

Problems of partial models

Mental models are important because they help us frame the issues that need managing – but therein also lies the risk. If our mental models are limited then our approach to managing is also likely to be limited. For example, if we believe that innovation is simply a matter of coming up with a good invention – then we risk managing that part of the process well but fail to consider or deal with other key issues around actually taking that invention through technological and market development to successful adoption.

Examples of such ‘partial thinking’ here include:

- Seeing innovation as a linear ‘technology push’ process (in which case all the attention goes into funding R&D with little input from users) or one in which the market can be relied upon to pull through innovation.
- Seeing innovation simply in terms of major ‘breakthroughs’ – and ignoring the significant potential of incremental innovation. In the case of electric light bulbs, the original Edison design remained almost unchanged in concept, but incremental product and process improvement over the 16 years from 1880 to 1896 led to a fall in price of around 80%.⁶⁴
- Seeing innovation as a single isolated change rather than as part of a wider system (effectively restricting innovation to component level rather than seeing the bigger potential of architectural changes).⁶⁵
- Seeing innovation as product or process only, without recognizing the interrelationship between the two.

Table 2.5 provides an overview of the difficulties which arise if we take a partial view of innovation.

TABLE 2.5 Problems of partial views of innovation

If innovation is only seen as the result can be
Strong R&D capability	Technology which fails to meet user needs and may not be accepted
The province of specialists	Lack of involvement of others so that there is a lack of key input from different perspectives
Understanding and meeting customer needs	Lack of technical progression, leading to inability to gain competitive edge
Advances along the technology frontier	Producing products or services which the market does not want or designing processes which do not meet the needs of the user and whose implementation is resisted
The province only of large firms	Weak, small firms with too high a dependence on large customers Disruptive innovation as apparently insignificant small players seize new technical or market opportunities
Only about 'breakthrough' changes	Neglect of the potential of incremental innovation. Also an inability to secure and reinforce the gains from radical change because the incremental performance ratchet is not working well
Only about strategically targeted projects	May miss out on lucky 'accidents' which open up new possibilities
Only associated with key individuals	Failure to utilize the creativity of the remainder of employees, and to secure their inputs and perspectives to improve innovation
Only internally generated	The 'not-invented-here' effect, where good ideas from outside are resisted or rejected
Only externally generated	Innovation becomes simply a matter of filling a shopping list of needs from outside and there is little internal learning or development of technological competence
Only concerning single firms	Excludes the possibility of various forms of inter-organizational networking to create new products, streamline shared processes, etc.