discussion) to evaluate the performance of existing public service delivery assessment tools.
- c. Objective 3: Use the validated criteria to propose a hierarchy of criteria that could be used by decision-makers to prioritize the criteria.

### **3.2. Research Methodology**

Since we believe that the Service Delivery diagnostic performance criteria, as sourced from existing literature, had to be adapted and/or extended for the South African context, a participative approach was required. Due to its participative and interactive nature, we decided to use a *Focus Group Discussion* (FGD) as the main data-gathering instrument.

The following steps were taken to achieve the research objectives:

1. Performing literature reviews.
2. Identification and extraction of public service delivery performance diagnostic tools.
3. Identification and extraction of relevant evaluation criteria.
4. Formation of focus group and validation of extracted criteria by focus group participants (FGPs).
5. Design & deployment of questionnaire to understand FGPs experience of public service delivery.
6. Identification, definition and validation of additional South Africa relevant evaluation criteria by FGPs.
7. Data analysis and discussion of results.
8. Proposing an *analytical hierarchy process* (AHP) hierarchy for future work.

We elaborate on the FGD as data-gathering instrument in section 3.2.1 and introduce the analytical hierarchy process (AHP) as a technique in section 3.2.2 to prioritize criteria.

### 3.2.1. The Focus Group Discussion Technique

Characterized by series of meetings, participants' in-depth involvement, purpose-driven discussions and focused topic reviews/analysis, Focus Groups help generate ideas on research problems and phenomenon being studied. According to Brandtner, Helfert, Auinger and Gaubinger (Brandtner, 2014) the processes for conducting Focus Groups include:

1. Definition of a clear study purpose and research objective
2. Purposeful recruitment of participants
3. Facilitation:
  - a. Preparation/Logistics
  - b. Pre-session
  - c. Session
4. Analysis
5. Reporting

The steps are outlined in Figure 1 below

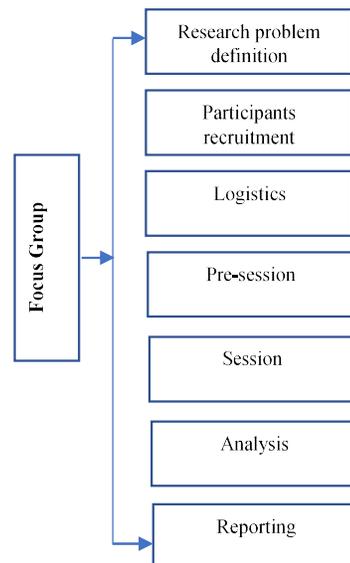


Figure 1: Steps to apply Focus Group. Source: Brandtner et al (2014)

Contending that the FGD technique is very useful for both exploratory and confirmatory studies, Tremblay et al (2010) suggest the following motivational reasons for adopting the FGD as an evaluation methodology:

1. *Flexibility*: The approach is innovative in that a wide range of design issues and problems can be reviewed and debated among participants in an open forum.
2. *Secondary Ideas Generation*: Unlike in the use of traditional questionnaires, participants can build on each other's idea to generate new ideas for the research problem. In addition to increased

opportunity for multiple ideas, conflict of opinions would indicate an area for the researcher to further investigate for improvement.

3. *High Data Volume*: Due to the fact that participants are present at the same time, large amounts of data are likely to be generated, which gives the researcher an opportunity to get a deeper understanding on how the business environment may view, use or react to the artefact.
4. *Clarifications*: Because participants are present in the FGD, the researcher has the opportunity to probe and clarify issues during the sessions. This is unlikely with questionnaires that are distributed remotely.

### **3.2.2. The Analytic Hierarchy Process Technique**

The Analytic Hierarchy Process (AHP) is a powerful process for multi criteria decision making (MCDM). As a decision support system, it aids decision makers in priority setting & optimal decision making by enabling the reduction of complex decisions to a series of pairwise comparisons (Klos, 2014). A tool such as this is needed in our modern world where elevated levels of randomness and uncertainties prevail, and complexity increases by day.

Capturing both subjective and objective aspects of a decision, the AHP reduces bias by checking the consistency of the decision makers' evaluations. As indicated by Brunnelli (2015), the AHP can be performed in a few successive steps:

1. Develop a model for the decision, breaking them down into a hierarchy of goals, criteria and options
2. Generate weight for each criterion
3. Generate score for each option
4. Derive overall priorities (Model Synthesis)
5. Perform Sensitivity Analysis
6. Make a final decision

Considering  $m$  evaluation criteria and  $n$  options to be assessed, the pairwise comparison matrix  $A$  is an  $m \times n$  real matrix. The matrix can be defined as:

$$A = \begin{pmatrix} a_{11} & a_{12} \cdots & a_{1m} \\ a_{21} & a_{22} \cdots & a_{2m} \\ \vdots & \vdots & \vdots \\ a_{m1} & a_{m2} \cdots & a_{mm} \end{pmatrix}$$

According to Saaty (1980), each entry

$a_{jk}$  of matrix  $A$  is the weight of the  $j$ th criterion relative to the  $k$ th criterion:

$j$ th criterion is more important than the  $k$ th criterion if  $a_{jk} > 1$

$j$ th criterion is less important than the  $k$ th criterion if  $a_{jk} < 1$

$j$ th criterion is equally important to  $k$ th criterion if  $a_{jk} = 1$

The normalized pairwise comparison matrix is averaged by  $m$  to derive the criteria weight vector  $W$

represented as: 
$$W_j = \frac{\sum_{i=1}^m a_{ji}}{m}$$

Same principle applies to the option scores matrix  $S$ , which is an  $n \times m$  real matrix.

As expected, multiple pairwise comparisons may likely lead to inconsistencies. To deal with this, the AHP comprise of a mechanism to check for the consistency of the decision maker's evaluations. The

Consistency Index (CI) of a consistent decision maker should be 0 (zero). The generic hierarchic structure for the AHP is shown in Figure 2.

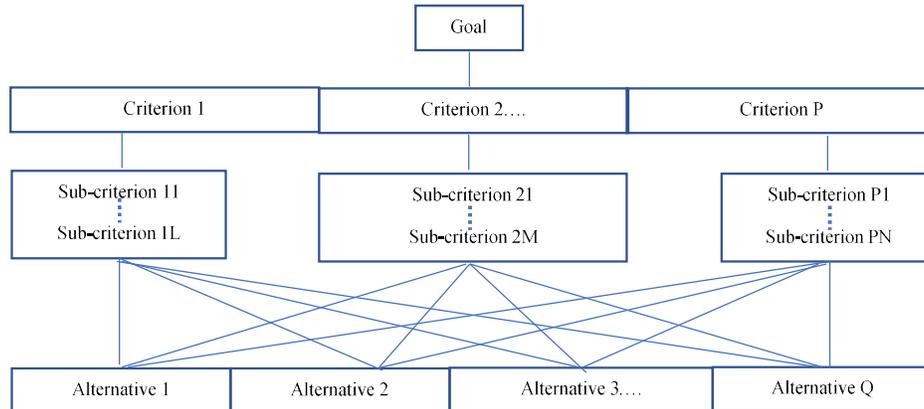


Figure 2: Generic AHP Hierarchic Structure

Given the objectives of the article, we intend to develop a hierarchy of criteria (similar to the hierarchy portrayed in Figure 2). The hierarchy of criteria will be based on the Service Delivery diagnostic performance criteria that were validated during the FGD. Wei, Chien and Wang (2005) emphasize the need to create sub-criteria with practical meanings. We used the validated criteria as an input to develop an AHP hierarchy that should be useful to a decision-maker.

#### 4. FOCUS GROUP DISCUSSION ANALYSIS RESULTS

As indicated in section 3.2.1, a focus group of 9 participants was formed that consists of subject matter experts (SMEs), domain experts (DEs), decision makers, related government departments including the presidency, and the municipal government, being the bedrock of service delivery and the first point of contact to the citizenry. In summary, the following sectors and departments were represented at the FGD:

1. Municipal government (City of Tshwane, South Africa)
2. South African Local Government Association (SALGA)
3. Department of Public Service and Administration (DPSA)
4. The Presidency
5. United States Agency for International Development (USAID)
6. Non-Governmental Organizations (NGO)
7. Academia (University of Pretoria)
8. The public

While these cannot be assumed to represent the entire South Africa, they have been purposively identified and recruited for this exercise. Feedback from the session commenced only after *informed consent* of participants was obtained. The main objective of the FGD was to obtain a *list of validated Service Delivery diagnostic performance criteria*. However, we first obtained consensus on defining *service delivery* (in section 4.1) and also provide more context about the *participants* regarding their own experience with public service delivery (in section 4.2). Finally (in section 4.3), we present the list of validated criteria, used as input to develop an AHP hierarchy (in section 4.4).

##### 4.1. Participants' Feedback on Service Delivery Definition

Given that the term “service delivery” may connote different meanings under different cultures and economies, we sought the opinion of the FGPs on how we should define the term to reflect the South African context, taking into account our own vernacular, localism and experience. The group thus agreed to this definition but with an unresolved contention on including the word *service* in the definition. It was argued that since we are defining *service delivery*, the word *service* should not feature. However, in the absence of a better word, it was retained, and the following definition was confirmed:

“The provisioning of services (intangibles), goods (tangibles) and socio-economic dynamism by government and state-owned enterprises that enable the citizenry to live sustainably and prosper”.  
The confirmed definition was adopted as the basis for all other definitions and validation of evaluation criteria.

#### 4.2. FGPs Experience of Service Delivery

Rating FGPs experience of the 5 basic public service deliveries of electricity supply, portable water supply, sanitation, waste removal and affordable housing on availability, quality, cost and value for money on a scale of 1 (very dissatisfied) to 7 (very satisfied), the FGPs responses are summarized in Tables 1 & 2 for electricity.

Table 1: FGPs experience with electricity supply

	P1	P2	P3	P4	P5	P6	P7	P8	P9
Availability	6	2	7	5	7	6	6	7	6
Quality	6	1	7	4	5	7	7	6	6
Cost	3	7	5	2	4	2	5	1	5
Value for Money	4	6	4	1	2	3	5	4	6

Table 2: Descriptive statistics – electricity supply

	Availability	Quality	Cost	Value for Money
Mean	5,78	5,44	3,78	3,89
Standard Error	0,52	0,65	0,64	0,56
Median	6,00	6,00	4,00	4,00
Mode	6,00	6,00	5,00	4,00
Standard Deviation	1,56	1,94	1,92	1,69
Sample Variance	2,44	3,78	3,69	2,86
Kurtosis	4,88	3,17	-0,76	-0,51

While the participants are generally happy with the quality and availability of electricity in the country, they frowned at the cost and the fact that they don't receive value for money for electricity. Only 11% and 22% expressed dissatisfaction with the availability and quality of electricity respectively, with 56% and 67% complaining about cost and lack of value for money. On which of the 4 metrics (availability, quality, cost & value for money) is most problematic, about half of the FGPs voted for *cost* while another half surprisingly indicated *availability*, suggesting that availability, if driven by high cost is not exactly desirable.

FGPs' experience with water supply is similar to that of electricity, except that they are more dissatisfied with the *quality of water*, in addition to unhappiness with *cost* and *lack of value for money*. On most problematic metric, *quality of water* and *availability* scored top, also suggesting that availability with compromised quality is not acceptable to South Africa citizens.

FGPs are generally happy with sanitation and waste removals but rated *cost of housing* and *value for money* low. Figure 3 summarizes FGPs public service ratings.

The sample of participants are urban citizens and therefore the results are not representative of all citizens. Yet, the results provide some indication of how FGPs currently experience service delivery.

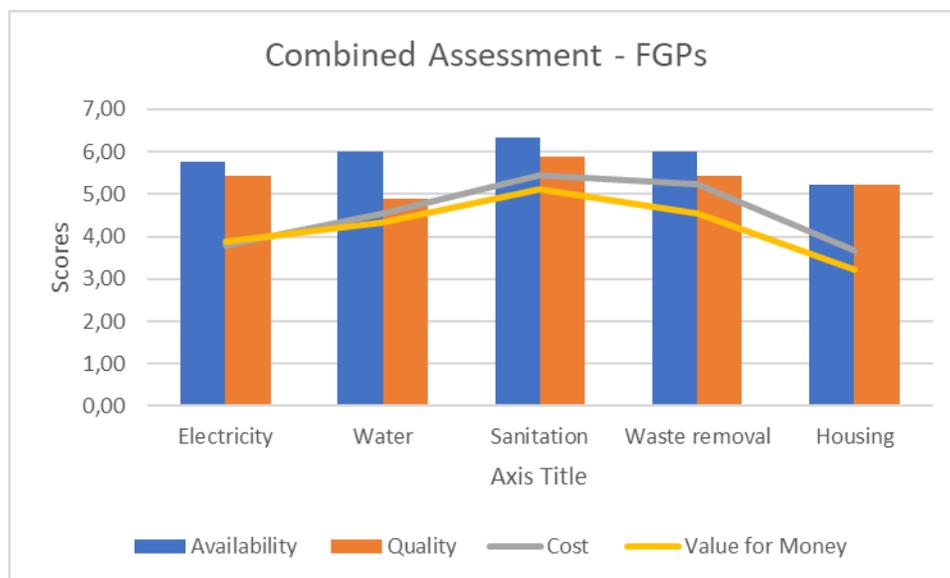


Figure 3: Service ratings by FGPs

### 4.3. Validated Criteria

The first item to be validated was whether or not a need exists for a service delivery assessment tool. The FGPs unanimously agreed that there is a need for one, although the qualifying criteria are deemed critical.

The FGPs redefined and validated 11 criteria, could not reach consensus on one (comparability) and added two new ones: *comprehensiveness* and *accuracy*. Each criterion, as defined and agreed by the FGPs, are to be used in evaluating service delivery assessment tools in South Africa. The criteria are:

1. Independence: Administering personnel must be independent and free of financial inducement. (FGPs however argue that this is not feasible on an on-going basis and that Technology Assisted Approaches should be explored).
2. Relevance: The tool must assess practically significant public services and reflect important public issues. It must possess metrics relevant to the outcome of interest. (FGPs indicated that relevance will be driven by legislated sectorial mandate).
3. Reliability: Tool must be consistent when used to measure public service delivery performance repeatedly, with results that are fairly comparable with similar tools.
4. Comprehensibility: Outcome provided by the tool must be easily digested and understood by its users. Graphs and tables can be used to facilitate public comprehension. Interested parties can access report/publication and make sense of the content. Within certain contexts the word *accessibility* is also used, meaning that any individual should be able to interpret and comprehend the results produced by the tool.
5. Measurement expressiveness: Both objective and subjective metrics should be used as triggers for action/correction.
6. Predictive ability: The tool must be able to estimate or project what public service delivery performance would look like in the near future, based on historical and current data.
7. Diagnostic ability: The tool must identify specific issues regarding specific performance areas affecting public service delivery, i.e. the tool should allow data drill down to root causes.
8. Robustness: Metrics used by the tool must be robust, i.e. there should be clarity on exactly what is measured.
9. Engagement: Stakeholders are involved in the design, development or customization of the tool, using consultation and a participatory approach.
10. Customizable: The tool must be tailored or customized for a specific sector or sub-sector, i.e. the generic components of the tool should be adjustable to be valid for a particular sectoral context.
11. Ease of use: To learn and operate the assessment tool should be easy, flexible-to-interact-with and uncomplicated.

12. Comprehensiveness (*new criterion, added by the the FGP's*): Tool must cover all relevant areas, be all-inclusive, all-embracing for the context that is measured.
13. Accuracy (*new criterion, added by the FGP's*): Output is precise.

The criteria were all subjected to debate until consensus was reached on each of them. The next section proposes a hierarchy of criteria that will be useful for future decision-making for selecting an appropriate service delivery performance assessment tool.

#### **4.4. The AHP Framework**

Given the ultimate goal (to be able to decide on the most suitable service delivery assessment tool), the criteria (defined and validated by the FGPs), and the available alternatives (existing service delivery performance assessment tools), an AHP hierarchy is hereby developed to enable pairwise comparisons by stakeholders and decision makers in near future.

The AHP hierarchy uses validated FGPs criteria, and additional (post construct) criteria that may aid *practical comparisons and decision making*.

AHP hierarchy objective: Choosing the most suitable tool to satisfy *service delivery performance assessment criteria and post-construct criteria*.

The *post construct criteria* of the *hierarchy* are:

1. Project (e.g. total cost of ownership, service levels and warranties, and implementation time)
2. Technical (e.g. technology, availability, scalability, fault tolerance and maturity)

Since we have already elaborated on the validated definitions for *effectiveness* sub-criteria in section 4.3, we also provide practical definitions for the *post construct* sub-criteria.

##### **4.4.1. Project sub-criteria**

1. Cost – Total Cost of Ownership: Total cost consideration including initial acquisition, implementation, after sales services, annual maintenance, training and upgrades. This cost must be feasible.
2. Time: The total time to acquire, and duration prescribed for the tool development and deployment are viable.
3. Warranties / SLA: Supplier of tool is available at short notice to restore the tool from a failed or dysfunctional state to an operational state.

##### **4.4.2. Technical sub-criteria**

1. Technology: The platform upon which the tool is developed is robust.
2. Availability: Assessment tool is in a functional state for an acceptable period of time.
3. Scalability: Assessment tool has the capacity to be changed in size or used over a larger area of operation without redevelopment.
4. Fault Tolerance: Tool has the capability to maintain a specified level of performance in cases of faults or of infringement of its specified interface.
5. Maturity: Tool has capabilities to avoid failure as a result of faults in its design.
6. Modularity: Tool's constructional parts are separated into independent, interchangeable modules making upgrades, adjustments and correction seamless.
7. Recoverability: The capability of the tool to re-establish a specified level of performance and recover the data directly affected in the case of a failure.

The suggested hierarchy is depicted in Figure 4. Note that we have also included some of the alternatives that may be considered as *Level 3 Alternatives*. Yet, a short list of alternatives can only be defined once the validated list of service delivery tool assessment criteria have been prioritized.

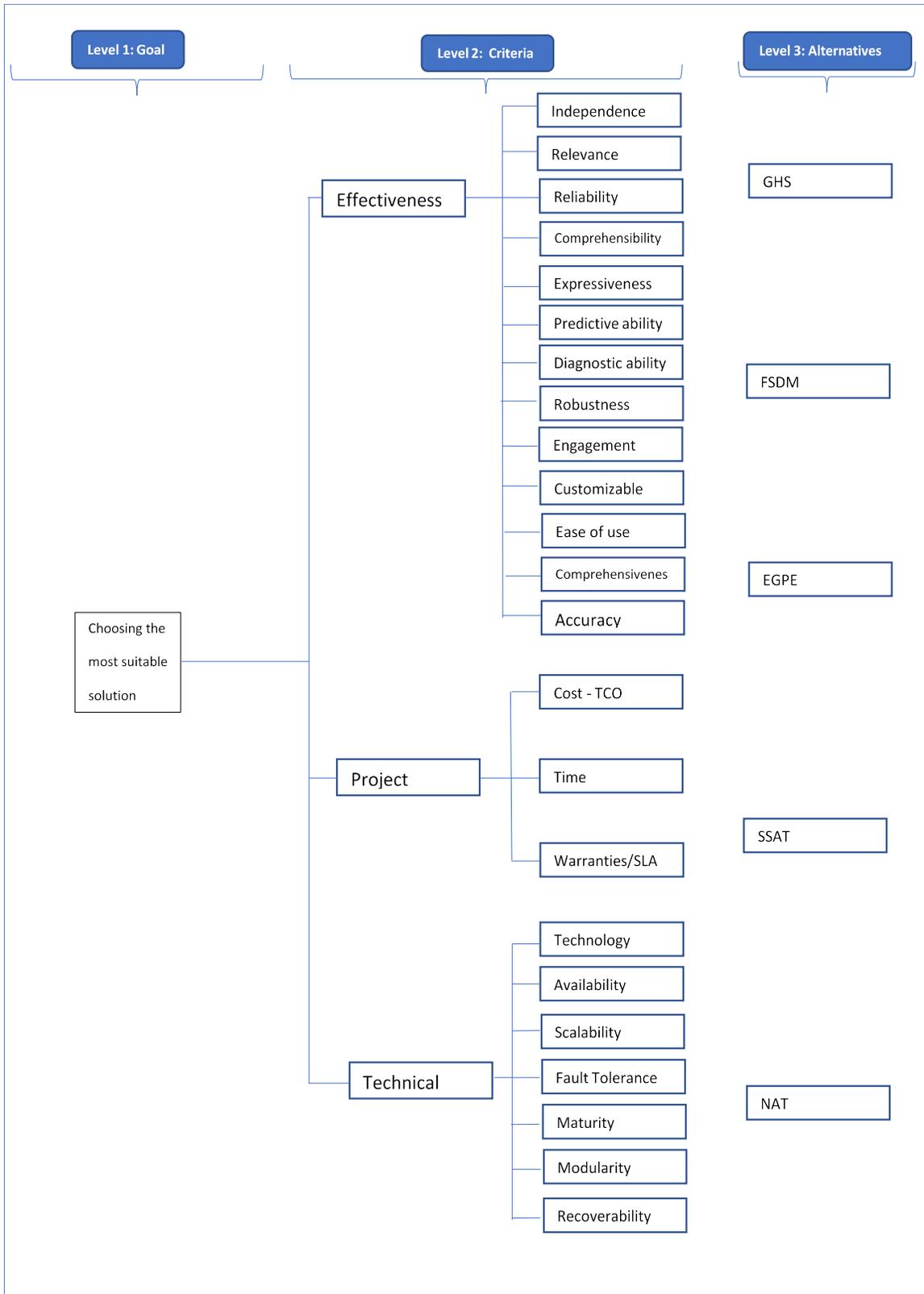


Figure 4: Proposed Hierarchy – Choosing the most suitable solution

The suggested hierarchy provides a structured framework to enable practical pairwise comparison that would lead to optimal decisions on choosing the best solution. A future exercise is thereby required to engage relevant stakeholders to validate the practicality of the sub-criteria and for decision makers to complete the pairwise comparisons and come up with a lasting solution for South Africa in respect of diagnostic capabilities to assess the performance of our service delivery in a way that can enable evidence driven policy making that would ultimately close service delivery deficits in the country.

## **5. DISCUSSION AND CONCLUSION**

According to the World Bank (Report, 2011), one of the major reasons for Service Delivery issues in South Africa is inadequate assessment (including monitoring and feedback) of the health of Service Delivery. Although a plethora of assessment tools exist all over the world (and few in South Africa) for the same purpose, civil unrests, fueled by service delivery deficits continue to hunt South Africa (Tirivangasi, 2016) as they often lead to damage to public properties, disruption of civic activities, police brutality and sometimes loss of life. Concerted efforts by government and its organs to stem these discontent and civic uprisings have not yielded much result, prompting several authors, including Makanyeza (2013), Sibanda (2012), just to mention a few, to suggest, in agreement with the World Bank, that a diagnostic assessment of the performance of service delivery is needed. In response to that requirement, we posit in this paper that a scientific approach with proper theoretical grounding is necessary in the design, development, and application of such a tool.

We therefore explored, using the *focus group discussion* approach (and the AHP, for decision hierarchy suggestion), what criteria, service delivery assessment tools need to satisfy to deal with the inadequacy identified by the World Bank report and other authors. The study sets out by validating first, via the highly diversified, purposively recruited focus group participants, whether a need exists for a service delivery assessment tool. The response was in the affirmative: one is needed, and urgently too! The response satisfies the *first study objective*.

Afterwards, the necessary criteria that such tools must satisfy to be considered relevant, adequate and appropriate within the South African context were defined and validated by the FGPs, fulfilling the *second objective of this study*. The *third study objective* is met by providing a decision-criteria hierarchy, premised on the AHP approach, to select the most appropriate tool from what is currently available. Given that South Africa national government, local government, the general public, an international agency, non-governmental organizations, the academia and industry were represented in the FGD, we took liberty to understand their perception of performance of service delivery and we reported on their feedback. Their feedback indicates that much still needs to be done in the area of service delivery. For instance, notwithstanding the availability of electricity, the group thinks it doesn't get value for money and that electricity is too costly in South Africa. The group passed a vote of no confidence on the quality of water while reiterating lack of value for money: This group is generally urban, indicating the situation will be worse with South African rural dwellers. Affordable housing was rated low on cost and value for money, meaning housing is generally not affordable in South Africa. On a positive note, the group is happy with wastes removal and sanitation. This is not unexpected given the group's geo-location in urban South Africa.

To reach a final conclusion and strategic solution pathway for South Africa, it is recommended that a further study be commissioned to subject the defined goals and criteria to pairwise comparisons by relevant stakeholders and decision makers.

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