

## Introduction

On behalf of the National Institute of Standards and Technology (NIST), Robert D. Niehaus, Inc. (RDN) is evaluating the potential benefits of the Standard for the Exchange of Product Model Data (STEP) in reducing interoperability costs associated with the exchange of product data. Interoperability problems arise when members of the supply chain create technical data using different design, manufacturing, engineering, or product data management (PDM) software applications. As a member of an industry that is actively involved in product design and engineering, you have unique insights into the product data exchange problem. The information you provide will help NIST better assess the benefits of STEP and the needs of this portion of the manufacturing sector, thereby allowing NIST to channel future investments towards projects that best meet those needs. The data from this questionnaire will be used to revise projections made in NIST Planning Report 02-5 (<http://www.nist.gov/director/planning/upload/report02-5.pdf>).

This questionnaire is confidential and voluntary. Please feel free to collaborate with your colleagues when answering these questions. No one outside of RDN, Inc. will see your personal or company information. RDN has partnered with a contractor, CIMdata, to distribute the survey. CIMdata will see the survey data but has no access to personal or company information. We need your help to make sure we have the very best information possible and greatly appreciate your time and efforts.

This collection of information contains Paperwork Reduction Act (PRA) requirements approved by the Office of Management and Budget (OMB). Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA unless that collection of information displays a currently valid OMB control number. Public reporting burden for this collection is estimated to be 60 minutes for this instrument, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed and completing and reviewing the collection of information. Send comments regarding this burden estimate or any aspect of this collection of information, including suggestions for reducing this burden, to the National Institute of Standards and Technology, Attn: Fred Proctor (frederick.proctor@nist.gov) and Robert Chapman (robert.chapman@nist.gov).

OMB Control No. 0693-0033

Expiration Date: 03/31/2015

## Company Identification

Please enter your contact information. Company information is used in aggregate only for data analysis purposes. We will not share your personal information or company information with anyone.

### \*1. Company Identification (All Fields Required)

<b>Name:</b>	<input type="text"/>
<b>Company:</b>	<input type="text"/>
<b>Title</b>	<input type="text"/>
<b>Address:</b>	<input type="text"/>
<b>City/Town:</b>	<input type="text"/>
<b>State:</b>	<input type="text"/>
<b>ZIP:</b>	<input type="text"/>
<b>Country:</b>	<input type="text"/>
<b>Email Address:</b>	<input type="text"/>
<b>Phone Number:</b>	<input type="text"/>

### \*2. Will the information in this questionnaire be specific to your division or the entire company?

- Division
- Company

### 3. Which of the following industries best describes your company (or division)? Please check all that apply.

- |   |   |
|---|---|
| <input type="checkbox"/> Aerospace            | <input type="checkbox"/> Computers & Peripherals              |
| <input type="checkbox"/> Automotive           | <input type="checkbox"/> Communication & Navigation Equipment |
| <input type="checkbox"/> Shipbuilding         | <input type="checkbox"/> Audio & Video Equipment              |
| <input type="checkbox"/> Specialty Tool & Die | <input type="checkbox"/> Semiconductors                       |

Other (please specify)

### \*4. On what level of the supply chain does your company (or division) primarily operate?

- Original Equipment Manufacturer (OEM)
- First-tier supplier
- Second-tier supplier

## Division Information

**5. If your answers to this questionnaire are specific to your division, approximately what percentage of your company's total design work or product exchange is associated with your division? (Please enter percentages between 0 and 100.)**

## Product Data Exchange Activity

### **6. In general, how does your company (or division) accomplish product data exchange with customers/suppliers? (Check all that apply.)**

- Share native CAD models with customer/supplier
- Share JT files with customer/supplier
- Share STEP files with customer/supplier
- Share 3D PDF files with customer/supplier
- Share IGES files with customer/supplier
- Share drawings with customer/supplier
- Other (please specify)

## Software Systems Support

This section explores your company's (or division's) investments in software systems to support your business relationships with customers and other suppliers.

**7. If your company (or division) maintains multiple software systems (such as Unigraphics, CATIA, ProE, AutoCAD, SolidWorks, etc.) to exchange product data with customers and/or suppliers, please list each CAD/CAM/CAE system name.**

Software System 1	<input type="text"/>
Software System 2	<input type="text"/>
Software System 3	<input type="text"/>
Software System 4	<input type="text"/>
Software System 5	<input type="text"/>
Software System 6	<input type="text"/>
Software System 7	<input type="text"/>
Software System 8	<input type="text"/>

**8. What is the total number of licenses/seats your company (or division) holds for each CAx software system?**

No. of licenses for Software System 1	<input type="text"/>
No. of licenses for Software System 2	<input type="text"/>
No. of licenses for Software System 3	<input type="text"/>
No. of licenses for Software System 4	<input type="text"/>
No. of licenses for Software System 5	<input type="text"/>
No. of licenses for Software System 6	<input type="text"/>
No. of licenses for Software System 7	<input type="text"/>
No. of licenses for Software System 8	<input type="text"/>

### **9. What is the average annual maintenance fee for a license (across all your CAx systems)?**

- < \$500 annually
- \$500 to \$1000 annually
- \$1000 to \$1500 annually
- \$1500 to \$2000 annually
- \$2000 to \$2500 annually
- \$2500 to \$3000 annually
- \$3000 to \$3500 annually
- \$3500 to \$4000 annually
- \$4000 to \$4500 annually
- \$4500 to \$5000 annually
- > \$5000 annually

## Design Staff

**10. How many dedicated CAD users are on staff at your company (or division)? What percentage of these users use more than one system?**

Staff:

Percentage (0 to 100):

**11. Of these users, what percent of their time is spent using their other systems as opposed to their primary system?**

Percentage of time:

**12. And how productive are these dedicated CAD users on their other systems relative to their primary system? For example, 70 percent as productive.**

Percentage (0 to 100):

**13. What is the estimated number of formal training hours your CAx users receive on non-primary systems?**

Hours



## IT Staff Supporting CAx Users

For the following three questions, please indicate your current IT staffing levels for the following positions:

- Computer and Network Administrators
- CAx Design Support Specialist (assist CAx designers with design issues and troubleshoot complications in the design process)
- CAx Software Support Specialist (assist CAx users with software issues)

Please also indicate the percent of these staff who support your secondary CAx systems as opposed to your primary CAx system. If you do not have a secondary CAx system, please estimate the additional staff that would be required to support a secondary system as a percent of your current staff.

### **14. Computer and Network Administrators:**

Current Staffing Level:

Percent of Staff

Supporting Secondary  
CAx Systems (0 to  
100):

### **15. Design Support Specialists:**

Current Staffing Level:

Percent of Staff

Supporting Secondary  
CAx Systems (0 to  
100):

### **16. Software Support Specialists:**

Current Staffing Level:

Percent of Staff

Supporting Secondary  
CAx Systems (0 to  
100):

## Product Data Management (PDM) or Product Lifecycle Management (PLM) Systems

**\*17. Does your company (or division) use a PDM or PLM system?**

Yes

No

## Product Data Management (PDM) or Product Lifecycle Management (PLM) Systems

**18. What type of file format(s) do you maintain in your PDM or PLM system? Select all that apply.**

- STEP
- JT
- 3D PDF
- IGES
- Native CAD

Other (please specify)

**19. Please estimate the total annual dollar amount you spend on moving between PDM or PLM systems.**

Annual Dollars

## Volume of Data Transfers

Approximately how many single files does your company (or division) transfer as part of internal and external data exchanges each month? Internal exchanges are defined as within the company, including interdivisional transfers, whereas external transfers would include exchange with suppliers and other OEMs. Your best estimate will suffice.

### 20. What is your company's (or division's) average monthly volume of internal and external data transfers (i.e. data translations)?

Total Monthly Internal Transfers

Total Monthly External Transfers

### 21. What percent of total INTERNAL file transfers use the following translation methods? (Your answers should sum to 100.)

STEP

IGES

JT

3D PDF

Point-to-Point translators

Other

### 22. What percent of total EXTERNAL file transfers use the following translation methods? (Your answers should sum to 100.)

STEP

IGES

JT

3D PDF

Point-to-Point translators

Other

## Data Transfers

**23. For each format, please estimate the average number of hours required to complete an internal/external file transfer.**

STEP	<input type="text"/>
IGES	<input type="text"/>
3D PDF	<input type="text"/>
JT	<input type="text"/>

**24. For each format, please estimate the percent of transfers that fail.**

STEP	<input type="text"/>
IGES	<input type="text"/>
3D PDF	<input type="text"/>
JT	<input type="text"/>

## Manual Reentry

If you manually reentered data from one CAD/CAM system to another to exchange product data with OEMs and/or suppliers, please help us calculate the cost of re-entry by providing your best estimate for the following questions.

**25. What is the total number of re-entry jobs per year needed to resolve translation problems? What is the average number of labor hours per re-entry job?**

Total number of jobs

Hours per job

**\*26. Has STEP reduced the amount of manual re-entry jobs associated with product data exchange within your company (or division)?**

- Yes
- No
- Don't know

## Manual Reentry

**27. By what percentage has STEP reduced the number of manual reentry jobs at your company (or division)? (Please enter percentages between 0 and 100.)**

Percentage (0 to 100)

## Manual Reentry

**28. If STEP has not reduced the number of manual re-entry jobs at your company (or division), why not?**



## Neutral File Formats

**29. In your opinion, which neutral file format is the most useful for your company's (or division's) needs? Please rank the following neutral file formats according to their usefulness (1=most useful, 4=least useful). The choices will automatically reorder to reflect your ranking.**

STEP

IGES

JT

3D PDF

**30. Please explain your ranking of neutral file formats.**

## Delay Costs

**31. How often do you experience delays in shipments to/from your supply chain due to interoperability issues, such as inaccurate or incomplete data transfers? For example, "once every three weeks" or "twice per year".**

**32. What is the average delay due to such interoperability problems to your overall project delivery schedule? For example, "three weeks" or "four months".**

**33. Do you incur extra costs as a result of these delays, such as contractual penalties? Please discuss.**

**34. What is the average maximum price per week you would be willing to pay to keep a project on schedule? How many projects do you typically have in a year?**

Total dollars per

project per week

Projects per year

## NIST's Role in the Development of STEP

NIST has been active in the development and promotion of STEP. The following questions are designed to elicit your understanding of the impact of NIST's activities.

### 35. Are you familiar with the following projects?

- CAx and PDM Implementor Forums
- STEP Certification Services
- AP 242 Development
- Semantic PMI Development
- CSI (customer/supplier interoperability)

### 36. Has NIST made contributions to the development of STEP that influenced the timing of your decision to adopt STEP or lowered the cost of adopting STEP? Please discuss.

## The Cost of Developing STEP Functionality

**37. Was your company involved in STEP's development? For example, participating in the ISO committee, AP working groups or STEP-focused organizations like PDES, Inc. If yes, what were your company's total expenditures on STEP research and development for each year? (Please answer in terms of total dollars. If you do not know expenditures for a particular year, please leave the year blank.)**

2002	<input type="text"/>
2003	<input type="text"/>
2004	<input type="text"/>
2005	<input type="text"/>
2006	<input type="text"/>
2007	<input type="text"/>
2008	<input type="text"/>
2009	<input type="text"/>
2010	<input type="text"/>
2011	<input type="text"/>
2012	<input type="text"/>
2013	<input type="text"/>

## STEP Use

**38. What percentage of time does your company (or division) spend working with STEP files as opposed to other formats, including native CAD? What was this percentage 5 years ago? 10 years ago? (Please enter percentages between 0 and 100.)**

Current Percentage

5 Years Ago   
(Percentage of Total)

10 Years Ago (Percent   
of Total)

**39. In what year did you first begin using STEP?**

**40. In that year, what was the cost of implementing STEP? Please answer as a percentage of per-unit production costs OR as a fixed dollar amount.**

Percentage (0 to 100)

Dollar Amount

## Comments

**41. Please provide any other comments about data exchange or your use of STEP.**

**42. We thank you for your participation. Please indicate below if you would like to receive an email with a link to the report once it is finalized.**

- Yes, please send an email
- No