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## **BUILDING CONSTRUCTION TECHNOLOGY ROADMAP**

Part 6:

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Conclusions

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# Conclusions

## Results

The results of this project indicate that the home of the future may well be constructed in a factory and erected on site from the prefabricated elements. The home will almost certainly be smarter than today, with built-in appliances and controls that will manage lighting, heating and cooling, air flows and other aspects of ambience. It will incorporate materials, systems and appliances that will conserve both energy and water and promote natural light.

Entertainment systems within the home will be accessible through a multitude of choices made possible by convergence, digitisation and broadband. Information flow of all kinds will be accessible instantaneously anywhere within the home, making home working much more feasible. In addition, smart appliances and systems will be both more reliable and much more simple and user-friendly than today.

This Technology Roadmap Project set out to look forward to the year 2025, and to detail trends in the building, features and services of the home of the future. Further, it set out to detail the enabling technologies that would support these trends and make them possible.

The results of the project thus highlight opportunities likely to emerge over the next 20 years for those industries and businesses which service the home owner market. These organisations can therefore assess and address these opportunities according to their particular specialties, be they the manufacture of smart windows or the writing of enabling software.

The breadth of the study precludes any focus on one particular section of industry although it has been possible to note some emerging uses for copper.

The results also note the issues that are instrumental in influencing the new trends and features in the future home. This is important. It allows stakeholders to make a judgement on future markets in light of how these issues may develop further. For example, the noted trend to factory prefabrication of houses or units was postulated on a shortage of skilled on-site tradesmen, a problem that was also thought to exist as much as 30 years ago. In the interim, builders have produced a variety of factory fabricated housing systems, some of outstanding quality, and yet the market has not responded. Possibly the time is now right, although that is a matter for the industry to judge. Certainly, the construction of multi-story home units using pre-cast concrete is gaining some adherents.

Similarly, one of the issues currently influencing the issue of conservation is government policy, and this has been known to change from time to time.

## Interpretation

For the maximum benefit to be derived from this Technology Roadmap, it should be given the broadest possible exposure to all sections of industry which have or may have an ongoing interest in the housing market. Those businesses can then assess the implications for their particular speciality, and if they see an opportunity, move forward to develop the technology and product to meet market needs. This may occur at individual business level or in partnership or at industry level.

While some of the enabling technologies have been assessed as already mature, they may have future application to the housing industry as a result of emerging issues, for example, conservation.

Other mature technologies may require repackaging or combining with others, for example, adding automatic management and operating systems to domestic water treatment plants, or applying sensors and automatic controls to furniture and fittings.


Other technologies, such as wireless, may still be in the development and refinement stage. In particular, as has been the case with personal computers, further research and development may drastically reduce costs and enhance user-friendliness. These factors alone can have a very marked effect on market uptake and ultimate size.

Finally, technologies still on the horizon, such as those involving nano-sized materials, will undoubtedly provide opportunities for applications in the home of the future, for companies that invest in further research in these technologies.

(As an aid, a brief description of nanotechnology has been included as *Appendix A* of this report.)

The report has set out to assess very broadly market size for trends and features and to assess the current stage of development of enabling technologies. These assessments are graphically illustrated in the results. It should be noted, however, that in forecasting the future market, it is impossible to take account of all influencing factors. There are both market pull and technology push considerations, not to mention drought and flood.

It has been noted earlier that the housing market between now and 2025 will comprise two segments, approximately 3 million new homes and approximately 7.9 million existing homes. While development of some technologies may well have advanced to the stage where they are easily accessible now to new home buyers, the application by way of retrofit to older, existing homes may still require development, and this may open up significant opportunities.



It should also be noted that an opportunity which appears to involve relatively undeveloped technology with a relatively small potential market may be very attractive to a small business enterprise which has the intellectual capacity to develop the technology.

It is therefore important that interested businesses make their own assessments of potential market size and reach their own conclusions on possible opportunities and risks. It is worth noting that more than half of the 40 attendees at the third roundtable indicated that they had recognised a commercial opportunity for their organisation during the course of the study.

As a further outcome of the study, it has become apparent that there will be a significant need for skilled service providers to maintain the increasingly complex technical systems which will be part of the home of the future.

## Acknowledgements

In concluding this report, it is necessary to acknowledge the input to this Building Construction Technology Roadmap by the attendees at the roundtables and briefing sessions.

It was important from the outset that a wide selection of interests should be represented, so that the results would reflect a balanced and realistic view of the future.

More than 120 highly qualified professionals, from a wide range of organisations, participated. They included futurists, architects, designers, engineers, scientists, property developers, builders, conservationists, water and power services providers, equipment and appliance manufacturers and representatives of the aged and government departments and universities. It is their knowledge and ideas that form the basis of this Technology Roadmap, for which they are owed thanks. It is also hoped that in participating, they have had access to ideas that will be of future benefit to them.

(A list of attendees at the roundtables and briefing sessions is included on pages 43 and 44 of this report.)

**BUILDING CONSTRUCTION  
TECHNOLOGY ROADMAP**

Part 6

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END

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