Second Technical Study to support the establishment of a common European scheme for rating the Smart Readiness of Buildings

First stakeholder meeting
26 March 2019, Brussels
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<th>Time</th>
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Welcome

Claudia Canevari
EC DG ENERGY
Introduction and agenda

Stijn Verbeke
VITO/EnergyVille
A greater uptake of smart technologies is expected to result in significant energy savings in a cost-effective way, while helping to improve comfort and occupant satisfaction and enabling buildings to play a key role in smart energy systems.
Smart Readiness Indicator in the EPBD


The indicator is intended to raise awareness about the benefits of smart technologies and ICT in buildings (from an energy perspective, in particular), motivate consumers to accelerate investments in smart building technologies and support the uptake of technology innovation in the building sector.
2nd technical support study for the SRI establishment

ENER/C3/2018-447
"Support to the establishment of a common European scheme for rating the smart readiness of buildings“

Website  https://smartreadinessindicator.eu/

Consortium

Aim  Provide technical inputs to feed the establishment of the SRI of buildings by the European Commission and the related proposals for delegated and implementing acts, in accordance with the provisions of the revised EPBD.

Timeline  Dec 2018 – June 2020
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Policy making process

Sylvain Robert
EC DG ENER
Brief description of the outcomes of the first study

Stijn Verbeke
VITO/EnergyVille
SRI 1st technical support study

ENER/C3/2016-554

Aim
To provide technical support to the DG Energy in order to investigate the possible establishment of an SRI under the EPBD.
- Study led on the basis of the EC proposal,
- Focus on the calculation methodology.

March 2017 – August 2018

Verbeke S., Waide P., Bettgenhäuser K., Uslar M.; Bogaert S. et al.; “Support for setting up a Smart Readiness Indicator for buildings and related impact assessment - final report”, August 2018; Brussels
“Smart readiness” aspects considered

1. The ability to adapt its operation mode in response to the needs of the occupant paying due attention to the availability of user-friendliness, maintaining healthy indoor climate conditions and ability to report on energy use.

   e.g. use of CO2 sensors to decide when to increase ventilation

   e.g. Dashboards displaying current and historical energy consumption
“Smart readiness” aspects considered

2

The ability to maintain energy efficiency performance and operation of the building through the adaptation of energy consumption for example through use of energy from renewable sources

- e.g. Management of heating and lighting system based on occupancy sensors
- e.g. Load-shifting to increase self-consumption of local generated renewable energy
“Smart readiness” aspects considered

The flexibility of a building's overall electricity demand, including its ability to enable participation in active and passive as well as implicit and explicit demand-response, in relation to the grid, for example through flexibility and load shifting capacities.

e.g. Reduce power consumption when grid demand is high
Proposed SRI methodology

I. Determine the individual smart ready services present in a building
II. Assess the impact score of the service according to various impact criteria (checklist approach)
III. Derive an overall score using a multi-criteria assessment method
ONE SINGLE SCORE CLASSIFIES THE BUILDING’S SMART READINESS

**8 IMPACT CRITERIA**

- Energy
- Flexibility
- Self-generation
- Comfort
- Convenience
- Health & well-being
- Tech. follow-up
- Info to occupant

Total score is based on average of total scores on 8 impact criteria.

An impact criterion score is expressed as a % of the maximum score that is achievable for the building type that is evaluated.

Not every domain is considered to be relevant for each impact criterion.

**10 DOMAINS**

- Heating
- Domestic hot water

A domain score is based on the qualitative evaluation of the implemented services on the impact criterion considered.

**EACH DOMAIN COVERS A SET OF SERVICES**

The qualitative evaluation depends on the service's functionality level.

**QUALITATIVE IMPACT OF A SERVICE ON ALL IMPACT CRITERIA**

- Heating serv. A
- Heating serv. B
- Heating serv. C
- Heating serv. D
- Heating serv. E
- Heating serv. F
- Heating serv. G
- Heating serv. H
- Heating serv. I
- Heating serv. J
- Heating serv. K
- Heating serv. L

For each service several functionality levels are defined. The higher the functionality level, the higher it's expected contribution to an impact criterion.
Example building: EnergyVille I office, Genk, Belgium
Example building: EnergyVille I office, Genk, Belgium

- **STEP 1: Triage:** which smart ready services are relevant for this building?

  *e.g. if there is no domestic hot water storage, services on controlling such storage are irrelevant for this building*

For the EnergyVille I building, 44 services remain to be assessed after the triage.
Example building: EnergyVille I office, Genk, Belgium

- STEP 1: Triage: which services are relevant for this building?
  
  *e.g. if there is no DHW, there is no need to inspect how this is controlled*

- STEP 2: assess the functionality level of each service

**Example:**

<table>
<thead>
<tr>
<th>Service</th>
<th>Functionality level 0 (as non-smart default)</th>
<th>Functionality level 1</th>
<th>Functionality level 2</th>
<th>Functionality level 3</th>
<th>Functionality level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupancy control for indoor lighting</td>
<td>Manual on/off switch</td>
<td>Manual on/off switch + additional sweeping extinction signal</td>
<td>Automatic detection (auto on / dimmed or auto off)</td>
<td>Automatic detection (manual on / dimmed or auto off)</td>
<td></td>
</tr>
</tbody>
</table>
Example building: EnergyVille I office, Genk, Belgium

inspecting the various services
Example building: EnergyVille I office, Genk, Belgium

- **STEP 1:** Which services are relevant for this building?
  
  *e.g. if there is no DHW, there is no need to inspect how this is controlled*

- **STEP 2:** Assess the functionality level of each relevant service

- **STEP 3:** Calculation: count impact scores and apply weightings

- **STEP 4:** Calculation: What is the maximum obtainable score?

- **STEP 5:** Calculate normalised SRI score
Example building: EnergyVille I office, Genk, Belgium

Result

<table>
<thead>
<tr>
<th></th>
<th>Energy</th>
<th>Flexibility</th>
<th>Self-generation</th>
<th>Comfort</th>
<th>Convenience</th>
<th>Wellbeing and Health</th>
<th>Maintenance &amp; fault prediction</th>
<th>Information to occupants</th>
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<tbody>
<tr>
<td>Ordinal impact</td>
<td>54</td>
<td>18</td>
<td>5</td>
<td>34</td>
<td>42</td>
<td>13</td>
<td>16</td>
<td>20</td>
</tr>
<tr>
<td>case study building</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum obtainable score for the case study building</td>
<td>73</td>
<td>25</td>
<td>5</td>
<td>45</td>
<td>61</td>
<td>19</td>
<td>23</td>
<td>30</td>
</tr>
<tr>
<td>Relative score</td>
<td>74%</td>
<td>72%</td>
<td>100%</td>
<td>76%</td>
<td>69%</td>
<td>68%</td>
<td>70%</td>
<td>67%</td>
</tr>
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</table>

Overall score after weighting: **77%** of the potential smartness impacts can be achieved
Workplan and tasks for the 2nd SRI study

Paul Waide  
WSE

Glenn Reynders  
VITO/EnergyVille
Overview of tasks

Task 1 - SRI definition and calculation method

Task 2 - Implementation pathways and format of SRI

Task 3 - Effective SRI Implementation

Task 4 - Impact assessment
  - Building level impact simulations
  - Impact scenario definitions
  - Aggregation EU-level impacts
  - Sensitivity study

Task 5 - Stakeholder consultation & Project website

Task 6 - Support to the policy making process
TASK 1: Technical support for the consolidation of the definition and the calculation methodology of the SRI

• **Objective:** provide technical recommendations on the consolidation of the SRI definition, the corresponding smart ready services catalogue, and the SRI calculation methodology

• **Activities** (Jan 2019 – March 2020)
  1. A targeted state-of-the-art review
  2. Technical recommendations for the consolidation of the definition of the SRI
  3. Technical recommendations for the consolidation of the calculation methodology of the SRI

• **Timeline**

  - **Activity 1**
    - Jan 2019 - April 2019
  - **Activity 2**
    - Jan 2019 - March 2020
  - **Activity 3**
    - Jan 2019 - March 2020
Approach and methodology

• A targeted state-of-the-art review
  • Output of the first technical study
  • Other relevant initiatives

• Technical recommendations for the definition of the SRI
  • Review findings of task 1.1 and assessment of 1st SRI study report (scope, etc.)
  • Consistent with amended EPBD
  • Consolidation of the catalogue of smart ready services

• Technical recommendations for the development of the calculation methodology of the SRI
  • Ordinal scores for the smart services and aggregation scheme
  • Possible adaptations according to context (climate, building type, etc.)
  • Different propositions of weighting schemes
TASK 2: Investigation of SRI implementation pathways and of the format of the SRI

- **Objective** investigate possible pathways for the effective implementation of the SRI and highlight most adequate options for the format of the SRI

- **Activities** (Jan 2019 – April 2020)
  1. Establishment of the SRI implementation pathways
  2. Investigation of the format of the SRI

- **Timeline**

<table>
<thead>
<tr>
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Approach and methodology

1. Establishment of the SRI implementation pathways
   - identification of the schemes and initiatives on which the SRI could build or connect to, in order to facilitate its implementation
   - identification and analysis of the possible options for implementing the SRI at EU-level and at Member States-level
   - defining a set of robust and flexible implementation pathways for the roll-out of the SRI in the EU

2. Investigation of the format of the SRI
   - conduct research to determine potential designs for the format of the SRI and take on board stakeholder views
   - work with graphic designers to derive sample of options
   - test options with end-user focus groups and a survey of facility/property portfolio managers
TASK 3 Guidance for effective SRI implementation

- **Objective** investigate possible pathways for an effective implementation of the SRI in the EU

- **Activities** (Jan 2019 – Apr 2020)
  1. Operational, organizational and legal design options for SRI scheme
  2. Technical recommendations for the efficient and cost-effective assessment of the SRI
  3. Guidelines for the management of the SRI after adoption

- **Timeline**

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Approach and methodology

• T3.1 - Operational, organizational and legal design options for SRI scheme
  • Under this activity a guidance “toolkit” for the effective implementation of the SRI in accordance with this/these pathway(s) will be developed

• T3.2 - Technical recommendations for the efficient and cost-effective assessment of the SRI
  • This activity translates the definition and calculation methodology consolidated in Task 1 into technical recommendations and guidelines for the efficient and cost-effective assessment of the SRI

• T3.3 - Guidelines for the management of the SRI after adoption
  • Develops guidelines on how best to manage the SRI in response to change/new services
TASK 4: Quantitative modelling and analysis of the impact of the SRI at EU Level

• **Objective** to quantify the costs and benefits of implementing SRI in the EU building sector for the horizon of 2030, 2040, 2050, encompassing the different implementation pathways proposed in Task 2 and targeting an extensive set of impact domains focusing on, but not limited to energy.

• **Activities** (Jan 2019 – Dec 2019)
  1. Determining the building level impact of smart technologies and services
  2. Definition of impact scenarios reflecting policy options
  3. Aggregation of individual variants and calculation scenarios
  4. Sensitivity analysis

• **Timeline**

<table>
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Approach and methodology

• Bottom-up calculation approach starting from building level impacts
  • Selection of reference buildings: 20 reference buildings will be selected to represent EU building stock, covering 6 types of buildings (SFH, MFH, offices, retail buildings, schools, hotels). 5 HVAC and BAC-(SRT-) system configurations for each reference building.
  • Quantifying the impact of SRT using accepted calculation standards and available scientific literature complemented by state-of-the-art and validated building simulation software.

• Building further on the outputs and data collected from the preliminary impact study performed in the first technical study for the SRI
  • Expand by:
    • Benchmarking – more detailed insights – of building-level impact
    • Increased population of building types (as required for Tasks 1 and 3)
    • Diversifying and further detailing impact scenarios to reflect the implementation pathways
    • Broadening the set of analyzed benefits compared to the primarily energy-efficiency oriented approach followed in the first technical study
      • Renewable up-take (self-production) / Energy security (self-supporting; demand response) / Comfort and health (indoor air quality and thermal comfort)
TASK 5: Stakeholder consultation and study website

- **Objective**: establish an open and inclusive consultation process to provide support to the development of the SRI, by ensuring that all relevant stakeholders are involved and have the opportunity to express their views on the project.

- **Activities** (Jan 2019 – June 2020)
  1. Organization of stakeholder consultation meetings
  2. Development and maintenance of project website

- **Timeline**

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TASK 6: Support to the policy making process

• **Objective:** provide the Commission with analytical support during the policy making process with respect to the development and approval of the SRI.

• **Activities** (Jan 2019 – Dec 2019)
Draft planning of project events

December 2018  Project started
March 2019    1st stakeholder meeting (26/03/2019)
September 2019 Testing phase
October 2019   2nd stakeholder meeting
March 2020    3rd stakeholder meeting
End of June 2020 Final version of final report
Overview main questions guiding the study

Paul Waide
WSEE
Q1 | Is the consolidated SRI scheme complementary to relevant existing initiatives and schemes, e.g. EPCs?

• KPI: The complementarity of the SRI to other relevant initiatives is established

• Metrics:
  • A: Other initiatives are identified and listed in the study reports
  • B: Investigation and documentation in the study reports of beneficial alignment procedures to other labels, initiatives and legislation
  • C: Tests of combined assessment between the SRI and other initiatives on a sample of buildings are conducted
Q2 | Does the SRI provide a fair and well-balanced representation of smart technologies while remaining technology neutral?

- **KPI:** The thoroughness, relevance and balance of the SRI framework regarding the state-of-the-art of SRTs is established

- **Metrics:**
  - **A:** The rationale for the scope and services to be included in the framework is defined and justified
  - **B:** A process to consolidate stakeholder input on services and weightings is defined
  - **C:** Majority of MS and industry stakeholders confirm that they approve of the proposed list of Smart ready services
Q3 | Is the SRI framework applicable to different building contexts and typologies?

- **KPI:** The SRI is applicable to the EU building stock
- **Metrics:**
  - A: An assessment of the applicability of the SRI to different building segments and climatic zones is documented in the study reports
  - B: Stakeholder / MS feedback on the assessment of the applicability of the SRI is positive
  - C: The applicability of the SRI is confirmed by the feedback from the testing phase
Q4 | Is the SRI scheme practically applicable in an efficient and cost-effective manner?

- **KPI**: The scheme is practically applicable and cost-effective
- **Metrics**:
  - A: An assessment of the practical implementation of the SRI is documented in the study reports
  - B: Feedback from stakeholder and MS is positive
  - C: Tests confirm the assessment by the study - in particular in terms of costs
Q5 | Is the format of the SRI appropriate?

- **KPI:** The most appropriate format of the SRI is established
- **Metrics:**
  - A: The format of the SRI is detailed and documented in the study reports and related orientations are justified
  - B: Feedback from stakeholders and MS is positive
  - C: Consumer feedback (dedicated task in the SRI2 study) is positive
Q6 | Does the SRI adequately address interoperability, interconnectivity and cybersecurity?

• KPI: The SRI adequately addresses interoperability, interconnectivity and cybersecurity

• Metrics:
  • A: The study reports detail how interoperability, interconnectivity and cybersecurity can be assessed and related information conveyed by the SRI
  • B: A broadly supported decision on the approach to be used to address interoperability, interconnectivity and cybersecurity is achieved
  • C: Positive feedback from the testing phase
Q7 | Are the implementation pathway(s) and associated activities and processes proposed by the study adequate to ensure optimal establishment and implementation of the SRI scheme with maximum impact?

- KPI: SRI pathways ensure optimal establishment and implementation of the SRI scheme with maximum impact

- Metrics:
  - A: The study reports detail the implementation pathways and justify related orientations
  - B: Feedback from stakeholders and MS is positive
Q8 | Is the process for consolidating / updating the SRI, scores or presentational format adequate?

- KPI: Adequateness of the SRI consolidation / updating process is assured
- Metrics:
  - A: The study's reports detail the consolidation process and post-establishment evolution process for the SRI
  - B: Feedback from stakeholders and MS is positive
Process for stakeholder interactions

Dorien Aerts
VITO/EnergyVille
Stakeholder consultations throughout the project
Structure of stakeholder interactions

1. Stakeholder consultation meetings
2. Topical stakeholder working groups
3. Testing the SRI
4. Consumer focus groups
5. Written comments
6. Expert feedback
7. Website
1. Stakeholder consultation meetings

Three stakeholder meetings:

• 1st: 26 March 2019
• 2nd: 8-9 October 2019 (*tbc*)
• 3rd: Mid March 2020 (*tbc*)
1. Stakeholder consultation meetings

26 March 2019 – First Stakeholder Meeting
over 140 participants registered

- **Member States**: Concerted Action EPBD, permanent energy representatives of the administrations, Ecodesign consultation forum

- **Industry associations**: Eu.bac, REHVA, DigitalEurope, EHI, EHPA, Eurovent, EPEE, Lighting Europe, Solar Power Europe, CECAPI, ESMIG, SEDC, EPIA, Orgalime, Cembureau, CECED, ETIP SNET, AIE.eu, ECI, etc.

- **NGOs**: consumer organizations e.g. BEUC/Citizens advice/ANEC, BPIE, ECOS and environmental organizations e.g. EEB

- **Standardisation bodies and organizations**: CENELEC (e.g. TC 247 on BACS), IEC (International Electrotechnical Commission), ETSI European Telecommunications Standards Institute etc.

- **Research institutes’ experts** working on similar initiatives e.g. Smart Building Alliance, IEA Energy Flexible Buildings Annex 67
1. Stakeholder consultation meetings

Goal:

- Present progress of the study & intermediate results
- Have an open discussion on the results

Later today: results of the stakeholder questionnaire
2. Topical stakeholder working groups

Two topical stakeholder working groups:

- **Group A**: SRI value proposition and implementation
  - End user perspective
- **Group B**: SRI calculation methodology
  - Building and technical building system expert perspective

- Groups of 15-20 experts
  - Representatives from (European) associations
  - Representatives from Member States
2. Topical stakeholder working groups

**GROUP A: SRI value proposition and implementation**

The aim will be to reflect upon the business value of the SRI from an end user perspective and, to discuss possible approaches for an effective implementation of the SRI.

Some of the topics for the first expert meeting are:

- Target audiences and expected value proposition
- Prospective implementation pathways
2. Topical stakeholder working groups

**GROUP B: SRI calculation methodology**

Focus on the consolidation of the SRI methodological framework, including the selection of services, the definition of weighting factors and impacts, etc.

Some of the topics for the first expert meeting are:

- Tailoring the methodology to context: building type, climate,...
- Defining a process towards consolidating the methodology, the impact domains, services, weightings
3. Testing the SRI

- Stakeholder may volunteer to test the SRI calculation and guidelines
  - Increase geographical coverage
  - Test applicability on multiple building types
  - Feedback on the format of the SRI
  - Feedback on assessment guidelines

- Structured feedback gathered by the consortium

- Timing: testing will be available from September 2019
4. Consumer focus groups

- Aim: to test understanding and impact of the SRI and explore the most effective format

- Targeted audience: end users
  - Residential sector: consumer focus groups
  - Non-Residential sector: Survey of facility/property managers

- Timing: between now and the summer
5. Written comments

- Stakeholders will have the opportunity to send written comments on draft deliverables
- The study team will collect and process the comments to support the finalisation of the deliverables

6. Expert feedback

- Stakeholders are welcome at any time to contribute with their expertise on specific topics
7. Website

www.smartreadinessindicator.eu
Overview of current working assumptions

Stijn Verbeke
VITO/EnergyVille
Working assumptions: catalogue & scope

• In general, the concept of a catalogue of smart ready services presented in the first study is well supported

• The concept of attaching various impacts to smart ready services is generally well supported

• Stakeholder suggestions for potential new domains/services
  → This will also be needed for regularly updating the SRI
  → Cannot be viewed in isolation of the assessment trade-offs
  → Proposal to define and test procedures for adding domains or services will be piloted during the course of the study with suggested inclusion of lifts/elevators
Working assumptions: Impact categories

- 8 impacts presented in first study:
  - Energy
  - Flexibility
  - Self-generation
  - Comfort
  - Convenience
  - Wellbeing and Health
  - Maintenance & fault prediction
  - Information to occupants

(with optional flexibility over their relative weighting)

- Might be regrouped to ease communication
  (this will not affect the methodology or assessment time
  + will require weighting factors)
Working assumptions: Weightings

- Weighting factors for importance of services in a domain
  - *E.g. thermostat control more important than pump control?*  
    *(note: in first study they were implicitly weighted equally)*

- Weighting factors for importance of domains towards overall impact
  - *E.g. heating more important than domestic hot water in particular building type*

- Weighting factors to generate single score SRI rating (if applicable)
  - *Random example: 25% flexibility, 20% comfort, 10% information to occupants,...*
Working assumptions: Weightings

- Weighting factors for importance of services in a domain
- Weighting factors for importance of domains towards overall impact
- Weighting factors to generate single score SRI rating (if applicable)

- Overall weighted score/rating vs only on impact level: will be further evaluated in course of the study (including limited market research with focus groups)
- Weightings are to be set by methodology or implementation body, and not by individual assessor
- Weightings might need to be adapted to context, including climate and building type.
Working assumptions: Conditionality of the SRI

• E.g. energy efficiency or broadband access as a prerequisite of the SRI?
  • Differing views amongst stakeholders
  • No methodological consequences: can potentially be addressed as part of implementation
Working assumptions: Balancing efforts and added value

• In general: more detailed assessments can provide added insights but require more expertise from assessor and more time and efforts

• Review of first study and stakeholder comments reveal:
  • Different views on how to balance accuracy and speed of assessment
  • Different views on main targets of the SRI: information, investment advice, formal validation of the building assets,…
  • Different views on potential for including metered performance data in assessment
  • Great diversity in complexity in building stock (e.g. residential single family dwelling vs. large non-residential buildings)

→ Study will explore the potential for differentiation in the level of assessment detail
<table>
<thead>
<tr>
<th></th>
<th>A Simplified online quick-scan</th>
<th>B Expert SRI assessment</th>
<th>C In-use smart building performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checklist approach with limited / simplified services list</td>
<td>Checklist approach, covering catalogue of smart services cf. 1st study outcomes</td>
<td>Measured / metered data (potentially restricted set of domains)</td>
<td></td>
</tr>
<tr>
<td>Online</td>
<td>On-site inspection</td>
<td>In-use buildings, metered data Part of the commissioning?</td>
<td></td>
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<tr>
<td>Self-assessment (or contractor,...)</td>
<td>Third-party qualified expert</td>
<td>TBS self-reporting their actual performance</td>
<td></td>
</tr>
<tr>
<td>15 minutes</td>
<td>1 hour – max 2 days</td>
<td>Gather data over a long period (e.g. 1 year)</td>
<td></td>
</tr>
<tr>
<td>Restricted to residential buildings</td>
<td>Non-residential: offices and education (+ others later on?) ? Residential as well?</td>
<td>Residential and non-residential Restricted to occupied buildings (not in design phase)</td>
<td></td>
</tr>
</tbody>
</table>
Working assumptions: Light vs Expert vs Metered data?

• In long run, TBS/BACS might be able to self-report functionality levels, assisting methods A and B
• **Method C** goes beyond this, and quantifies the actual performance of in-use buildings
• **Method C** will require benchmarking to assess how much savings, flexibility, comfort improvements,... are delivered
  • *E.g.: if energy consumption is low, to what extent can this be attributed to smart controls, versus passive measures or occupant behavior*
  • *E.g.: Low CO\textsubscript{2} levels measured: are we quantifying that the ventilation system is operating smartly, or just discovering that the ventilation rate is set high or that the building is very leaky?*

→ Method C is a potential future evolution of a label for a commissioned building, going broader than the current envisioned scope of the SRI. It will not be treated in detail in the technical study
Overview of feedback received through questionnaire

Dorien Aerts
VITO/EnergyVille
Country of residence:
Replying on behalf of:

- 49.4% A public authority
- 7.4% A standardisation organisation
- 28.4% A non-governmental organisation representing societal interests (for e...
- 5.7% A research institution or university
- 5.7% A company or a business organisation
- 3.7% Expert
- 3.7% Both for a company and for many b...
- 3.7% Association
- 3.7% Professional association
What size is your company:

- **48.1%**: large (250 employees or more)
- **21%**: medium-sized (50-249 employees)
- **13.6%**: small (10-49 employees)
- **14.8%**: micro (1-9 employees)
- **0.0%**: micro (self-employed)
Focusing on the **residential sector**, please indicate the relative importance of the SRI aiming to achieve the following:

- Informing **occupants** about the smart services that are **currently present** in their buildings
- Informing **occupants** about the potential for smart services that **could be present** in their buildings
- Providing insights to building owners on **how to upgrade** the smartness of their building (investment recommendations)
- Enabling market actors to be able to **compare buildings** when considering the purchase or rental of a property
Focusing on the **residential sector**, please indicate the relative importance of the SRI aiming to achieve the following:

- **Supporting the owner's market positioning** of buildings when being let or sold

- Providing **design-phase guidance** to designers, contractors and investors for **newly constructed buildings**

- Providing **design-phase guidance** to designers, contractors and investors for **refurbished/renovated buildings**

- Facilitating utilities being able to **spur the uptake of flexibility technologies** and services in the building stock
Focusing on the **residential sector**, please indicate the relative importance of the SRI aiming to achieve the following:

<table>
<thead>
<tr>
<th>Description</th>
<th>Not important at all</th>
<th>Slightly important</th>
<th>Important</th>
<th>Fairly important</th>
<th>Very important</th>
<th>No opinion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing grid operators with insights on flexibility aspects of the building stock</td>
<td></td>
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<tr>
<td>Providing marketing opportunities for manufacturers of smart technical building systems and building automation and control systems</td>
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<tr>
<td>Providing suppliers with a framework for the quality assurance of smart products which will effectively deliver services that can save energy or costs</td>
<td></td>
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</tbody>
</table>

**Providing grid operators with insights on flexibility aspects of the building stock**

**Providing marketing opportunities for manufacturers of smart technical building systems and building automation and control systems**

**Providing suppliers with a framework for the quality assurance of smart products which will effectively deliver services that can save energy or costs**
Focusing on the non-residential sector, please indicate the relative importance of the SRI aiming to achieve the following:

- Informing occupants and facility managers about the smart services that are currently present in their buildings
- Informing occupants and facility managers about the potential for smart services that could be present in their buildings
- Providing insights to building owners on how to upgrade the smartness of their building (investment recommendations)
- Enabling market actors to be able to compare buildings when considering the purchase or rental of a property
Focusing on the **non-residential sector**, please indicate the relative importance of the SRI aiming to achieve the following:

- Supporting the owner's **market positioning** of buildings when being let or sold
- Providing **design-phase guidance** to designers, contractors and investors for newly constructed buildings
- Providing **design-phase guidance** to designers, contractors and investors for refurbished/renovated buildings
- Facilitating utilities being able to ** spur the uptake of flexibility technologies** and services in the building stock
Focusing on the non-residential sector, please indicate the relative importance of the SRI aiming to achieve the following:

- Providing grid operators with insights on flexibility aspects of the building stock
- Providing marketing opportunities for manufacturers of smart technical building systems and building automation and control systems
- Providing suppliers with a framework for the quality assurance of smart products which will effectively deliver services that can save energy or costs
Should the SRI report/certificate also include **recommendations** on how to increase the smart readiness of a building?

- **56.8%** Yes, generic recommendations
- **33.3%** Yes, personalized recommendations
- **10.9%** No, SRI only
- **10.9%** No opinion
The **assessment time** is strongly linked to the **degree of complexity of the SRI**. Two different SRI assessment types could be envisioned: a **light version with a limited set of services** and a **detailed version**.
The **assessment time** is strongly linked to the **degree of complexity of the SRI**. Two different SRI assessment types could be envisioned: a **light version with a limited set of services** and a **detailed version**.

Recurring suggestions from respondents:

- “Light for residential, Detailed for non-residential”
- “Light = mandatory, Detailed = upon request”
- “Light for existing buildings, Detailed for new buildings”
- “Start with light, Detailed as future development”
Do you support the approach of differentiation between a **light self-assessment** and a **detailed 3rd party assessment**?

- Yes: 55.6%
- No: 33.3%
- No opinion: 0%
- See explanation below:
  - Yes, but the light self-assessment shall be validated by a 3rd party plausibility check.
  - See explanation below.
  - Third party (for objectivity) that applies the light method.
In your opinion, what should be the **average assessment time** (including the time to go on-site) for a non-residential building of 1000m²?

- **Less than an hour**: 29.6%
- **No more than two hours**: 30.9%
- **Half a day**: 13.6%
- **One day**: 9.9%
- **Two to three days**: 7.4%
- **More**: 0.0%
- **No opinion**: 0.0%
Would you see an interest in also providing a **weighted single score** for a particular building?

- **33.3%**: Yes: report both a single score and the individual impact scores this is built upon
- **56.8%**: Yes: solely report a single score
- **No**: only report the scores for the distinct impact categories, and don’t provide an overall weighted average score
- **No opinion**
Do you see the need to adapt the calculation method to specific conditions, e.g. using weighting factors? If so, which ones:

- Residential & non-residential buildings: 70 (86.4%)
- Climate: 48 (59.3%)
- None: 9 (11.1%)

Other proposals:

- Size of the building
- Age of the building
- Building types (offices, healthcare,…)
- Member state / local context
Should the SRI apply **distinct weightings** for different non-residential building types?
Should the SRI be tailored to include **additional services** for different non-residential building types?
Please rank:

- Offices
- Wholesale and retail trade
- Hotels and Restaurants

Legend:
- Blue: Not important at all
- Orange: Slightly important
- Yellow: Important
- Green: Fairly important
- Purple: Very important
- Cyan: No opinion
Please rank:

- Health Care
- Educational buildings
- Sports facilities
Inputs with respect to current working assumptions

SCORING

• Majority of stakeholders participating in questionnaire prefers weighted single score AND scores per impact category

• Minority of respondents prefers only a single score

Definition of impact criteria & their weighting is a priority.
Inputs with respect to current working assumptions

TAILORING FOR BUILDING FUNCTION

Majority of respondents agrees on weightings for:
- Residential & non-residential
- Climate
- Building types

For non-residential buildings:
- Offices
- Educational
- Healthcare

Study will further investigate tailoring the methodology to local context and building usage.
Inputs with respect to current working assumptions

EFFORT vs ADDED VALUE

• Majority of respondents prefers recommendations
  • 57% personal
  • 33% generic
• Average time effort for 1000m² non-residential: 1/2 to 1 day

Up for further analysis, in conjunction with end user expectations & business case
Inputs with respect to current working assumptions

- Majority of respondents supports differentiation between light and detailed assessment
- Majority of respondents supports self-assessment for light assessment and 3rd party assessment for detailed assessment
Open discussion
Wrap up and closing of meeting