

1. A statement of your agency's mission and specifically how it relates to manufacturing R&D.

The National Institutes of Health (NIH) is the Nation's medical research agency. The NIH helps to lead the way toward important medical discoveries that improve people's health and save lives by conducting and supporting research to prevent disease as well as the causes, treatments, and cures for common and rare diseases. The translation of medical advances from the laboratory to the clinical setting requires the concomitant development of new manufacturing capabilities. In particular, new and improved diagnostic and therapeutic modalities made possible by emerging technologies, such as nanotechnology, require the support of new manufacturing capabilities in order to mass produce parts and systems with unprecedented control at new scale levels.

2. Relationship between your agency's mission, interest, and needs and the three individual priority topic areas: nanomanufacturing, manufacturing for the hydrogen economy, and intelligent and integrated manufacturing systems. Is this a primary or secondary relationship? In other words, the strength of the relationship correlates with the level of investment. For example, for those agencies that do not have nanomanufacturing R&D budgets, may nevertheless see strong connections with agency missions.

The NIH indirectly supports research and development in nanomanufacturing and intelligent and integrated manufacturing systems through basic science and technology development grants. The manufacturing of nano-scale components and systems requires integrated manufacturing systems capable of bridging user controls at the macro scale to products at the nano-scale. Such multi-scale manufacturing systems will necessarily be reliant on computer-aided guidance and control. New enabling platform technologies, in software and hardware, developed to support the advancement of nanotechnological approaches to medical care is also expected to contribute to the advancement and establishment of nanomanufacturing and intelligent and integrated manufacturing systems.