SECTION 5

OUTLOOK AND CONCLUSIONS

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A roadmap for facade-integrated solar thermal elements was developed (Cappel et al., 2015) and is summarized for BIST systems. The vision for 2020 is to reach mass production of BIST components, costs reduced by 50%, an increased knowledge amongst the stakeholders and first commercial installation e.g. for hospitals and hotels. By 2030, BISTS should become a standard solution and solar active houses (SAH) should have more than 50% of their heating demand covered by BISTS as the standard for new buildings. By 2050, solar active houses should dominate the building stock with one third of the heat demand of buildings covered by building-integrated STS. Furthermore, urban planners and software tools should include BISTS and heat networks in their plans. Of course it is not yet clear which technologies will finally be contributing by 2050 as BISTS are and will be in competition with other technologies such as PV and wind turbines.

The most important focus for 2020 is the effective dissemination and education for builders, architects and planners. They need to understand the benefits of BISTS and know how to use them just as they would for any other parts of the building. At the same time, optimized public incentives should stimulate the market. Intelligent support for architects and planners needs to be developed, especially for the early stages of planning. By analysing numerous real BIST projects in depth, the most economic BIST solutions can be recommended.

The second most important research goal is to develop further absorber or collector technologies that have a long lifetime, an easy and failsafe installation and appealing aesthetics, while being mass manufactured industrially. The highest potential of reducing the BISTS prices is to develop new business models that omit the traditional three-stage distribution and use synergies of the labour on-site.

At the same time, specialized BIST solutions should be developed in order to penetrate wider markets from their current respective niches. In general, holistic approaches are needed which focus on a certain BISTS research topics but take the remaining research topics into account, too. A graphical summary of the most important research topics is presented in

Figure 5.1.1.

The main conclusions that are derived from the COST Action TU1205 are the following:

1. Because of the developments in legislation (EU Directives), the fact that people get more sensitive to the environmental problems related to the burning of fossil fuels and economic benefits that they offer, renewables will be used more extensively in buildings in the coming years.
2. Building integration offer a viable alternative to the way solar thermal systems are currently installed in buildings.
3. BISTS can offer nice alternatives to improve the aesthetic appearance of buildings.
4. BISTS can be combined with building renovation offering better insulation, better appearance of the building and the production of more thermal energy which can be used for the heating and cooling building sa well as for the preparation of domestic hot water.

5. There are a variety of ideas/methods that this building integration that can achieve. Some of them are presented in Section 4 of this handbook.
6. The design and implementation of BISTS is different but not more difficult than the traditional application of solar thermal systems.
7. Conventional solar thermal installations are quite simple and BISTS can be more complex than building added solar thermal systems (BASTS) if they are not done right.

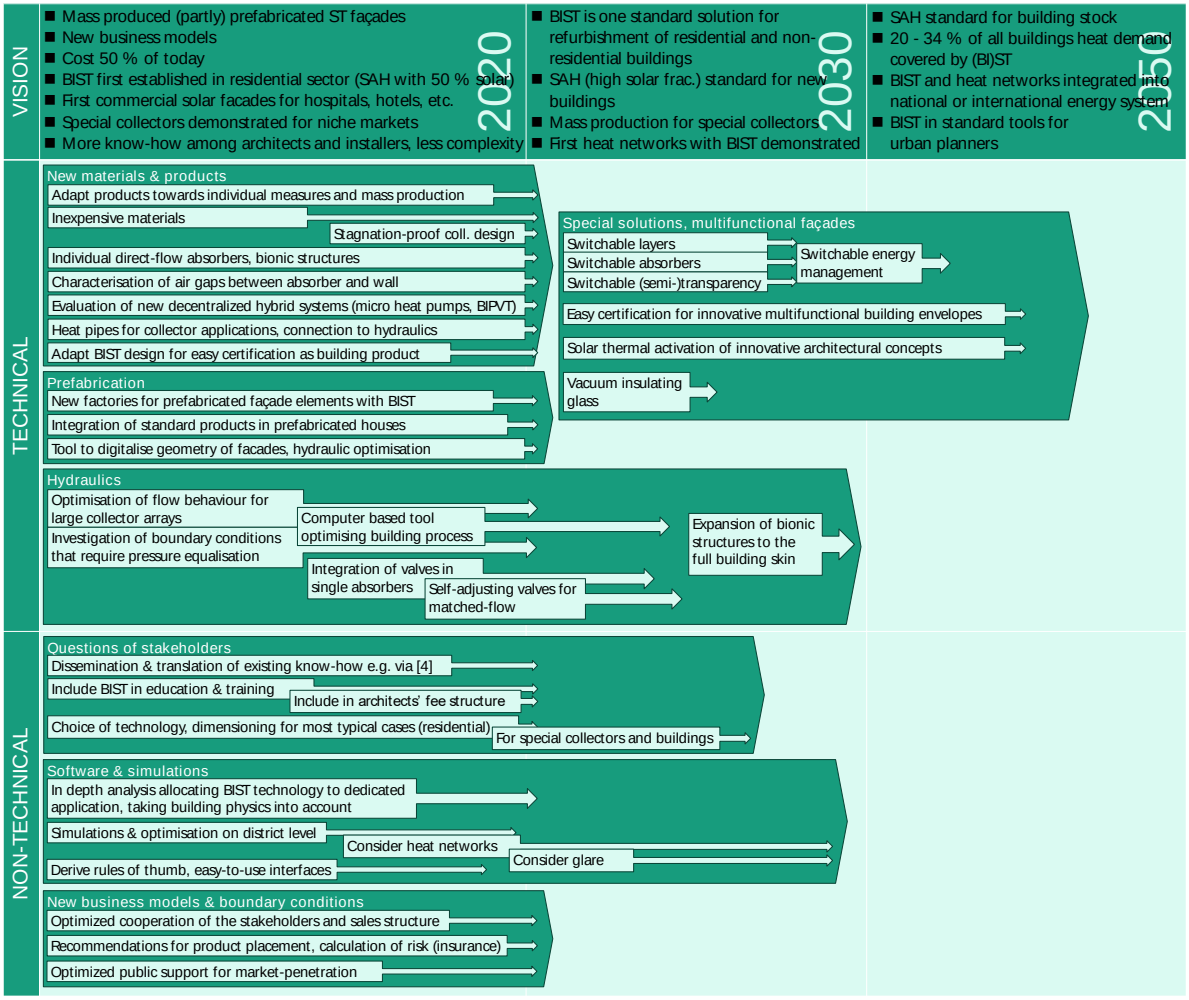

Figure 5.1.1 Graphical summary of the most important research topics (Cappel et al., 2015).

REFERENCES

Cappel, C., Kuhn, T.E., Maurer, C., 2015. Research and development roadmap for façade-integrated solar thermal systems. Fraunhofer ISE. http://publica.fraunhofer.de/documents/N-349494.html. Accessed 5 February 2016.