Netherlands at the time. They can be usefully employed to identify relationships between types of policies and types of outcomes. Scenario 1 is a combination of the investments already agreed in Dutch policy as part of the long-term Infrastructure Investment Programme (MIT) with current trends in land use. Scenario 2 involves additional transport-related measures, encompassing a selective increase of road capacity coupled with car-use pricing and a radical improvement of public transport performance (through the development of urban–regional networks, integration of high-speed lines in the intercity network and higher overall frequencies). Scenario 3 adds to this by further increasing public transport capacity in the Randstad and by further concentrating land use in public transport corridors there, but does not include car-related measures. The final Scenario 4 is based upon the creation of an entirely new high-speed public transport system between the major cities of the Randstad, the so-called 'Randstad Loop,' with concentrated land use around the nodes in this new transport system. Particularly relevant are the effects of the different scenarios upon accessibility within the Randstad; in this study defined as the number of jobs that can be reached within a reasonable journey time (of 1 hour).

Perhaps unexpectedly, by far the greatest growth in accessibility is observed in Scenario 2. The total increase is many times greater than that in Scenario 3 or 4. It is also interesting that this growth will primarily be caused by an increase in employment in the Randstad through the concentration of land use, whilst the average speed of the transport system will remain virtually unchanged. Much of this also applies to Scenario 4. Here, accessibility by public transport will increase dramatically partly due to policy measures including a 5% rise in the average speed of the public transport system, but 20–25% of the increase in related accessibility will be accounted for by land use concentration around public transport nodes. As far as growth in car mobility is concerned, the results are also interesting. Such growth appears to be lowest in Scenario 2, due in large part to the pricing of car use. Accordingly, the same applies to CO_2 emissions, which are lower even than in the 'public-transport' Scenarios 3 and 4.

There are two more general implications to be taken into account. In terms of the urban development goal as defined above, maximizing accessibility while minimizing environmental damage, Scenario 2 performs the best. This is primarily because car use is actively incorporated into the

solution, most importantly in the form of car-use pricing and technological improvement. Given its dominance, addressing car use appears to be an essential component in combining environmental and economic goals in urban development. With reference to Figures 4.2 and 4.3, this indicates that a spectrum of solutions, including more efficient use of (cleaner) cars and functionally balanced urban regions to shorten distances travelled by car must be taken into account, alongside other 'classic' policies such as 'transport oriented development' which, in isolation, will not be enough to achieve such goals. It has already been established that accessibility has transport and land use dimensions to it. But it is the latter, in the form of spatial concentration, that appears to have the greatest net-positive impact on the Dutch scenarios. As far as transport is concerned, it would appear to be difficult to maintain the current average travel speeds. So consideration of land use measures is, alongside the more traditional consideration of transport measures, an essential aspect of enhancing accessibility.

Conclusion: some research, design and policy challenges

This chapter has introduced a definition and operational form for a central challenge for urban development: that of maximizing accessibility, and indirectly the productivity of the local economy, and minimizing environmental damage. To further facilitate transport and land use, the policy design would require a threefold effort:

1. **reinforcement of *fundamental knowledge***
2. **the cultivation of *design capacity***
3. **the *interactive application* of both of these within the policy process**

This concluding section examines these aspects.

The research challenge

More research is required into the links between urban spatial conditions and economic performance to address important questions:

- **What is the impact of alternative configurations of the urban spatial system, as a combination of transport and land use characteristics, upon the productivity of regional economies?**
- **What would be revealed if urban markets other than the labour market, such as the housing market or the mutual interaction between businesses were taken into consideration?**