

ISO 37101 logbooks and tools

The 37101 – Urban Sustainability Management Platform

usmp.online

The following text was developed at an early stage in the development of ISO 37101 tools and guidance. Information about subsequent texts giving more up-to-date accounts of the status of ISO 37101 guidance and tools are available on the ISO 37101 wiki at 37101.wiki

The ISO 37101:2016 standard establishing the requirements for a management system for sustainable development in communities, including cities, is widely recognised as providing a robust, high-level framework for smart, resilient and financially efficient sustainable urban development.

ISO 37101 requirements

While many of the ISO 37101 requirements reflect those for any ISO-based management system, some are given greater emphasis, notably the organization's context and the involvement of interested parties.

The introduction to the standard makes it clear that the context is all-important: the context determines the "appropriateness" of the system's policy and strategy. These must "foster a common purpose" and "help develop a vision" while avoiding information and strategies becoming locked in silos.

The ISO 37101 requirements therefore call for a "holistic approach" using a "coherent framework" for integrated strategies, programmes, projects, plans, and services.

Purposes and issues

To meet the context requirements, the organization authorised to establish the ISO 37101 management system must determine policies and objectives that address six purposes of sustainability in 12 action areas that respond to external and internal sustainability issues. These action areas, called "issues" in the standard, are effectively areas in which a community such as a city establishes policies to drive actions.

The issues can have strategic, operational and competitive implications and must target environmental, social and economic aspects relevant to the community's purpose.

For example, *Attractiveness* (a city's appeal to citizens and other interested parties) is a purpose of sustainability and *Governance, empowerment and engagement* is an action area.

The strategic planning process will:

- establish policies and strategies for each purpose in each action area,
- articulate the policies and strategies in terms of requirements, assessment methods and targets for indicators.

Additional issues must be considered if necessary and the criteria for selecting (“relevant and suitable”) issues are detailed in the standard.

Strategic planning process

To establish the context, the community organization is required to undertake an “iterative cross-analysis of purposes and issues” for which issues are ranked, prioritised and their risks and opportunities addressed (documented “risks and opportunities plans” are required at some stage).

The issues must “be addressed with strategies”, so the requirements call for a systematic analysis of the issues in the light of risks and opportunities and the seven purposes of sustainability (interested parties are added to the list of purposes).

The well-established and widely used ISO 9001 quality management standard has a similar albeit less comprehensive requirement (“The organization shall determine external and internal factors that are relevant to its purpose and its strategic direction.”). In this case, an audit requires documented evidence of a strategic planning process that covers all of the context’s action areas and is the basis for strategies for the action areas that address the purposes of the quality management system.

For ISO 9001, the purposes are the principles of quality management and the action areas are risk management, interested parties, knowledge management, organizational knowledge, and innovation. A detailed management system for each of these action areas is not required. Instead, the strategic planning process must be able to demonstrate that strategies and their accompanying objects, targets and indicators, have been developed for each area.

A strategic planning processes for an ISO 9001 context usually involves techniques such as a Qualitative Strategic Planning Matrix based on factor analysis, combined with SWOT or similar analyses and strategy mapping. This form of strategic planning process for ISO 9001 is detailed in the appendix, noting that Quality Management “principles” are equivalent to ISO 37101 “purposes”.

Whatever the strategic planning process, there is generally a common starting point where the factors that affect an organization are weighted and ranked and used to establish strategies and action plans. It is clear that ISO 37101 calls for strategic planning process similar to that required for ISO 9001, but much more detailed and comprehensive and covering a much wider range of action areas.

In the final analysis however, the starting point for an ISO 37101 strategic planning process is likely be similar to that for ISO 9001, namely strategies in each of the ISO 37101 purposes being assigned a weight and a score. A selection is then made using established tools to identify an overall strategy of the management system with strategies that correspond to each of the action areas (as described of ISO 9001 in the appendix).

Indicators

Embedded in any sustainable development strategy, and therefore part of a sustainability management system, is a set of indicators to monitor and assess progress. Moreover, a community-based system to enhance sustainability that involves many different types of interested parties can only be effective if rigorously defined yet easily understood indicators are used to detail progress.

In reviewing the various types of platform that would support users of the ISO 37101 standard, it was decided that the best approach would be to start with indicators. The main alternative was to

focus on strategy planning. However, communities have very little experience with strategic planning process, there is very little information and understanding available upon which to base the design for a platform focussing on strategy and context analysis.

The 37101 Urban Sustainability Management System Platform (USMS Platform) is designed to manage the set of indicators that the management system will generate following a strategic planning process that emphasises the context (environment) of the system and the views of interested parties.

A further step will be to expand the platform to cover the upstream strategic planning and context analysis that this required in order for a community to agree on objectives, targets and their indicators.

Premises

As summarised above, the first of the premises on which the USM Platform is based is that a strategic planning process of the six ISO 37101 purposes of sustainability has been undertaken; and that strategies for each of the 12 issue (or policy) action areas have provided the requirements and assessment methods for indicators for each relevant ISO 37101 issue/purpose categories.

The second premise is that a product or service supplied to a community, urban or otherwise, operating an ISO 37101 management system needs to conform to the requirements of the standard.

The platform must therefore relate to various levels. At the uppermost level it must support the community seeking to improve its sustainability performance. At a lower level, it must for example help demonstrate that a specific project which is or will be integrated into the community truly meets the community's strategies and policies for sustainable development (i.e., the project is in conformity with the requirements of the standard).

Perspectives

International standards are currently being developed to provide coherent frameworks for establishing sustainability policies, strategies and objectives at the urban and peri-urban scales for various action areas such as service delivery, smartness, resilience, resource use, climate change mitigation, proceeds disbursement, and financial efficiency.

In some cases a framework defines a set of specific indicators (e.g., the ISO 37120 City Services standard). In other cases, sectorial frameworks such as the FIDIC-EFCA Project/Programme Sustainability Logbook provide a flexible system to develop a set of project-specific priorities, objectives, operational responses, and indicators.

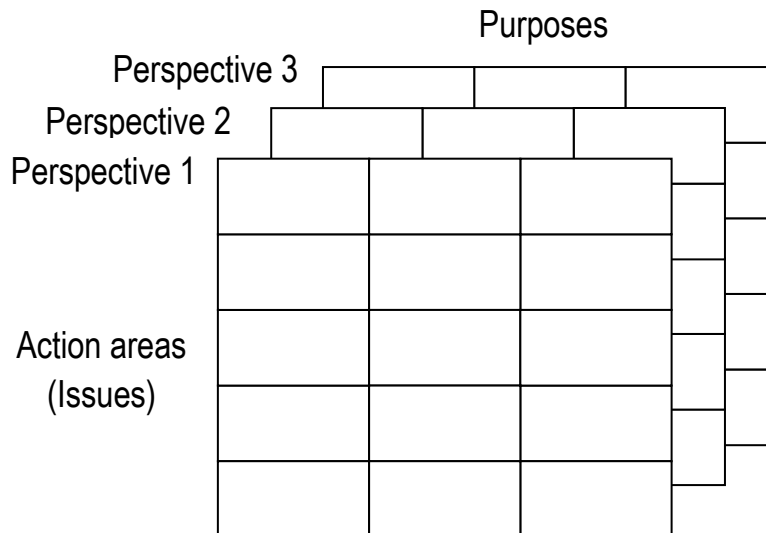
Indeed ISO 37120 says that its set of services indicators “may be complemented by other indicator sets in order to have a more comprehensive holistic approach to analysis on sustainability.”

Whatever the type of framework, the areas of action are scattered throughout the ISO 37101 issues/purpose framework.

An approach is needed to bring together the various action areas. The USM Platform does this by treating each of the frameworks as a perspective: the requirements and indicators for a particular issue/purpose are organised according to overlapping layers corresponding to each perspective (see the figure below).

Taken together, the various perspectives provide the basis for:

- a comprehensive logbook of decisions made and follow up actions for each ISO 37101 purposes/action area;
- management tools to implement the ISO 37101 standard.



Indicators

Part of any sustainable development strategy, and therefore part of a sustainability management system, is a set of indicators to monitor and assess progress against both overall goals and specific targets.

The USM Platform recognises that:

- individual indicators in standard indicator frameworks allow the detailed assessment of specific policies in defined action areas (these indicators are essentially Key Performance Indicators - KPIs);
- composite indicators allow an explicit assessment of trade-offs between policies in different action areas (for instance, it is impossible to provide policy advice based on indicator sets given that no policy exists that would improve all KPIs).

However, decisions have to be taken in constructing composite indicators. This discussion is very similar to the discussion about the inclusion or omission of indicators that will have taken place among the developers of the indicator frameworks.

In both cases the discussion is about the weights given to specific targets.

The USM Platform's general rules for presenting indicators are therefore:

- indicators in the indicator frameworks for certain perspectives truly to assess specific policies and defined action in specific action areas (they are KPIs);
- consolidation of individual indicators is transparent with explicit communication of the transformation, weighting, and aggregation schemes applied for composite indicators to provide clear information and rules for the assessment of trade-offs between policies.

The platform strategy is therefore to:

- facilitate access to the individual indicators (their scores, benchmarks, weighting, evaluation method, etc.);
- facilitate the creation and visualisation of composite indicators that assess trade-offs between different policies in the various action areas.

The perspective approach meets both goals:

- a perspective organises a set of individual indicators to evaluate progress in a specific policy action area;
- combining overlapping perspectives generates composite indicators to evaluate policy trade-offs.

Once again, ISO 37120 supports the USM Platform's approach since it recognises that trade-offs need to be considered ("... it is also important to acknowledge potential antagonistic effects of the outcome of particular indicators, either positive or negative, when analysing results.")

Overview

The various components of the USM Platform are best understood by describing how the platform functions. A user logs on in the usual way (Screen 1).

37101 USM Managing 37101 metrics

LOGIN

Please register to use the platform | [Register](#)

[Info](#)

Username or email address

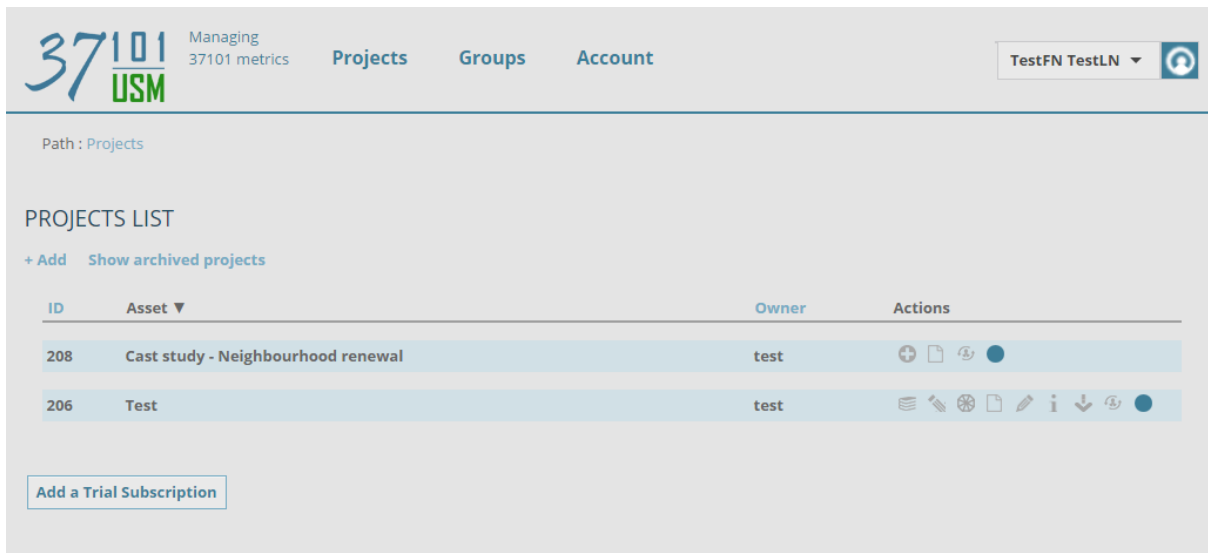
Password

[Login](#)

[Register?](#) | [Forgotten password?](#) | [Forgotten username?](#)

Screen 1 – User logon

The user is then presented with the main menu showing a list of projects, with a row of action icons to the right for each project (see Screen 2).



Screen 2 – Main menu

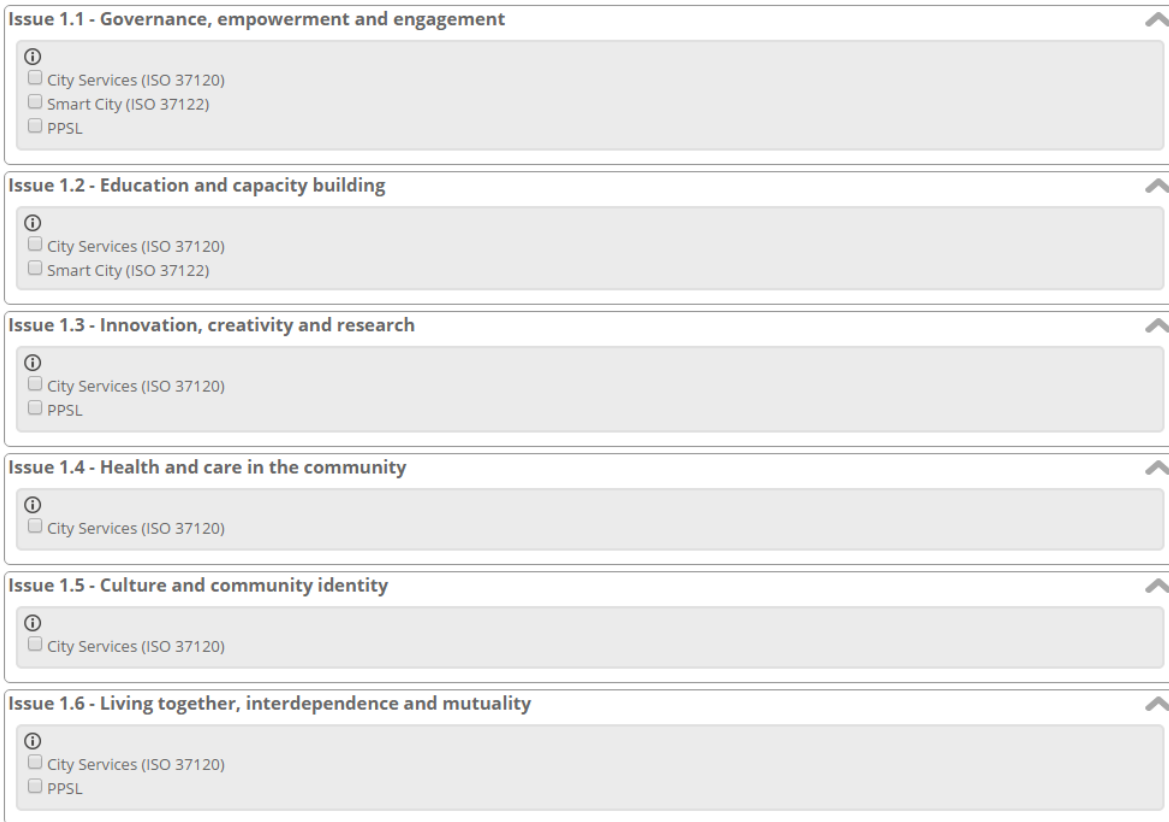
The first icon button is for the initial overview. For a high-level user such as a city department charged with establishing an ISO 37101 management system, this overview would usually correspond to the outcome of the baseline review required by the standard.

For a user at a lower level such as a proposed project to renew a city neighbourhood, the summary of the initial overview would normally form part of documentation submitted for planning permission or procurement purposes.

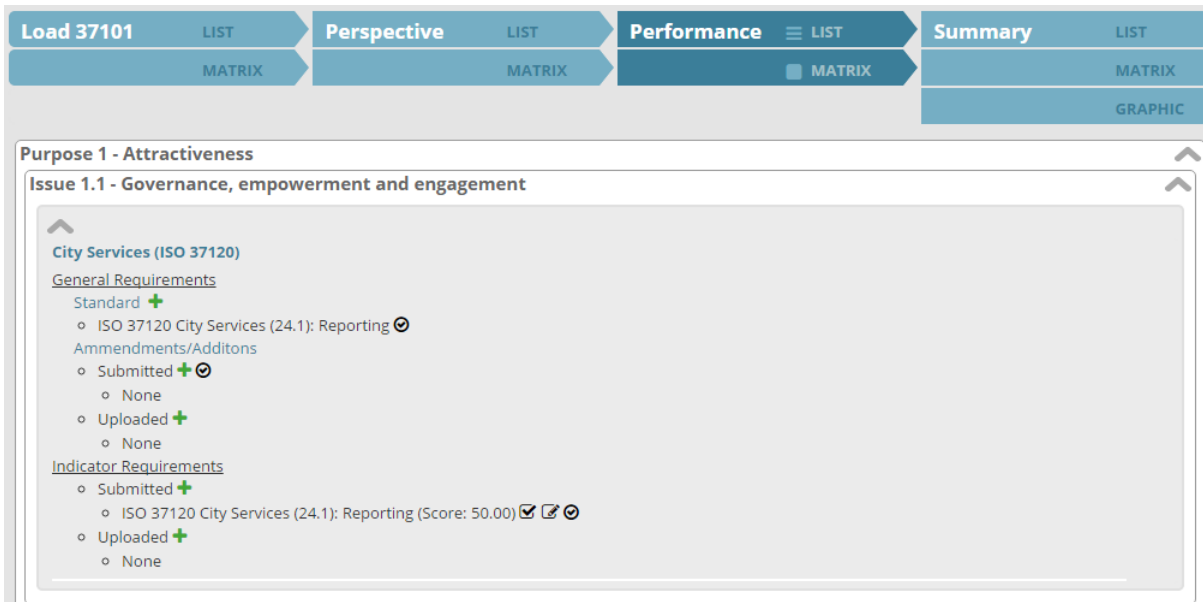
The initial overview icon brings up the four tabs (*Load 37101*, *Perspective*, *Performance*, and *Summary*). *Load 37101* simply loads the ISO 37101 issue/purpose framework.

Perspectives are activated (or deactivated) under the *Perspective* tab, which brings up the framework as a list or matrix display with each list item or matrix cell giving the appropriate indicators for each perspective (see Screen 3).

Indicators are specified on the *Performance* tab, where each list item or matrix cell is divided into a section for each perspective. Within a perspective section there is a section for *General Requirements* and a section for *Indicator Requirements* (see Screen 4).



Screen 3 – Perspective table showing indicators for three perspectives assigned to the various ISO 37101 issue/purpose categories (the purpose in this case is Attractiveness). A matrix view is also available.



Screen 4 – On the Performance tab, the perspective’s issue/purpose category are divided into sections for *General Requirements* and *Indicator Requirements*.

The *General Requirements* sections give:

- a summary of ISO 371010 requirements (Screen 5a)

- indicator requirements (Screen 5b)
- indicator assessment framework (Screen 5b)
- indicator (Screen 5b)

for the indicators proposed by each perspective.

These general requirements are wherever possible taken from the standards-based documentation that specifies the requirements. For example, the ISO 37120 City Services standard (see Screen 5a,b) summarises the ISO 37101 for the issue/purpose category (Screen 5a) to one of the standard's indicators together with details of the assessment method and the indicator to be reported detailed on the lower part of the screen (Screen 5b).

The user can opt not to select the assessment method taken from the standard and use instead a custom assessment method.

ISO 37101 (1.2) Attractiveness - Education and capacity building
Project: Tanga (Tanzania) city block redevelopment

ISO 37101 STRATEGY	<p>ISO 37101 - 1.2 (Attractiveness - Education and capacity building)</p> <p>Attractiveness (namely the appeal to citizens and other interested parties) is measured in terms of:</p> <ul style="list-style-type: none"> • economic development; • appeal to citizens; • appeal to investors; • culture; • place; • sense of identity. <p>The Requirements, Assessment and Indicator(s) are defined by a strategy which identifies the actions to be undertaken.</p> <p><u>Strategy</u></p> <p>Education and capacity building at the individual, organizational and community level raises awareness, knowledge and skills that contribute to sustainable development, smartness and resilience.</p> <p>Action in the areas of education and capacity building must aim to achieve the purpose (Attractiveness).</p>
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Screen 5a – The ISO 37101 section of the *General Requirements* information for a City Services indicator.

City Services (ISO 37120): Assessment and Indicator

City Services - ISO 37120 (6.4): Youth unemployment
[multi-purpose indicator in Issue/Purpose: 1.2, 1.3, 1.6, 1.7, 3.2, 3.6, 3.7, 5.2, 5.6, 5.7, 6.2, 6.6, 6.7]

MULTI-PURPOSE INDICATOR

The unemployment rate is probably the best-known and most used labour market performance indicator. Youth Unemployment Rate is key indicator for quantifying and analyzing the current labour market trends and challenges of young people.

Young men and women today face increasing uncertainty in their hopes of undergoing a satisfactory transition in the labour market, and this uncertainty and disillusionment can, in turn, have damaging effects on individuals, communities, economies and society at large. Unemployed or underemployed youth are less able to contribute effectively to community and national development and have fewer opportunities to exercise their rights as citizens. They have less to spend as consumers, less to invest as savers and often have no voice to bring about change in their lives and communities.

Widespread youth unemployment and under-employment also prevents companies and countries from innovating and developing competitive advantages based on human capital investment, thus undermining future prospects. Knowing the costs of no action, many governments around the world do prioritise the issue of youth employment and attempt to develop proactive policies and programmes.

ASSESSMENT

User-specified reference framework used.

ASSESSMENT

Youth labour force are all persons above the legal working age and under 24 years of age, who are either employed or unemployed over a specified reference period.

Countries vary somewhat in their operational definitions of youth, in particular, the lower age limit for young people is usually determined by the minimum age for leaving school, where this exists.

Unemployed youth are individuals above the legal working age and under 24 years of age who are without work, actively seeking work in a recent past period (past four weeks), and currently available for work (registered students are not counted). Youth who did not look for work but have a future labour market stake (arrangements for a future job start) are counted as unemployed (International Labour Organization). Discouraged workers or hidden unemployed shall not be counted as unemployed or as part of the labour force. Not actively seeking work shall refer to people who have not taken active steps to seek work (i.e. job searches, interviews, informational meetings etc.) during a specified recent period (usually the past four weeks).

INDICATOR

The youth unemployment rate is the total number of unemployed youth divided by the youth labour force, expressed as a percentage.

Screen 5b – The assessment section of the *General Requirements* information for a City Services indicator. In this case the user has selected to use the assessment method proposed by the standard instead of using a custom-made method.

The *Indicator Requirements* section specifies the performance target, evaluation method and indicator score. The performance target puts into words what the indicator is aiming to achieve. The evaluation method considers benchmarks and other data needed to establish the indicator score. Information at this level of detail is usually not provided by perspective documentation and must be developed and entered by the user.

It is of course possible to expand considerably the amount of information made available. Links are used wherever possible to limit the amount of information. The aim in general is to limit information to that needed by the user to specify the *Indicator Requirements*.

Data entry

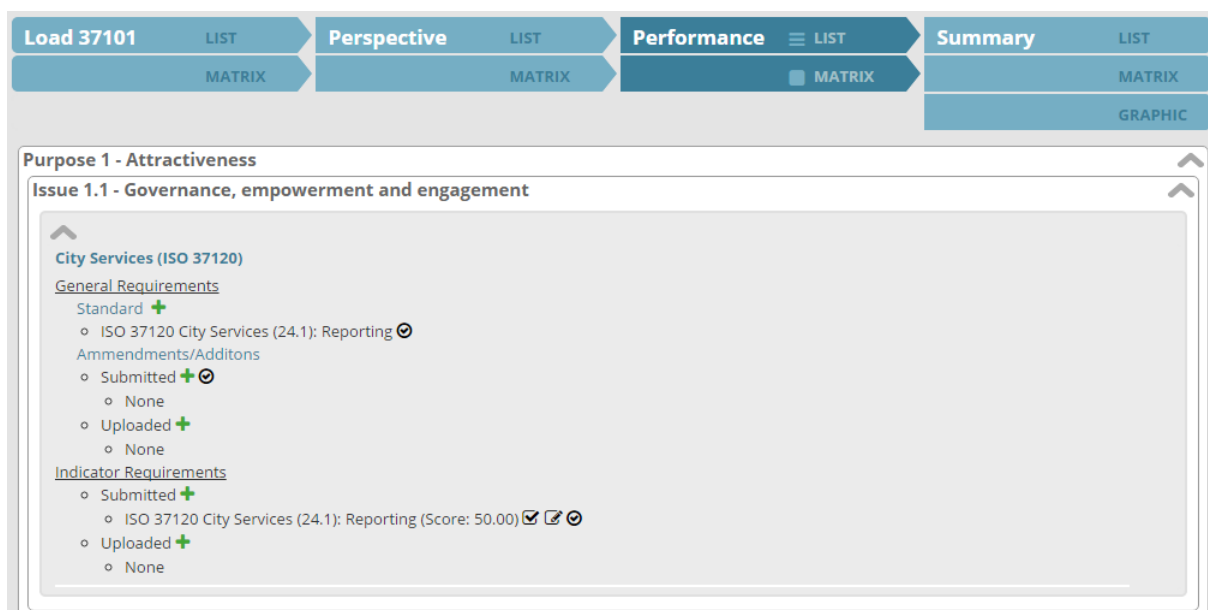
For each section (*General Requirements; Indicator Requirements*), clicking a data entry plus icon on the screen brings up screens for data entry.

For *General Requirements*, options from the perspective's standard documentation can be selected. As mentioned above, the user may choose to select none (because the strategy planning process has demonstrated that the issue/purpose category is not significant or because a custom requirements will be provided). For some perspectives, there may be several indicators available; the user selects one of more depending on the strategy and policies for the issue-purpose category.

In some cases the user may wish to add to or modify the *General Requirements*, or indeed enter new requirements. This can be done under the *Amendments/Additions* entry (see Screen 4) .

For *Indicator Requirements*, the plus icon brings up a data entry form where the user enters an indicator title, target performance, evaluation method, and score. Often the indicator will be the same as that specified in the *General Requirements* and from which the indicator title is simply copied and pasted.

For both *General Requirements* and *Indicator Requirements*, the user has the option of uploading files to add complementary or more detailed information without needing to submit data.



Screen 5 – Performance data entered under *General Requirements* and *Indicator Requirements*.

The outcome of the various date-entry manipulations will be a screen resembling Screen 5. In this case, the user has selected a standard *General Requirement* without changes and has chosen the standard's indicator.

Initial overview summary

The initial overview's *Summary* tab simply consolidates and summarises the data entries for ease of presentation.

In some cases, a user may wish to “freeze” the summary as an unchanging record of the outcome of what has been proposed in the case of say project design.

Generally speaking however, users will not freeze the summary before moving to a stage (by clicking a *Stages* button). This is because most users will use the platform to compare the outcomes for different perspectives. They will do this by activating or deactivating perspectives on the initial overview's *Perspective* tab.

Stage data

The platform is currently designed to allow users to enter indicator data for up to four stages.

The screenshot shows a navigation bar at the top with four stages: Stage 1, Stage 2, Stage 3, and Stage 4. Each stage has three options: LIST, MATRIX, and GRAPHIC. Below the navigation bar is a scrollable list of perspectives for 'Issue 1.2 - Education and capacity building'. The perspectives are: City Services (ISO 37120), Smart City (ISO 37122), and PPSL. Each perspective has a 'General Requirements' section with a checked 'Standard' and an 'Initial Indicator' section with a score. A 'Stage Indicator' section with a plus sign is visible for each perspective, indicating where a stage indicator can be added.

Screen 7 – Stage display showing where a stage indicator is added for each perspective.

A *Stage* display (see Screen 7) for the ISO 37101 Attractiveness - Education and capacity building category that has its City Services, Smart City (the draft ISO 37122 standard) and PPSL perspectives activated, shows what has been decided for the initial overview (*General Requirements* and *Initial Indicator*) for each perspective.

A stage indicator with its score is entered for each perspective. Normally this indicator will be the same as the indicator defined for the initial overview, but it is possible that changed requirements lead, for example, to a modified evaluation method which needs to be entered.

Communicating indicator-based assessment

Indicator-based assessments are reported:

- 1) at the individual indicator level,
- 2) at a group level (an individual indicator is presented in combination with several indicators in a list or table),
- 3) as a non-interactive aggregated dashboard (the result of an assessment is communicated for a number of indicators collectively which, if it was presented alone, would not allow the user to know which indicator contributed to the aggregated information, nor to what extent).



Screen 8 – A non-interactive dashboard showing charts for purpose and issue scores for three perspectives (City Services, Smart City, PPSL) at the initial overview stage. The small pie charts give the breakdown of issues into purposes and vice versa.

The interactive form of type 3 allows a user to trace how each indicator contributed to the aggregated information (see European Union handbook: *Getting messages across using indicators*).

Indicators scores can be compared once scores have been entered for sufficient issue/purpose categories for several perspectives. A commonly used group-level presentation for indicator sets organised under the ISO 3701 indicators is to compare purpose scores (a purpose score is the average of the scores, generally unweighted, for the indicators that correspond to an issue/purpose category).

In general however, indicator sets presented as groups are grouped according to themes, usually to provide a sustainability profile.

The USMS Platform provides both options, as demonstrated in Screen 8. This screen shows a non-interactive aggregated dashboard with radar charts in the centre for purpose (left) and issues (Right) for three perspectives at the initial overview stage.

Under each purpose chart there are pie charts giving the issue contribution to each purpose.

Similarly, under each issue chart there are pie charts giving the purpose contribution to each issue.

This type of dashboard allows a user to gauge trade-offs. One can for example verify that sustainability (purpose) scores improve for all purposes under all perspectives, which is generally the requirement, even though one or more issue (action) scores decrease.

Further refinements are possible. At first glance, purpose groupings reflect trade-offs such that at the very least, a time-series analysis should be able to determine whether there had been a decrease in a sustainability purpose between stages, something that is presumably unacceptable.

A similar analysis for theme scores showing that a grouped theme score had decreased with time would presumably correspond to a decreased contribution from the corresponding ISO 37101 action area. This might be acceptable provided that none of the purpose scores had decreased.

Adding interactive will also undoubtedly open up opportunities further analysis.

At the current stage, the presentation of purpose and theme scores is simply to demonstrate that the platform can manipulate individual indicators (that reflect the progress of actions in specific policies areas) to give grouped indicators and dashboards.

Given that many other types of visualisation can be envisaged, the challenge is to establish those that are useful, either for high-level administrative users or for say project developers.

Scores are currently not weighted. This is easily changed, with weights entered by users if this is wanted. Scoring formula and aggregation methods for composite indicators can also be introduced.

A significant problem is how to handle multi-purpose indicators that are used by some framework standards (the same indicator appears in more than one issue/purpose category). After much discussion, the current recommendation for the United Nations Sustainable Development Goals is to disaggregate multi-purpose indicators and use the appropriate disaggregated component in the most relevant issue/purpose category. This approach will be adopted by the USMS Platform.

Certification

Certification is an important issue for any management system. ISO 37101 allows an organization to “claim conformity” to the standard (i.e., self-certify) without necessarily undertaking second-or third-party certification (something that cities and local authorities find difficult to accept).

ISO 37101 self-certification:

- is (obviously) “not acceptable” unless “all ISO 37101 requirements are incorporated into an organization’s management system ... and fulfilled without exclusion”;
- is subject to the WTO “explanation on the meaning of ISO specific terms and expressions related to conformity assessment”;
- requires that the management system requirements include:
 - a baseline review,
 - planned internal audits,
 - planned management reviews.

Only management reviews are scrutinised externally (“Communities shall ensure recognition of the management reviews by their respective appointed or elected representatives.”).

It is noted that ISO Supplementary Information states that “ISO International Standards and other normative ISO deliverables (TS, PAS, IWA) that do not contain requirements (i.e. do not contain the verbal expression “shall”) are not intended to be used for conformity assessment.” ISO 37101 requires that communities “shall” ensure recognition so under ISO 37101, community representatives are responsible for challenging a 37101 claim of conformity (a form of self-certification) and can withdraw the claim.

The fact that a city for example can claim conformity (self-certify) and thereby declare that it meets ISO 37101 requirements is a major incentive for all interested parties to become involved. Aside from allowing a logo attesting to compliance to be displayed, a management system that meets the standard’s requirements brings major benefits:

- Global benefits
 - A common language to articulate issues and propose solutions.
 - An enhanced contribution to sustainable development.
 - Synergy effects whereby experience and practice in one community is transferred to another.
 - A comprehensive and structured participation by interested parties.
- Strategic benefits for the community
 - Enhanced sustainability and resilience
 - Proactive engagement
 - Risks and opportunities identified
 - Recognition and performance assessment
- Organizational benefits for the community
 - Consensus within the community
 - Interested party involvement
 - An holistic approach that breaks down the tendency for service infrastructure to develop in separate silos.
 - Robust, process-based methodology
 - Sound planning

User scenarios

Given the important benefits but not underestimating the technical difficulties of manipulating indicator scores to generate indicator dashboards, of high priority is the development of visualisation approaches that convey relevant indicator information accurately and in interesting ways to different types of interested parties.

Decisions here will be based on how the platform is used. A few possible scenarios are summarised in the table below for:

A: a high-level organization charged by a local public authority to implement and maintain an urban management system for a city.

B: a specific project (for example, renewal of a city neighbourhood).

	High-level organization	Lower-level project
Monitoring overall performance	Determine indicator scores at various stages.	
Identifying areas of action (city) or design (project) needing attention owing to a weak contribution to a purpose of sustainability	Evaluate purpose scores.	
Project evaluation	Compare purpose scores with and without the proposed renewal.	
Conformity assessment (self-certification)	Maintain documented information needed by ISO 37101	

Conclusions

Aside from structuring, organising and making accessible the large amount of information needed to support a certifiable ISO 37101-compliant urban management system indicators, the Urban Sustainability Management platform provides a powerful tool for evaluating a project's contribution to community and urban sustainability.

The platform ensures that the project, either proposed, planned or in operation, is in conformity with a community's requirements as articulated by the management system's policies and strategies.

Future development of indicator dashboards will continue together with an evaluation of online tools to help users develop the context and strategies for an urban management system.

Information

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Footnote

The Urban Sustainability Management Platform builds upon the Project/Programme Sustainability Logbook (PPSL) and its user platform (ppsl.online) that was developed by FIDIC, EFCA, SYNTEC-Ingénierie and their partners.

Throughout the life-cycle of a project or programme, a PPSL allows interested parties to define and monitor sustainability issues and objectives with respect to agreed benchmarks using established reference frameworks such as national and international standards.

A PPSL is unique in that it comprises an overall monitoring table, generally established at the planning phase, which defines objectives and targets against which specific indicators are evaluated during subsequent phases. This approach provides a clear appreciation of the issues and the level of commitment to ongoing undertakings, thereby ranking the issues and making the engagement for sustainable development more coherent.

ppsl.online and its associated on- and off-line products are currently operated, maintained and developed under licence by Bricad Associates, Switzerland, with FIDIC by agreement charged with updating the PPSL documentation incorporated into these on- and off-line products.

The USMP Platform at usmp.online is developed by Bricad Associates under the agreement with the owners of PPSL. The platform will enter production once ISO indicator sets are finalised in 2017. Meanwhile, the platform is available as a teaching and didactic tool to explore how ISO 37101 information is organised and displayed.

Technical note

Bricad's ISO 37101 platforms are built upon the Django CMS and use d3.js Javascript libraries for visualisation.

APPENDIX

Satisfying the ISO 37101 context requirement

The ISO 9001 Quality Management standard requires documented evidence of a strategic planning process that covers all of the management system's areas of action and is the basis for strategies for each area that address the principles upon which the quality management system is based.

For 37101, the areas of action are called "issues" and the "principles" are called "purposes" (they are the purposes of sustainability in the same way as the purpose of quality management is to implement the principles of quality management).

A typical strategic planning process for ISO 9001 is summarised below. A similar process is envisaged for ISO 37101.

A. Introduction

For ISO 9001, "The organization shall determine external and internal factors (the "context") that are relevant to its purpose and its strategic direction."

- external factors: legal, technological, competitive, market, cultural, social, and economic environments.
- internal factors: values, culture, knowledge and performance of the organization.

The context must cover the following action areas (for ISO 37101 these are called "Issues"):

- Innovation management
- Change management
- Knowledge management
- Risk management
- Stakeholder management

Audits and management reviews will ask:

- "Does the QMS have a strategic planning process covering every perspective?"
- "Does the strategy for each perspective satisfy the principles of a QMS (for ISO 37101 these are called "Purposes")?"

ISO 9001 principles ("purposes" in ISO 37101) are:

- Customer focus: able to adapt to future customer needs.
- Leadership: unified direction; strong leadership.
- Engagement: competent and empowered staff at all levels of the organization.
- Process approach: implemented.
- Improvement: able to react to change.
- Evidence-based decision: data is available.
- Relationship management: able to identify important relationships with interested parties.

B. Approach

The usual strategic planning process has two stages:

- Stage 1: identify the best overall (organization-level) strategy.
- Stage 2: identify the strategy for each action area.

C. Stage 1: Optimum overall strategy

Step 1 - Rank internal and external factors

Internal factors

TABLE 1

Types of factors (ISO recommends: values, culture, knowledge, performance):

External factors

TABLE 2

Types of factors (ISO recommends: legal, technological, competitive, market, cultural, social and economic environments):

Step 2 - Strategy type: plot weighted scores on a SWOT matrix.

TABLE 3

Step 3 - Alternative strategies: match factors.

TABLE 4

Step 4 - Best organization strategy: use weight and attraction scores (how important is each factor for each alternative strategy?)

TABLES 1,2

D. Stage 2: Strategy for each action

Step 1 - Assign a perspective to each matched factor

TABLE 4

Step 2 - Strategy map: plot matched factors by perspective

TABLE 5

Step 3 - Strategy map: identify links between actions to identify the optimum strategy for each action area.

TABLE 5

Table 1: Internal factors (values, culture, knowledge, performance)

- Organization
- System
- Customer processes
- Resources

Factors					Attraction			
					Alternative strategy 1		Alternative strategy 2	
Internal		Score 0 - 4	Weight 0 - 1	Weighted score	Score 0 - 4	Weighted score	Score 0 - 4	Weighted score
Strengths								
1								
2								
3								
4								
5								
Weaknesses								
1								
2								
3								
4								
5								
			1					

Table 2: External factors (legal, technological, competitive, market, cultural, social and economic environments from a customer perspective)

- Politics
- Regulations
- Market
- Environment
- Interested parties

Factors					Attraction			
					Alternative strategy 1		Alternative strategy 2	
External	Score 0 - 4	Weight 0 - 1	Weighted score		Score 0 - 4	Weighted score	Score 0 - 4	Weighted score
Opportunities								
1								
2								
3								
4								
5								
Threats								
1								
2								
3								
4								
5								
		1			Average		Average	

Table 3 - Strategy type: plot the total weighed scores of factors to give the strategy type.

		Weaknesses	Strengths
		0	4
Opportunities	4		
Threats	0		

Table 4 - Alternative strategies: match factors

Factors		Strategy		Action Area
Internal	External	No	Title	
		1		
		2		

For Tables 1, 2 - Best strategy: for alternative strategy: score attraction for each factor (Step 1 table)

Score	Strategy 1	Strategy 2
Internal factors		
External factors		
Average		

Tables 5 - Strategy map

Action area	
Governance	
Education	
Knowledge management	
Risk Management	
Stakeholder management	