

# Software Developer Questionnaire

## 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 for 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 the industry who produces the software used in the design operations of the industries we are investigating (transportation and electronics manufacturing), you have unique insights into the state of STEP incorporation in CAD/CAM/CAE or PDM software. 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.

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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 30 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).

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## 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/Division:</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. May we contact you if we have questions about your survey responses?

- Yes
- No

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## Customer Base

**3. Which of the following industries best describe your customers? 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                       |
| <input type="checkbox"/> Other (please specify) |   |

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### CAD/CAM/CAE or PDM Product Information

**4. Please list the CAD/CAM/CAE or Product Data Management (PDM) software packages and specialty products below that are used by your customer base. Please include your products as well as those of your competitors.**

- |   |  |                                    |
|---|--|------------------------------------|
| <input type="checkbox"/> Pro/ENGINEER/Creo      | <input type="checkbox"/> Mentor Graphics | <input type="checkbox"/> MasterCAM |
| <input type="checkbox"/> CATIA                  | <input type="checkbox"/> Zuken           | <input type="checkbox"/> GibbsCAM  |
| <input type="checkbox"/> NX                     | <input type="checkbox"/> Rhino           | <input type="checkbox"/> CAMWorks  |
| <input type="checkbox"/> Unigraphics            | <input type="checkbox"/> Alias           | <input type="checkbox"/> MATLAB    |
| <input type="checkbox"/> SolidWorks             | <input type="checkbox"/> SpaceClaim      | <input type="checkbox"/> Ansys     |
| <input type="checkbox"/> Inventor               | <input type="checkbox"/> TeamCenter      | <input type="checkbox"/> Nastran   |
| <input type="checkbox"/> AutoCAD                | <input type="checkbox"/> Windchill       |                                    |
| <input type="checkbox"/> Solid Edge             | <input type="checkbox"/> ENOVIA          |                                    |
| <input type="checkbox"/> Other (please specify) |  |                                    |

**\*5. Do the CAD/CAM/CAE or PDM software programs your firm markets offer STEP neutral format functionality?**

- Yes
- No

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## STEP Functionality

**6. What were the total expenditures to integrate STEP into your CAD/CAM/CAE or PDM systems? (For each year, please answer in terms of total dollars. If you cannot estimate the 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"/>

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### STEP Functionality

**7. If your products do not incorporate the STEP format (i.e. translator or import/export capability), why not? Do you plan on incorporating STEP in the future? Please explain.**

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## The Cost of Developing STEP Functionality

### 8. Was your company involved in STEP's development? If yes, please specify the research areas and the time frame for participation.

	Yes/No	Start Period	End Period
Standards development process (For example: attended meeting or reviewed draft standards)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Software development tools and testing tools (For example: supported the development of languages or libraries)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Demonstration and certification services (For example: participated in the CAx-IF project or other implementation forums)	<input type="text"/>	<input type="text"/>	<input type="text"/>



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**9. If you answered YES to any of the above, what were your approximate annual expenditures for those activities? Please indicate whether you are answering in terms of labor hours or total dollars, e.g. "\$100,000" or "500 hours". For reference, 1 employee working full-time on STEP development for 1 year is equivalent to 2080 hours.**

Standards

development process

(For example: attended meeting or reviewed draft standards)

Software development

tools and testing tools

(For example: supported the development of languages or libraries)

Demonstration and certification services

(For example: participated in CAx-IF or other implementation forums)

## Software Developer Questionnaire

### NIST's Activities

NIST has been active in the development and promotion of STEP in several ways: participation in the standards development process, development of software libraries and testing tools, demonstration of STEP capabilities, and provision of certification services.

**\*10. Are you aware of NIST's contributions to STEP's development?**

- Yes
- No

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## NIST's Impacts

In your opinion, which of the NIST contributions listed in the following table had an impact on the development of STEP?

Please check the boxes in the table below if NIST's contributions led to:

- A broader or more versatile STEP standard (quality improvement)
- Acceleration of the development or adoption of STEP, and/or
- Reductions in the cost of developing or adopting STEP

### 11. Standards Development

	Quality Improvements	Acceleration	Cost Reductions
Administrative Support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EXPRESS (ISO 10303-11)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AP 203, Configuration controlled 3D designs of mechanical parts and assemblies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AP 209, Composite and metallic structural analysis and related design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AP 210, Electronic assembly, interconnect and packaging design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AP 214, Core data for automotive mechanical design processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AP 227, Plant spatial configuration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AP 233, Systems engineering data representation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AP 238 - Application interpreted model for computer numeric controllers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
AP 239, Product life cycle support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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AP 242, Managed model based 3d engineering (under development – replaces AP203 and AP214)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Semantic PMI Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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## 12. Software Development and Testing Tools

	Quality Improvements	Acceleration	Cost Reductions
NIST EXPRESS Toolkit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP Class Library	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Espresso	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP File Checker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 13. Demonstration and Certification Services

	Quality Improvements	Acceleration	Cost Reductions
CAX Implementor Forums	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
STEP certification services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 14. How did you learn about NIST's contributions? In your view, what are NIST's most beneficial activities?

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### NIST's Impacts

**15. If one or more of NIST's activities led to cost reductions for your firm, what percentage do you estimate those reductions to be?**

**16. Has STEP helped your products penetrate foreign markets?**

- Yes
- No

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### NIST's Impacts

**\*17. Do you think that NIST's contributions accelerated your firm's adoption of STEP in your products?**

- YES (NIST accelerated your adoption of STEP)
- NO (NIST did not impact your adoption of STEP)

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### NIST's Impacts

**18. If YES, by how many years did NIST accelerate your adoption of STEP?**

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### Comments

**19. Please provide any additional comments that would help us evaluate the cost of integrating STEP into your CAD/CAM/CAE or PDM software products.**



## Software Developer Questionnaire

End of Questionnaire

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

- Yes, please send me an email
- No