

## Flat Panel Display Measurement Standard (FPDM) Economic Impact

### **1. Explain who will be surveyed and why the group is appropriate to survey.**

The Standards Services Division (SSD) of the Technology Services (TS) Operating Unit of the National Institute of Standards and Technology (NIST) will be conducting a survey of some 200 members of the International Committee on Display Metrology (ICDM) within the Society for Information Display (SID). SID is a professional organization representing technical and business disciplines that relate to display research, design, manufacturing, applications, marketing, and sales. ICDM members were instrumental in the creation of the FPDM standard and also represent the companies who expended the resources to create the FPDM and who benefited from its implementation.

### **2. Explain how the survey was developed including consultation with interested parties, pretesting, and responses to suggestions for improvement.**

The survey was developed by an experienced contractor (TASC, Inc.), in consultation with the SSD project lead, Erik Puskar, members of NIST's technical staff responsible for much of the measurement technology codified in the FPDM, selected industry representatives that are knowledgeable about the technical and historical aspects of FPDM's development. Professor John Scott of Dartmouth College was also consulted. Dr. Scott also has extensive experience conducting economic impact assessments for NIST.

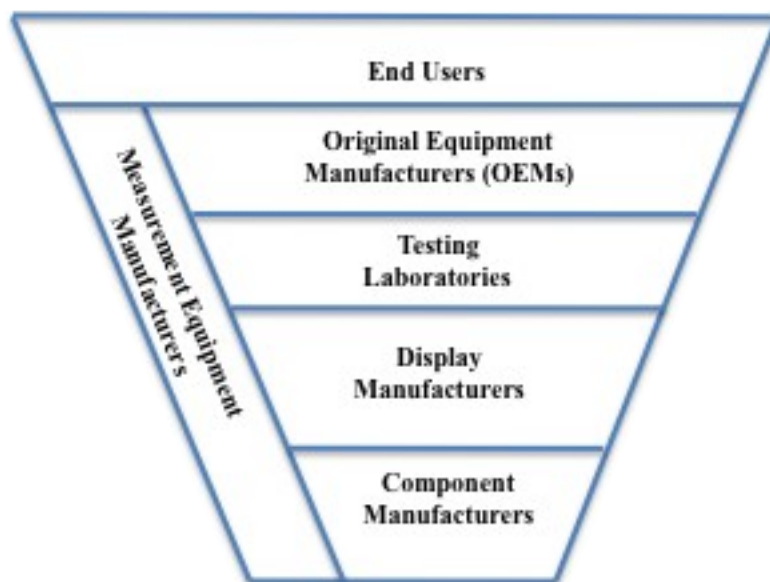
The survey instrument was tested with individuals possessing knowledge and experience comparable to that of the intended survey respondents and with selected industry representatives. Suggested changes in content and phrasing are included in the survey instrument.

### **3. Explain how the survey will be conducted, how customers will be sampled if fewer than all customers will be surveyed, expected response rate, and actions your agency plans to take to improve the response rate.**

The survey will be conducted by e-mail with phone follow-up where necessary. The contractor will send an initial e-mail message to prospective respondents (in ROCIS), on the NIST sponsor's behalf, explaining the purpose and asking for their participation. It is anticipated that the chairman of the ICDM will encourage committee members to participate in the survey. The contractor will follow up by sending the survey instrument electronically (unless otherwise requested by the respondent) and will "shepherd" the respondents with "reminder" emails.

We are informed by the chairman of the ICDM that the committee consists of a core of some 30-50 very active members (presumably with significant market share in their industry tier) and a periphery of an additional 150-170 peripheral members. We intend to concentrate our efforts on core, active, members. To the extent that the core membership does not represent all tiers of the FPD value chain, we will focus additional attention of peripheral members of the ICDM

representing under-represented industry facets. The FPD value chain is depicted in the figure below. Since there are no reliable external sources of information about the participation of companies in these industry tiers, or of the distribution of market share within a tier, survey respondents are asked to provide this information as part of their survey response. As survey information is gathered, and the tier identity and market share data are accumulated, an effort will be made to solicit survey input from members of each industry tier with relatively large market shares. This is an iterative process that relies on the judgment of the impact assessment analysts. The final report will indicate the extent to which, and the basis upon which, the conclusions presented can be considered representative of specific tiers or whether study conclusions are only applicable to larger industry segments (to be determined on the basis of actual responses) or the industry as a whole.



Because the issues being addressed by the overall study effort are of significant interest to this specific community; because the respondents are identified on the basis of their company's contributions to the FPD; and because the respondents contributions will be acknowledged in a final report that will be available to the community, we anticipate an overall response rate of 80% of ICDM members or better.

Responses to the survey instrument will be returned via email to the TASC analyst who initiates the survey process. Once responses are received, responses will be collected in a spreadsheet for further analysis and aggregation. Data specific to individual companies will only be available to TASC analysts assigned to the project and the NIST project lead. These data will not be reported or shared with others. To the extent that companies require it, TASC will sign non-disclosure agreements provided by the requesting companies. Experience indicates that non-disclosure agreements are required by a small minority of survey respondents but that it is not typically requested since the survey instrument indicates that information will only be reported in aggregate and no personal identifiable information (PII) is requested.

**4. Describe how the results of the survey will be analyzed and used to generalize the results to the entire customer population.**

The survey data will be used in a report containing estimates of the return on investment (ROI) to industry and NIST resource expenditures from two perspectives. Return on investment to industry will be assessed in terms of industry benefits in the form of transaction cost savings, technology transfer savings, education and training cost savings. These benefits will also be assessed counterfactually, as if NIST did not participate. Return on investment will also be assessed from the perspective of the efficiency of the standards development process. In addition to quantitative estimates used to calculate ROI, survey data will also be used to describe the qualitative benefits of NIST's participation in the standards development process.

The final impact assessment report will be freely available to the public and posted on NIST's website, in accordance with common practice.<sup>1</sup> Special announcements about its availability may be made by SSD through NIST's public affairs office but the specifics of this have not been determined as this time.

In previous assessments for NIST the contractor has been able to quantify uncertainty in the responses using a number of approaches. The simplest approach is to provide ranges of estimates across the types of respondents and incorporate within those estimates the range of uncertainty about the specific parameters the survey intends to estimate. The contractor will experiment with more sophisticated formal estimation techniques to the extent this is warranted, and that the data allow.

The survey response data will be "scaled up" on the basis of survey respondents' relative shares of worldwide and U.S. markets for each of the industry tiers in which respondents indicate they participate. In addition to self-reported market size and share estimates, independent historical market size and share data is available in previously published reports. Scaling will be accomplished using both sources. Economic impact will be reported in scaled and un-scaled form.

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1. See, [http://www.nist.gov/director/planning/impact\\_assessment.htm](http://www.nist.gov/director/planning/impact_assessment.htm)