Attractive, Acceptable and Affordable deep renovation by a consumers orientated and performance evidence based approach

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<td>Version 0.1</td>
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1. Introduction

The TripleA-reno concept involves addressing the performance gap between designed and realized performance by implementing a general approach for quality improvement enabled by Continuing Professional Development (CPD) and underlying Qualification Schemes (QS). As there is an increasingly strong body of evidence available on the ‘performance gap’ relating to energy consumption. There is also a growing interest in the measurable aspects of indoor environmental quality and personal health. Both elements will be addressed. TripleA-reno will tackle this issue by:

1. involving the occupants/consumers in the project and collect real performance data in use;
2. implementing methodologies on enhanced quality control of related projects like IEE QUALICHeCK and H2020 BIMplement.

In order to tackle the challenge a 3-level gamified platform is in development. With on Level 1 co-design in design phase, on Level 2 Quality assurance during construction phase and in Level 3 performance monitoring in the in use phase. Gamification will be implemented to nudge the users of the platform.

In work package 3 content, design, game-rules and user-stories needed to fill the TripleA-reno platform are delivered and hooked up to a voluntary certification scheme for achieved quality and performance.

Figure 1 Visualisation of the TripleA-reno platform

The gamified use of the TripleA-reno platform (under construction) features for developing renovation concepts using a set of measures and renovation strategies on line will be reinforced off-line with the TripleA-reno board game. The possibility of using gamified features of TripleA-reno off-line can reinforce the motivation and engagement of its users. We assume this can be of great value for example in the case

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of design sessions with residents of social housing companies, for energetic renovation workshops at
municipality level and for training purposes. This deliverable addresses the first version of the developed
board game.

2. Boardgame for designing energetic renovation of residential buildings
Based on a game for designing nZEB new residential buildings developed in the Netherlands by an SME
compamy DWA we developed together with DWA in a very short time a board game for energetic
renovation of residential buildings. The game was tested in the fourth consortium meeting of TripleA-reno
in Valencia. For testing we applied the rule-less testing approach. This means that the game was provided
without player rules and proper guidance. It was amazing to see how many creative ways of playing where
invented right on the spot!

Based on the outcomes and further testing afterwards in each participating country the game and its rule-
set has been further elaborated and refined. In total of around 40 suggestions (11 pages) for improvement
have been made by the consortium 33 of them have been addressed in the updated version.

Five suggestions where not feasible to realize within available time and budget.

1. Multi-facetted challenges: too much variables and complexity
2. Issuing player roles: too much complexity, can be added afterwards
3. Adapting to monopoly style: too much effort as it radically changes playing
4. Adding apartment blocks: unfortunately not feasible within budget as all energy points need to be
   recalculated
5. Combine grey measure cards by adding two choices on each: not easy to play

Figure 2 The Game board
Figure 3 Game cards describing measures

Measure card explained

Air source heat pump
A heat pump efficiently (300%) converts heat from the outside air (-10 - 20°C) to higher temperature air for space heating and hot water. Can also be used to cool a home for greater comfort. Heat pumps are only useful when combined with LTH.

Figure 4 Explanation of the setup of a measure card

<table>
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<tr>
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<td><strong>Collective purchasing</strong> with the entire neighbourhood gets you a 20% discount on your Price points. Write this measure down last and calculate your total discount at the end of the round.</td>
</tr>
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Figure 5 Chance card: introduced as one of the improvements
SCENARIO 2

An energy-efficient and comfortable home

Comfort is very important to you. That is why your preferred measures do not just generate energy savings, but also provide comfort. Your sustainability objective in this scenario is a maximum of 15 remaining Energy points.

Objective: An energy-efficient and comfortable home with no more than 15 remaining Energy points

Write down the name of the scenario on the form. Start with the 30 Energy points for the basic home and deduct the Energy points you can save by implementing measures. Select the best measures and write them on the Score sheet with their Energy points, Price points and Comfort points.

INSIGHT QUESTIONS

When you’ve completed your design, answer the following questions. You can update your design based on new insights.
1. Is this design interesting for tenants?
2. Which measure offers the most comfort for its price?
3. How many comfort points did you collect?
4. Which distribution system is the most comfortable and why?
5. Did you include a cooling system in your design and do you see it as an important improvement to comfort?
6. If you offer a design with a cooling system, how can you limit the energy requirement?
7. Did other players choose the same measures and do they share your opinion and insights?

Figure 6 A scenario card

Figure 7 Photo of the rule-less playing session organised in Valencia during consortium meeting M4

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Annex I: PDF’s for production of the boardgame

1. Playing manual
2. Set of game cards (measure and chance cards)
3. Playing board
4. Set of scenario cards
5. Score card
6. Sticker for the Gamebox