

achievement of higher profits by the members of the consortium.<sup>20</sup> Collaboration also speeds up the cycle time of the innovation process.<sup>21</sup>

- c) **Technology Transfer/Diffusion:** collaboration improves the participant's ability to cope with both the pace and magnitude of technological change by giving participants access to a network, whereby they can more effectively monitor the environment and recruit skilled personnel.<sup>22</sup> The consortium provides a mechanism for effective technology transfer by integrating the efforts of university and government labs with those of the private sector. Researchers from member companies working alongside consortium researchers can more readily adapt technologies to customer requirements.
- d) **Competitive Dynamics:** collaboration forces members to clarify longer term objectives and establish targets (i.e., to formulate a strategy) and may provide intelligence on competitor strengths and weaknesses. It can even provide an opportunity to influence the rules of the game. For example, participation provides members with an opportunity to influence regulatory or performance standards which may emerge as a result of consortium-based new technology development, such as in the case of high definition television.
- e) **Innovation Dynamics:** collaboration creates innovative or "technology smart" organizations which can create more products to maintain a competitive edge. Since "use of technology" is a less knowledge intensive task than "creation of technology", the mere users will remain less competitive.<sup>23</sup>

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<sup>20</sup> An example of this is the U.S. HDTV consortium which was formed to "avoid wasting future profits". See I. Prakash Sharma, "Optimal Patent Term and Trade: Some Considerations for the Road Ahead", Policy Staff Paper No. 93/11 (forthcoming), p. 43.

<sup>21</sup> Numerous authors and business "gurus" such as Tom Peter (e.g., *Thriving on Chaos*) have commented on the trend to shorter product life cycles, particularly in the knowledge-based or R&D-intensive industries. This puts considerable pressure on firms to commercialize new products which, in turn, is a function of the firm's R&D costs.

<sup>22</sup> Sylvia Ostry and others have remarked on the significance of "networks" in the innovation process (see footnote 11 on the "innovation network model"). One seminar participant observed: "The value of the network within the consortium may exceed the value of the technology created."

<sup>23</sup> This view is controversial. Ostry notes that under the traditional view of technology diffusion, innovative economies are assumed to be able to diffuse technology more quickly because a degree of innovative capacity is required to absorb new technology. However, Soete has observed that some less innovative economies have been able to leapfrog ahead in certain industries, for example Japanese and Italian steel, automotive and electronics industries, by adopting new technologies at lower costs than in the innovating countries themselves, where expensive existing capital stocks impede the adoption of innovations. This can be seen in Canada's forest products industry where existing plants and equipment long impeded the adoption of waste water treatment processes and other new process technology which could have made them more competitive internationally. Fortunately, the industry has taken steps to rectify this situation over the last few years.